SDMS Document
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Human Health Risk Assessment

Martin Aaron Superfund Site
Camden, New Jersey

Prepared for

U.S. Environmental Protection Agency
Region II

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1.0 Introduction

This document presents the Human Health Risk Assessment (HHRA) for the Martin Aaron property located in Camden, New Jersey. The report was prepared in accordance with the Risk Assessment Guidance for Superfund: Volume 1 - Human Health Evaluation Manual, (Part D Standardized Planning, Reporting, and Review of Superfund Risk Assessments) (RAGS Part D) (USEPA Publication 9285.7-47, December 2001) and includes RAGS Part D Standard Tables 1 through 10 (included in Appendix A), along with associated supporting documentation. RAGS Part D Standard Tables 1 through 6 were previously submitted to USEPA Region 2 as part of the Pathway Analysis Report (PAR). USEPA's comments on the PAR and information from subsequent discussions with USEPA's Risk Assessor, were incorporated into this risk assessment.

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2.0 Site Background

The Site is defined as Martin Aaron Inc. ("Martin Aaron" or "property") and additional properties within the area of investigation, including the South Jersey Port Corporation (SJPC) property located across South Broadway to the west, the Royal Crown Auto Center ("junkyard") located north of the Martin Aaron property, and the Comarco Products and row homes ("row homes/industrial area") to the south.

The 2.4-acre Martin Aaron property is located at 1542 South Broadway in the City of Camden, Camden County, New Jersey (Figure 6-1 and 6-2). The property is situated on relatively level land in an area of mixed industrial and residential zoned properties. The property is roughly rectangular with about 309 feet adjoining the east line of the South Broadway right-of-way and about 334 feet adjoining the west line of the Sixth Street right-of-way (Figure 6-1 and 6-2). Access to the Site is restricted by a chain-linked fence with two locked gates.

There are approximately 450,000 residents within 4 miles of the property. Various companies, including Martin Aaron, Inc., used the property for drum recycling for approximately 30 years, until 1998. Prior to that, a tannery was operated at the property by Kifferty Morocco Manufacturing Company from 1887 until 1908, and glazed leathers were manufactured at the property by Castle Kid Company from 1908 until 1940. In 1940, The property was leased to H. Preston Lowden Company (Preston) and American Chain and Cable Company - Pa. Lawn Mower Division (AC&C). Preston leased building space in the southwest corner of the property and operated a hair and wool blending business. AC&C leased building space in the southeast corner of the property, and used it for the physical plant area of its manufacturing facility. Martin Aaron, Incorporated (Martin Aaron) purchased the property from Benjamin Schmerling in 1969, and is currently is the owner of record. From 1969 to 1985, Martin Aaron operated a drum recycling business under the name Drum Services of Camden. In 1985 the business was sold to a corporation jointly run by Westfall Ace Drum Company (Wadco) and Rhodes Drum Incorporated (Rhodes), two major clients of the former Drum Services of Camden.

The only remaining surficial structure at the Site is located in the southeastern portion of the lot (Figure 6-1 and 6-2). Prior to the demolition of on-site building, the Site consisted of a main building, formerly located at the southwestern portion of the property, and the current building which were both used for drum recycling and reconditioning operations. Three underground storage tanks (USTs) were located in the processing area just north of the main building, and one UST was located east of the main building. Five aboveground storage tanks (ASTs) were also present when the site was in operation. The concrete floor of the former building contained a number of floor drains that led to three former settling basins. According to former operators, all three basins reportedly received drum rinsate, and discharged to the Camden County Municipal Utility Authority (CCMUA) sanitary sewer system. The actual destination of discharge for basins 2 and 3 remains unknown. One processing vessel and a single skimming basin (basin 4) were located near the east end of the building. This basin received drum rinsate effluent from Rhodes Drum Company

operations and discharged to the CCMUA sanitary sewer system, following pre-treatment activities. One of the ASTs was located adjacent to Basin 4. The remaining portions of the Site were historically used for drum storage, and consist of paved and unpaved surfaces.

An additional property of concern is located west of the Martin Aaron Site, at 1535 South Broadway Street (Lot 15, Block 458), and is owned by the South Jersey Port Corporation (SJPC). The SJPC property was formerly leased to Wadco, which used it for office space and drum receiving/sorting. Three commercial buildings occupy the SJPC lot, with the remaining acreage consisting of paved and unpaved lots (Figure 6-1 and 6-2) Access to this property is also restricted by a chain-link fence and locked gate. A junkyard (Lots 10 and 4) is located north of the Martin Aaron property (on Everett Street between Broadway and Sixth Street), and row homes and an industrial facility (a food processing company, Comarco Products) is located immediately to the south. These properties were also included in the Remedial Investigation.

The aquifer of concern and the most productive source of groundwater in Camden is the Potomac-Raritan-Magothy (PRM) aquifer system, which consists of three unconsolidated water bearing units. There is hydraulic interconnection vertically throughout the PRM aquifer system in the Camden area. Public supply wells tapping the PRM aquifer system within 4 miles of the property provide water to approximately 105,000 persons. The nearest of these wells is a Camden City well located approximately 1.75 miles to the east-northeast and side-gradient to the site.

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3.0 Conceptual Model

The conceptual site model (CSM) presents an overview of property conditions, potential contaminant migration pathways, and potential exposure pathways to potential receptors. Figure 6-3 presents the CSM developed for the Martin Aaron property. Table 1 in Appendix H-1 summarizes the potential exposure pathways and scenarios that were evaluated as part of the risk assessment.

As shown on Figure 6-3 potential sources at the Martin Aaron site include drum recycling areas, including processing rooms where drums were drained, pressure-washed, and rinsed, sewer basins that collected residue from the drum recycling, baghouse dust from drum sandblasting and a paint booth; above ground and underground storage tanks (AST/UST), and drum storage which included leaking roll-off containers and drums. These releases are likely to have resulted in the contamination currently found in soil (both surface and subsurface) and groundwater (from leaching from the soil to the groundwater). Groundwater at the site is occurs in the upper PRM aquifer (shallow, intermediate, and regional wells) and the middle PRM aquifer (deep wells) and shown on Figure 6-2.

Potential current and future receptors include industrial property workers, trespassers/visitors, construction workers, and residents. These receptors may contact the contamination found in the soil and/or groundwater at the site through ingestion, dermal absorption, and/or inhalation.

4.0 Scope of Human Health Risk Assessment

The primary objective of this human health risk assessment is to assess the potential current and future health risks from the contamination present at and migrating from the Martin Aaron property, in the absence of a remedial action at the property. The risk assessment is comprised of the following components:

- **Identification of Chemicals of Potential Concern** – Identification of the contaminants found onsite and selection of the chemicals of potential concern (COPCs). COPCs represent that subset of the chemicals found at the site, which is expected to contribute the most to the total risks associated with the site.
- **Exposure Assessment** – Identification of the potential pathways of human exposure, and estimation of the magnitude, frequency, and duration of these exposures.
- **Toxicity Assessment** – Assessment of the potential adverse effects of the COPCs and compilation of the toxicity values used for developing numerical risk estimates.
- **Risk Characterization** – Integration of the results of the exposure and toxicity assessments to develop numerical estimates of health risks, and characterize the potential health risks associated with potential exposure to site-related contamination.
- **Uncertainty Assessment** – Identification and discussion of sources of uncertainty in the risk assessment.

The risk assessment is based on the following major assumptions:

- No remedial action is implemented at the property.
- Contaminant concentrations remain constant over the exposure periods evaluated in the risk assessment.

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5.0 Identification of COPCs

The identification of COPCs includes data collection, data evaluation, and data screening in order to identify those chemicals, which would contribute the most to the total risks associated with the site.

The data collection and evaluation involve gathering and reviewing the site information obtained during the remedial investigation and developing a set of data that is of acceptable quality for the purpose of conducting a risk assessment. Once the data collection and evaluation are completed, the established data set is further screened in order to focus the risk assessment efforts on the contaminants that need to be evaluated quantitatively in the risk assessment (data screening).

Subsection 6.4.1 describes the data collected during this remedial investigation, its quality, and its use for the purpose of assessing the health risks associated with the site. Subsection 6.4.2 discusses how the available data is screened in order to focus the risk assessment efforts on the constituents and media that present the primary human health concerns. Subsection 6.4.3 identifies the COPCs, whose risks were quantitatively assessed in the risk assessment.

5.1 Data Summary

This risk assessment used only analytical data collected during this remedial investigation. All data used in the risk assessment have been validated in accordance with the following quality assurance/quality control (QA/QC) requirements: USEPA Region II Data Validation SOP for Statement of Work OLM04.2 (SOP HW-6 (Revision 12) March 2001) for validating organic data, and USEPA Evaluation of Metals Data for the Contract Laboratory Program (SOP HW-2 (Revision 11) January 1992) for validating metals data. The quality of the data used in this risk assessment is described in the Data Usability Worksheets for groundwater and soil included as Appendix B of this HHRA.

Table 6-1 lists the samples that were included in the risk assessment. These data are discussed in the following paragraphs.

5.1.1 Surface Soil Surface soil samples were collected from the upper six inches of soil. Asphalt and concrete were not collected as part of the surface soil sample. At several locations the upper six inches of material consisted mainly of asphalt and/or concrete. At these locations the sample was collected from the soil immediately beneath the concrete or asphalt material. The surface soil samples were analyzed by an USEPA Region II CLP laboratory for TCL VOCs, SVOCs, and pesticides/PCBs, and TAL Metals.

The minimum and maximum detected concentrations and the locations of the maximum detected concentrations are shown in Tables 2.1, 2.2, 2.3 and 2.4 in Appendix A.

5.1.2 Subsurface SoilUnsaturated and Saturated Soils

The subsurface unsaturated soil samples were analyzed by an USEPA Region II CLP laboratory for TCL VOCs, SVOCs, and pesticides/PCBs, and TAL Metals. Four soil samples were collected from the shallow zone (15-20 feet bgs). Seven soil samples were collected from the base of the upper aquifer (55-65 feet bgs). Four soil samples were collected from the clay underlying the upper aquifer (great than 65 feet bgs). These soil samples were submitted for analysis of total organic carbon (TOC), porosity, moisture content, pH, grain size and bulk density. The minimum and maximum detected concentrations and the locations of the maximum detected concentrations are shown in Tables 2.5 through 2.8 in Appendix A.

GroundwaterA total of 24 groundwater monitoring wells were installed at 11 location to evaluate the hydrogeologic conditions and groundwater quality beneath the site. The main aquifer beneath the site is known as the Potomac-Raritan-Magothy (PRM) aquifer system. The 24 newly installed monitoring wells consisted of 11 "shallow" wells completed near the top of the upper aquifer, three "regional" wells completed at the bottom of the upper aquifer, 7 "intermediate" wells completed near the bottom of the upper aquifer, and three "deep" wells completed near the middle aquifer. Prior to the start of groundwater sampling activities, the previously installed monitoring wells were located and evaluated to determine whether they could be sampled as part of the groundwater sampling program. Of the 13 known existing monitoring wells, 10 were found..

The collected groundwater samples were submitted for laboratory analysis of TCL VOCs, SVOCs, pesticides/PCBs, Cyanide and for TAL filtered (dissolved) metals and unfiltered (total) metals. In addition, the groundwater samples from the monitoring well were submitted for laboratory analysis of selected natural attenuation parameters (parameters selected from Table 2.3 of USEPA's Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater, 1998). However, the natural attenuation parameters were not evaluated in the human health risk assessment. The minimum and maximum detected concentrations and the locations of the maximum detected concentrations are shown in Tables 2.9 and 2.10 in Appendix A.

5.2 Selection of COPCs

The methodology used to select the COPCs for quantitative evaluation in the human health risk assessment is outlined below:

- Surface and subsurface soil data were compared to the USEPA Region 9 Preliminary Remediation Goals (PRGs) for residential exposure to soil (USEPA, October 2002). PRGs that are based on the chemical's non-carcinogenic effects were divided by 10 to account for potential exposure to multiple constituents. PRGs that are based on carcinogenic effects were used without any adjustment because the target carcinogenic risk used in the PRG calculations is at the protective end of the acceptable risk range. Constituents whose maximum detected concentration is below the PRG were not retained as COPCs.
- Groundwater data were compared to the USEPA Region 9 PRGs for tap water (USEPA, October 2002). PRGs that are based on non-carcinogenic effects were divided by 10 to account for exposure to multiple constituents. PRGs that are based on carcinogenic

effects were used without any adjustment. Constituents whose maximum detected concentration is below the PRG were not retained as COPCs.

- Essential human nutrients (calcium, magnesium, potassium, and sodium), which are toxic at concentrations significantly higher than those found in onsite soil and groundwater, whose concentrations in onsite soil and groundwater are only slightly higher than the concentrations at which they occur naturally in New Jersey soil, were not retained as COPCs.
- USEPA has determined that it is appropriate to evaluate lead toxicity using the Integrated Exposure Uptake and Biokinetic model in place of oral Reference Doses (RfDs), Reference Concentrations (RfCs), and inhalation and oral Unit Risk Factors. USEPA has presented guidance on evaluating lead concentrations in both soil and water. Lead concentrations less than 0.015 mg/L in groundwater (the Safe Drinking Water Act action level for lead in potable water) and less than 400 mg/kg in soil (USEPA, July 1994) are considered adequately protective of human health under residential land-use conditions. Exceeding these values prompts further evaluation to assess the potential for human health impacts.
- Several of the constituents found at the Martin Aaron property do not have established USEPA Region 9 PRGs. In these cases, the PRG values for surrogate constituents were selected with guidance from the National Center for Environmental Assessment (NCEA) and used to determine if these compounds should be retained as COPCs. The constituents with no established PRGs, and the PRGs for the surrogate constituents used in this risk assessment, are identified in Tables 2.1 through 2.11 included in Appendix A.

5.3 Summary of COPCs

Table 2 identifies the COPCs selected for each media and data groupings at the Martin Aaron site based on the screening methodology presented in Section 5.2 of the RI. The COPCs for soil are generally metals, pesticides, PCBs, PAHs, and VOCs. The COPCs for groundwater are generally metals, pesticides, and VOCs.

Background data were not used to select the COPCs. Therefore, some of the constituents retained as COPCs, particularly the metals, may be present in the site media at concentrations consistent with background conditions.

6.0 Exposure Assessment

Exposure assessment is the estimation of the likelihood, magnitude, frequency, duration, and routes of potential exposure to a chemical. Exposure refers to the potential contact of an individual (or receptor) with a chemical. Exposure can occur when contaminants migrate from a source to an exposure point, or when a receptor comes into direct contact with contaminated media.

The three components of exposure assessment include:

- Characterization of exposure setting
- Identification of exposure pathways
- Quantification of exposure

6.1 Characterization of Exposure Setting

Characterization of exposure setting consists of two parts: (1) characterization of the site with respect to its physical characteristics, and (2) characterization of the site with respect to human populations at or near the site.

6.1.1 Physical Setting

The Martin Aaron site is currently an inactive facility located in a mixed-use area (residential, industrial, and commercial properties). Commercial and industrial properties are located to its north, south, east, and west and residential properties are located to its north and south. Within 4 miles of the site, more than 105,000 people obtain drinking water from public supply wells withdrawing water from the PRM aquifer system. The nearest well is a Camden City well located approximately 1.75 miles east-northeast of the site. Current site zoning is for light commercial uses for the Martin Aaron property and SJPC property. The row homes/industrial area to the south and the junkyard to the north are mixed areas (residential and commercial/industrial.

6.1.2 Potentially Exposed Populations

While the Martin Aaron property is currently inactive, public access to the site is not restricted. Therefore, workers at the adjoining properties (there are operating business adjacent to the Martin Aaron property and the South Jersey Port Corporation property), and adolescent trespassers/visitors (aged 9 to 18 years old) from the nearby residential and commercial properties may access the site and represent potential current receptors to the chemicals found in unpaved surface soil.

Based on its current zoning, future use of the Martin Aaron property and SJPC property would most likely continue to be light industrial or commercial. In the event that the property zoning is changed, the site may be developed for residential use, which would result in greater future exposure to site media. Based on this, future exposed populations may include the construction workers involved in the re-development of the property, full-

time industrial workers if the property is used for light industrial / commercial activity, trespassers/visitors, and residents if the property is developed for residential use.

Potential receptors at the Martin Aaron property, SPJC property, row homes/industrial area, and junkyard property and included in Table 3.

Both municipal and industrial wells screen the Upper and Middle PRM Aquifer within a one mile radius of the site. As the City of Camden infrastructure, and local businesses, are in generally poor state of repair, the current operational status of these wells is unknown.

As stated in the Executive Summary of the RI, groundwater is not used as a drinking water source at Martin Aaron, the surrounding properties, or SJPC property. Camden County Municipal Utility Authority (CCMUA) provides drinking water to the City of Camden using water supply wells which draw water from the PRM Aquifer System. CCMUA provides drinking water to approximately 105,000 people within four miles of the Martin Aaron site. The nearest CCMUA well is approximately 1.75 miles to the east-northeast of the Site. This well (City Well 7) is used as an emergency water supply well only and was not in use during the RI. However, this well was sampled as part of the RI in July and September 2002 for VOC, SVOCs, metals, pesticides/PCBs. As shown on Table 5-20 of the RI, there were only two compounds detected in this well above screening levels (iron and manganese). There were no detections of SVOCs, pesticides, or PCBs above screening levels in water samples collected from Well 7. Therefore, the Martin Aaron site does not impact the CCMUA water supply wells.

The Upper and Middle PRM Aquifers are major water supply aquifers in Camden County and throughout New Jersey. Both units are classified as Class 2A. Therefore, future use of groundwater as a potable water source was evaluated.

6.2 Identification of Exposure Pathways

An exposure pathway may be described as the physical course that a COPC takes from the point of release to a receptor. To be complete, an exposure pathway must have all of the following components present:

- A source
- A mechanism of a chemical release and transport
- An environmental transport medium
- An exposure point (receptor location)
- An exposure route (inhalation, dermal absorption, ingestion)
- A receptor or exposed population

In the absence of any one of these components, an exposure pathway is considered incomplete and, by definition, there is no risk or hazard. In some cases, a receptor may contact a source directly, eliminating the release and transport pathways.

The potential exposure pathways for Martin Aaron were identified in the CSM (Figure 6-3) and Appendix A , Table 1, and are shown in Table 3.

6.2.1 Contaminant Sources

The main sources of the contamination at the Martin Aaron property appear to be the sewer basins and the soils beneath the site in the areas that were used for drum storage. Volatile organic compounds (VOCs), semivolatile organic compounds (SVOC's), pesticides and polychlorinated biphenyls (PCBs), and inorganic constituents were found in property sewer basins and in soil and groundwater from areas where contaminated drums were allegedly stored on the Martin Aaron property. Spills and leaks may have occurred in these drum storage areas resulting in contamination of the soils and groundwater.

6.2.2 Release and Transport Mechanisms

The primary contaminant release and transport mechanism at the Martin Aaron property appears to be the release of contaminants in the sewer basins and at the materials handling and drum storage areas, their leaching from the soil in these areas to the groundwater, and their transport in the groundwater.

6.2.3 Exposure Points and Exposure Routes

Exposure points are the locations where humans could contact site-related contamination. Exposure points onsite include the surface and subsurface soil at the Martin Aaron site and the groundwater beneath the site.

Table 3 lists the exposure routes that were evaluated in the risk assessment. Table 1, Appendix A, lists all of the exposure pathways that were considered, and presents the rational for either evaluating or not evaluating each exposure pathway.

As shown in Table 1, Appendix A, groundwater at the site is not currently used for potable water supply. However, because groundwater is used for potable supply in the City of Camden, as well as in the surrounding communities, this risk assessment evaluates the risks associated with future potable use of the groundwater at the site. Specifically, the risk assessment evaluates future adult residential exposures to onsite groundwater through ingestion and showering (inhalation and dermal contact) and future child residential exposures through ingestion and bathing (inhalation and dermal contact). The risk assessment also assumes that in a future industrial or commercial use of the site, groundwater beneath the site will be used to supply water to the facility, thus resulting in exposures of the industrial workers through ingestion and showering.

A composite confining bed of several thin, continuous clay beds separate the Upper and Middle PRM aquifers. Although individual clay units are around ten feet thick, the total thickness of several stacked units is nearly 25 feet. Aquifer testing in the area indicates that the Upper and Middle PRM aquifers are not hydraulically connected. Pumping in one of the aquifer units does not cause draw-down in the other unit. Since the two units are not hydraulically connected, they were addressed as two separate exposure areas in the HHRA.

Current/future industrial workers and adolescent trespasser/visitors (aged 9 to 18 years old) may be exposed to unpaved surface soil through incidental ingestion, dermal contact, and inhalation of volatile and fugitive emissions from soil at the Martin Aaron property. Although, there are currently no industrial workers who are at the on a daily basis, the risk

assessment assumes that an industrial worker could be at the site on a daily basis in the future if the site becomes active for industrial / commercial purposes.

The risk assessment also considers the possibility that the site zoning may be changed in the future and the site developed for residential use , which would result in adult and child residents to be potential receptors to soil contamination. During any future construction activities, construction workers could also be exposed to the soil. Both exposures to surface soil (from zero to 2 feet) and subsurface soil (from zero to 10 feet) were evaluated for the future construction workers and residents. The potential exposure pathways include incidental ingestion, dermal contact, and inhalation of VOCs and fugitive dust emissions from surface and subsurface soil.

In summary, the pathways which were evaluated under the current land use scenario include:

- Adult Industrial Worker: incidental ingestion, dermal absorption, and inhalation of VOCs and fugitive emissions from surface soil; incidental ingestion and dermal absorption of potentially contaminated dust and soil. (Martin Aaron property)
- Adolescent Trespasser/Visitor: incidental ingestion, dermal absorption, and inhalation of VOCs and fugitive emissions from unpaved surface soil. (Martin Aaron property and SJPC property)

Under the future land-use scenario, the exposure pathways include the exposure pathways under the current land use scenario and the following additional pathways:

- Adult and Child Residents: incidental ingestion, dermal absorption, and inhalation of VOCs and fugitive emissions from surface and subsurface soil. (Martin Aaron property, SJPC property, junkyard, and row homes/industrial area)
- Adult Construction Worker: incidental ingestion, dermal absorption, and inhalation of VOCs and fugitive emissions from surface and subsurface soil. (Martin Aaron property, SJPC property, junkyard, and row homes/industrial area)
- Adult Resident: ingestion of groundwater and inhalation and dermal absorption while showering. (Martin Aaron property and SJPC property)
- Child Resident: ingestion of groundwater and dermal absorption while bathing. (Martin Aaron property and SJPC property)
- Adult Industrial Worker: ingestion of groundwater. (Martin Aaron property and SJPC property)

An air pathway analysis (Appendix C) was performed for the Martin Aaron site. The air pathway analysis addresses the following topics:

- Identification of air exposure pathways
- Identification of chemicals of potential concern (COPCs) for air exposure pathways
- Qualitative evaluation of indoor air from emissions of chemicals in soil and groundwater

- Estimation of concentrations in outdoor air from emissions of chemicals in soil
- Estimation of concentrations in outdoor air from emissions from VOCs in soil and groundwater during excavation activities

6.3 Quantification of Exposure

Quantification of exposure involves estimating the exposure point concentration and chemical intake.

6.3.1 Exposure Concentrations

The exposure point concentration is the concentration at the point of contact. Exposure point concentrations may be measured directly (i.e., surface soil concentration) or calculated using fate and transport models. The fate and transport modeling conducted for the Martin Aaron risk assessment included estimating fugitive dust and volatile emissions from soil to air, estimating volatile emissions from groundwater to air while showering, estimating volatile emissions from groundwater to air in an open excavation, and estimating volatile emissions from groundwater/soil through building foundation into indoor air. Fugitive dust and volatile emissions from soil were estimated following USEPA's Soil Screening Guidance (USEPA, April 1996). Volatile emissions from groundwater during showering were estimated using the Schaum model as modified by Andelman. Volatile emissions from groundwater in an open excavation were estimated using USEPA's *"Estimation of Air Impacts from Excavation of Contaminated Soil"* (USEPA, 1992). Volatile emissions from groundwater/soil to indoor air were evaluated qualitatively, and are discussed in Appendix C.

Tables 3.1 through 3.10in Appendix A list the exposure point concentrations for the COPCs.

The exposure point concentrations were calculated as the 95 percent upper confidence limit (95%.UCL), the 97.5% UCL, or the 99% UCL of the arithmetic mean concentration. The maximum detected concentration was used in place of the appropriate UCL as the exposure point concentration when the calculated UCL was greater than the maximum detected value or less than ten samples were available for the data grouping.

ProUCL, Version 2.1 (USEPA, April 2002), was used to calculate the UCLs and determine the distribution the data fit. The ProUCL model uses the Shapiro-Wilk W-test to determine if the data fit a lognormal or normal distribution for data sets with less than 50 samples. The distribution that the data fit is then used to chose the method that ProUCL uses to calculate the UCL. For data that were determined to fit a normal distribution, the student's t-statistic was used to calculate the 95% UCL. For data determined to fit a lognormal distribution, either Land's H-statistic was used to calculate the 95% UCL, or the Chebyshev Theorem using the *MVUE* of the parameters was used to calculate the 95% UCL or 99% UCL, depending on the standard deviation of the data set. For data that fit neither a lognormal or normal distribution, the Chebyshev Theorem using the sample arithmetic mean and standard deviation was used to calculate the 95% UCL, 97.5% UCL, or 99% UCL, depending on the standard deviation of the data set. The recommendations outlined in the ProUCL model documentation were used to select the appropriate UCL. The recommendations from the ProUCL model documentation are included in Appendix D.

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For data sets that fit both a lognormal and normal distribution, the distribution with the higher W-value was used to calculate the 95% UCL.

In calculating the exposure point concentrations, the qualified data were used as followed:

- Estimated values flagged with a J qualifier were treated as detected concentrations.
- Data qualified with an "R" (rejected) were not used in the risk assessment.
- Inorganic data qualified with a "B" were treated as unqualified detected concentrations.
- For duplicate samples, the mean of the two concentrations was used as the sample concentration.
- One-half of the sample quantitation limit (SQL) was used as the sample concentration for calculating the exposure point concentration for cases where no detectable contaminant quantities were found in the sample.

6.3.2 Estimation of Chemical Intakes

The quantification of exposure is based on an estimate of the chronic daily intake, the average amount of the chemical contaminant entering the receptor's body per day. Chemical intakes are generally expressed as follows:

$$CDI = \frac{C \times CR \times EF \times ED}{BW \times AT}$$

Where:

CDI = chronic daily intake (mg/kg-day)
C = chemical concentration (mg/L, mg/kg)
CR = contact rate (L/day, mg/day)
EF = exposure frequency (days/year)
ED = exposure duration (years)
BW = body weight (kg)
AT = averaging time (days)

The intake equation requires exposure parameters that are specific to each exposure pathway. Many of the exposure parameters have default values, which were used for this assessment. These assumptions, based on estimates of body weights, media intake levels, and exposure frequencies and duration, are provided in USEPA guidance. Other assumptions (e.g., for the trespasser/visitor scenarios) required consideration of location-specific information and were determined using professional judgment. Both RME and CTE exposure parameters were compiled. CTE risks were only calculated for scenarios where the RME risk is greater than USEPA's non-carcinogenic hazard or carcinogenic risk target levels(HI>1, and cancer risk>10^{-4}). Tables 4.1.RME (and CTE) through 4.10.RME (and CTE) in Appendix A identify the exposure parameters and intake equations for each of the scenarios that were evaluated in the risk assessment.

Additional calculated values are included in Appendix A and include Table 4.11 which provides the derivation of body weight for the adolescent trespasser/visitor and Table 4.12 which has the site-specific derivation of the permissible exposure factor (PEF).

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A dermal absorption factor is required for the dermal exposure to soil pathway. The chemical specific dermal absorption factors that were used for this evaluation are those presented in USEPA RAGS, Volume 1, Part E, Supplemental Guidance for Dermal Risk Assessment (USEPA, 2001), Exhibit 3-4. Dermal exposure to constituents not included in this reference were evaluated qualitatively in the uncertainty assessment. There are no values for volatile organic compounds since it is assumed that these compounds would volatilize from the soil on the skin, and will be accounted for via the inhalation route.

The methods presented in USEPA *RAGS, Volume 1, Part E, Supplemental Guidance for Dermal Risk Assessment* (USEPA, 2001), for estimating dermal exposure to water were used to evaluate dermal exposure to groundwater. For dermal exposure to groundwater during bathing and showering, the non-steady state model or pseudo steady-state model was used to estimate the dermally absorbed dose per event for organic constituents (USEPA, 2001). If the exposure time (or event time, t_{event}) is shorter than the time to reach steady-state (t*), the non-steady state model was used. If t_{event} is greater than t*, the pseudo-steady state model was used. For inorganics, the absorbed dose was calculated using a steady-state approach. These models are shown here and in Tables 4.5.RME and 4.5.CTE in Appendix A.

For organics, the following equations were used to calculate the dermally absorbed dose per event:

If $t_{event} < t^*$, then $$DAevent = 2 \times FA \times Kp \times Cw \times CF1 \times CF2 \times \sqrt{\frac{6 \times \tau \times tevent}{\pi}}$$

If t event > t*,

then $$DAevent = FA \times Kp \times Cw \times CF1 \times CF2 \times \left[\frac{tevent}{1+B} + 2 \times \tau \times \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right]$$

Where,

t_{event} = duration of event (hr/event)
t* = time it takes to reach steady-state conditions (hr)
FA = fraction absorbed water (dimensionless)
Kp = permeability coefficient from water through skin (cm/hr)
Cw = concentration of chemical in water (mg/L)
τ = lag time (hr/event)
π = constant (dimensionless, equal = 3.14159)
CF1 = conversion factor (0.001 L/cm^3)
CF2 = conversion factor (0.001 mg/ug)
B = partitioning constant derived by Bunge Model (dimensionless)

Values for the chemical-specific parameters (tevent, t* , Kp, τ , and B) were obtained from the USEPA's *RAGS, Volume 1, Part E, Supplemental Guidance for Dermal Risk Assessment* (USEPA, 2001).

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The following steady-state equation was used to estimate DAevent for inorganics:

$$DAevent = Kp \times Cw \times tevent \times CF1 \times CF2$$

The maximum detected concentration of lead in the surface soil and the subsurface soil in all of the data groupings exceeds the residential lead soil screening level of 400 mg/kg, and therefore, lead was retained as a COPC for surface soil and subsurface soil. The maximum detected concentration of lead in groundwater was below the Safe Drinking Water Act action level for lead. Risks associated with lead in surface soil and subsurface soil were evaluated using USEPA's Integrated Exposure-Uptake Biokinetic (IEUBK) Model and USEPA's adult lead model (Appendix E).

The construction worker exposure to soil and groundwater from an excavation was evaluated using a model to estimate emission rates (USEPA, 1992). The model is presented in Appendix C.

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7.0 Toxicity Assessment

The toxicity assessment weighs the available evidence regarding the potential for a particular chemical to cause adverse effects in exposed individuals and provides a numerical estimate of the relationship between the extent of exposure and possible severity of adverse effects. The toxicity assessment consists of two steps: hazard identification and dose-response assessment. Hazard identification is the process of determining the potential adverse effects from exposure to a chemical. Dose-response assessment is the process of quantitatively evaluating the toxicity information and characterizing the relationship between the dose of the contaminant administered or received and the incidence of adverse health effects in the exposed population. From this quantitative dose-response relationship, toxicity values (e.g., reference doses [RfDs] and cancer slope factors [CSFs]) are derived.

The hierarchy presented by USEPA in OSWER Directive 9285.7-53, "Human Health Toxicity Values in Superfund Risk Assessments" (USEPA, 2003) outlines using the toxicity information and toxicity values in the Integrated Risk Information System (IRIS, USEPA, January 2004) as Tier 1, Provisional Peer Reviewed Toxicity Values (PPRTVs) from the Office of Research and Development/National Center for Environmental Assessment/Superfund Health Risk Technical Support Center (STSC) as Tier 2, and additional USEPA and non-USEPA sources of toxicity information as Tier 3. NCEA develops subchronic RfDs for exposures ranging from 2 weeks to 7 years. This hierarchy was followed in selecting the toxicity values used in the human health risk assessment.

Health effects are divided into two broad groups: non-carcinogenic and carcinogenic effects. This division is based on the different mechanisms of action currently associated with each category. Chemicals causing non-carcinogenic health effects were evaluated independently from those having carcinogenic effects. Some chemicals may produce both non-carcinogenic and carcinogenic effects, and were evaluated in both groups. This section discusses both non-carcinogenic and carcinogenic effects separately.

7.1 Toxicity Information for Non-carcinogenic Effects

Non-carcinogenic health effects include a variety of toxic effects on body systems, ranging from renal toxicity (toxicity to the kidneys) to central nervous system disorders. Non-carcinogenic health effects are grouped into two basic categories: acute toxicity and chronic toxicity. Acute toxicity can occur after a single exposure (usually at high doses), and the effect is most often seen immediately. Chronic toxicity describes effects that occur after repeated exposure (usually at low doses) and is seen weeks, months, or years after the initial exposure. The toxicity of a chemical is assessed through a review of toxic effects noted in short-term (acute) animal studies, long-term (chronic) animal studies, and epidemiological investigations.

USEPA (USEPA, December 1989) defines the chronic RfD as an estimate of a daily exposure to the human population, including sensitive subpopulations, which is likely to be without appreciable risk of deleterious effects during a lifetime. Chronic RfDs are developed to be

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protective for long-term exposure to a compound (7 years to a lifetime). Chronic RfDs may be overly protective if used to evaluate the potential for adverse health effects resulting from short-term exposure. NCEA develops subchronic RfDs for short-term exposure (2 weeks to 7 years). Subchronic RfDs have been peer-reviewed by Agency and outside reviewers, but they have not undergone verification by an intra-Agency workgroup, and as a result are considered interim rather than verified toxicity values. Chronic and subchronic RfDs are developed for both inhalation and oral exposures. Chronic RfDs were used to evaluate the non-carcinogenic risks to all potential receptors except the construction worker and child resident. Subchronic RfDs were used to evaluate the non-carcinogenic risks to the construction worker and child resident. If a subchronic RfD was not available, the chronic RfD was used.

In the development of RfDs, all available studies examining the toxicity of a chemical following exposure are considered based on their scientific merit. The lowest dose level at which a toxic effect is observed is identified as the "lowest-observed-adverse-effect-level" (LOAEL) and the dose at which no effect is observed is identified as the "no-observed-adverse-effect-level" (NOAEL). Several uncertainty factors (UFs) are applied to the LOAEL or NOAEL to extrapolate these dose points to humans. These UFs range between 10 to 10,000. Additional modification factors (MFs) also are used based on the professional judgment of USEPA.

USEPA-derived oral and inhalation chronic and subchronic RfDs, and associated UFs and MFs, for the COPCs are listed in Tables 5.1 and 5.2 in Appendix A.

7.2 Toxicity Information for Carcinogenic Effects

Potential carcinogenic effects from human exposure to chemicals are estimated quantitatively using oral and inhalation CSFs. CSFs may be derived from the results of chronic animal bioassays, human epidemiological studies, or both. Animal bioassays are usually conducted at dose levels that are much higher than levels likely to be produced by human exposure to environmental media. This extrapolation detects possible adverse effects in the relatively small test populations used in the studies. These high dose levels must be extrapolated to lower doses. A number of mathematical models and procedures have been developed to extrapolate from the high doses used in the studies to the low doses typically associated with environmental exposures.

The USEPA-preferred linearized multistage model is usually used to estimate the largest linear slope (within the 95% UCL) at low extrapolated doses that is consistent with the data. The 95% UCL slope of the dose-response curve is subjected to various adjustments, including an inter-species scaling factor, to derive a CSF. It is assumed that if a cancer response occurs at the dose level in the study, there is some probability that a response will occur at all lower exposure levels (i.e., a dose-response relationship with no threshold is assumed). Conservative (e.g., health protective) assumptions are applied and the models are believed to provide rough estimates of the upper limits on potential lifetime risk. The actual risks associated with exposure to a potential carcinogen that are quantitatively evaluated using the CSF are not likely to exceed the estimated risks, and are probably much lower or even zero.

In addition to deriving a quantitative estimate of carcinogenic potency, USEPA also assigns weight-of-evidence classifications to potential carcinogens. Chemicals are classified as Group A, Group B1, Group B2, Group C, Group D, or Group E carcinogens. The classifications are described as follows:

- Group A chemicals (known human carcinogens) are agents for which there is sufficient evidence to support the causal association between exposure to the agents in humans and cancer.
- Group B1 chemicals (probable human carcinogens) are agents for which there is limited evidence of possible carcinogenicity in humans.
- Group B2 chemicals (probable human carcinogens) are agents for which there is sufficient evidence of carcinogenicity in animals but inadequate or a lack of evidence in humans.
- Group C chemicals (possible human carcinogens) are agents for which there is limited evidence of carcinogenicity in animals and inadequate or a lack of human data.
- Group D chemicals (not classifiable as to human carcinogenicity) are agents with inadequate human and animal evidence of carcinogenicity or for which no data are available.
- Group E chemicals (evidence of non-carcinogenicity in humans) are agents for which there is no evidence of carcinogenicity from human or animal studies, or both.

USEPA-derived oral and inhalation CSFs and weight-of-evidence classifications for the COPCs are listed in Tables 6.1 and 6.2 in Appendix A.

7.2.1 Derivation of Dermal RfDs and Slope Factors

Oral RfDs and CSFs were converted to dermal RfDs and CSFs using an oral to dermal adjustment factor. This factor was designed to convert the orally administered dose toxicity factors to dermally absorbed dose toxicity factors. The values used for this conversion were obtained from USEPA's *Risk Assessment Guidance for Superfund, Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment (Interim)*, Section 4.2 and Exhibit 4-1 (USEPA, September 2001). The oral RfDs were converted to dermal RfDs by multiplying by the oral to dermal adjustment factor and the oral CSFs were converted to dermal CSFs by dividing by the adjustment factor. If a chemical-specific adjustment factor was not available, a default value of 100% was used.

7.2.2 Lead Toxicity

Lead is regulated by USEPA based on the concentration of lead in blood. The blood-lead concentration is estimated by using a physiologically-based pharmakokinetic model (the IEUBK model). Lead was selected as a COPC at various locations and is therefore evaluated quantitatively in the risk assessment. Risks associated with non-residential adult (industrial worker) exposure to lead were evaluated based on *Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposure to Lead in Soil*, USEPA, December 1996. This approach uses a methodology to relate soil lead intake to blood lead concentrations in women of child-bearing age. The methodology focuses on estimating fetal blood lead concentration in women exposed to lead contaminated soils. This guidance provides a set of default parameter values that can be used in cases where high quality data are not available to support site-specific estimates.

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Risks associated with residential exposure to lead were evaluated using USEPA's IEUBK Model. The principal assumption associated with the use of IEUBK is that a child from ages 0 to 7 years old is the receptor for potential exposure to lead in soil. The average lead concentration is the lead exposure concentration used in both models.

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8.0 Risk Characterization

Risk characterization combines the results of the previous elements of the risk assessment to evaluate the potential health risks associated with exposure to COPCs. The risk characterization is used as an integral component in remedial decision making and selection of potential remedies or actions.

8.1 Methods for Evaluating Risk and Hazard

Potential human health risks are discussed independently for carcinogenic and non-carcinogenic contaminants because of the different toxicological endpoints, relevant exposure durations, and methods used to characterize risk. Some chemicals may produce both non-carcinogenic and carcinogenic effects, and were evaluated in both groups. The methodology used to estimate non-carcinogenic hazards and carcinogenic risks is described below. Following the description of the methodology, the non-carcinogenic hazards and carcinogenic risks for the Martin Aaron site are discussed by medium.

8.1.1 Non-carcinogenic Hazard Estimation

Non-carcinogenic health risks are estimated by comparing the calculated intake to the RfD. The calculated intake divided by the RfD is equal to the hazard quotient (HQ):

Hazard Quotient (HQ) = Intake / RfD

The intake and RfD are expressed in the same units (mg/kg-day) and represent the same exposure period (i.e., chronic or subchronic). The intake and RfD also represent the same exposure route (i.e., oral, dermal, or inhalation). A HQ that exceeds one (i.e., the intake exceeds the RfD) indicates that there is a potential for adverse health effects associated with exposure to that chemical. To assess the potential for non-carcinogenic health effects posed by exposure to multiple chemicals a "hazard index" approach is used. This approach assumes that non-carcinogenic hazards associated with exposure to more than one chemical are additive. Synergistic or antagonistic interactions between chemicals are not accounted for. The hazard index (HI) may exceed one even if all of the individual HQs are less than one. HIs are also added across exposure routes and media if an individual may be exposed through more than one route and media. A HI greater than one indicates that there is some potential for adverse non-carcinogenic health effects associated with exposure to the contaminants of concern, possibly warranting remedial action (USEPA, December 1991). If the HI is greater than one, the HQs can be summed by the resulting health effect or target organ. For example, all HQs associated with effects on the liver are added to determine the HI for the liver. If the HIs summed by target organ are not above 1, it is assumed that there would be no adverse non-carcinogenic health effects associated with the site.

8.1.2 Carcinogenic Risk Estimation

The potential for carcinogenic effects due to exposure to site-related contamination is evaluated by estimating the excess lifetime carcinogenic risk (ELCR). The ELCR is the

incremental increase in the probability of developing cancer during one's lifetime in addition to the background probability of developing cancer. For example, a $2x10^{-6}$ excess lifetime carcinogenic risk means that for every one million people exposed to the carcinogen throughout their lifetimes, the incidence of cancer may increase by two cases.

The carcinogenic risk is calculated by multiplying the intake by the CSF.

Risk = Intake X CSF

The combined risk from exposure to multiple chemicals was evaluated by adding the risks from different chemicals. Risks were also added across the exposure routes and media if an individual would be exposed through multiple routes and media. For example, a person contacting soil could be exposed by both oral and dermal exposure routes and could also be exposed to groundwater through oral and dermal routes.

The USEPA considers action to be warranted at a site when cancer risks exceed 10^{-4}. Action is generally not required for risks falling within 10^{-4} to 10^{-6}; however, this is judged on a case-by-case basis. Risks less than 10^{-6} generally are not of concern to regulatory agencies.

8.1.3 Evaluation of Numerical Results

As discussed in the previous sections, USEPA's target non-carcinogenic HI is 1.0. An HI less 1.0 indicates that there are no potential non-carcinogenic risks, however, an HI above 1.0 indicates that there is some potential for adverse non-carcinogenic health effects associated with exposure by the receptor, possibly warranting remedial action (USEPA, December 1991). When the HI is greater than one, the individual constituent HIs were summed by the resulting health effect or target organ. If the HIs summed by target organ are not above 1, it is assumed that there would be no adverse non-carcinogenic health effects.

USEPA's target carcinogenic risk range is between 10^{-4} to 10^{-6}. Carcinogenic risks below or within this range are assumed to be acceptable.

RME risks were evaluated for all media and exposure scenarios. RME risks were evaluated using upper bound estimates of the exposure parameters. CTE risks were calculated for those scenarios that had RME risks that exceed USEPA target levels (HI of 1.0 and carcinogenic risk of 10^{-4}). CTE risks were evaluated using median estimates of the exposure parameters.

8.2 Results of Risk Calculations

The risks are presented below for each of the areas evaluated in the risk assessment.

8.2.1 Martin Aaron Property

RME risk estimates were calculated for the following scenarios at the Martin Aaron property:

- Current Adolescent Trespasser/Visitor: incidental ingestion, dermal contact, and inhalation fugitive emissions and volatiles from surface soil.

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- Current/Future Adult Industrial Worker: incidental ingestion, dermal contact, and inhalation of fugitive emissions and volatiles from surface soil.
- Future Adult and Child Residents: incidental ingestion, dermal absorption, and inhalation of fugitive emissions and volatiles from surface soil and subsurface soil.
- Future Adult Construction Worker: incidental ingestion, dermal absorption, and inhalation of fugitive emissions and volatiles from surface soil and subsurface soil.

The risk calculations are included in the Table 7s, 9s, and 10s in Appendix A, and summarized in Tables 6-4 (RME) and 6-9 (CTE).

Current Adolescent Trespasser/Visitor

The RME non-carcinogenic hazard associated with exposure to Martin Aaron property surface soil by current adolescent trespasser/visitors (4.2) is above USEPA's target hazard index of 1.0. The risks are driven by arsenic, barium, and PCB Aroclor 1254. The CTE non-carcinogenic hazard to the trespasser/visitor is 1.4, which is still above the USEPA's target hazard index of 1.0, however, there are no target organs/effects with HIs above 1.0. The RME carcinogenic risk associated with exposure to Martin Aaron property surface soil by current adolescent trespasser/visitors ($2x10^{-4}$) is above the USEPA's target carcinogenic risk range of 10^{-6} to 10^{-4}, and is driven by benzo(a)pyrene and arsenic. The CTE carcinogenic risk to the trespasser/visitor is $8x10^{-5}$, which is within USEPA's target risk range.

Current/Future Industrial Worker

The RME non-carcinogenic hazard (4.2) associated with exposure to surface soil by current/future industrial workers is above USEPA's target hazard level, and the hazard is primarily driven by arsenic. The CTE non-carcinogenic hazard to the industrial worker from surface soil exposure is 1.3, which is slightly above the USEPA target hazard index of 1.0, however, there are no target organs/effects with HIs above 1.0. The RME carcinogenic risk associated with exposure to Martin Aaron property surface soil by current/future industrial workers ($6X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, dieldrin, benzo(a)anthracene, benzo(b)fluoranthene, PCB Aroclor 1254, and trichloroethene (TCE). The CTE carcinogenic risk to industrial workers exposed to surface soil is $5x10^{-5}$, which is within USEPA's target risk range.

The RME non-carcinogenic hazard (9.8) associated with exposure to subsurface soil by future industrial workers is above USEPA's target hazard index. The hazard is driven by arsenic and chromium. The CTE non-carcinogenic hazard for industrial workers exposed to subsurface soil is 2.9 and is primarily associated with arsenic. The RME carcinogenic risk associated with exposure to Martin Aaron property subsurface soil by future industrial workers ($2X10^{-3}$) is above the USEPA's target risk range and is driven by TCE. The CTE carcinogenic risk to industrial workers exposed to subsurface soil is $2x10^{-4}$, which is above USEPA's target risk range and driven by TCE and arsenic.

The maximum concentration of lead detected in the surface and surface and subsurface soil at the Martin Aaron property exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the adult lead model.

The results of the adult lead model for the Martin Aaron surface and subsurface soil are summarized in Table 14. As shown in the table, the highest 95th percentile blood lead concentration among fetuses of adult workers is 8.8 µg/dL(micrograms of lead per deciliter blood) for surface soil and 19.9 µg/dL for subsurface soil. The probability that the fetal lead blood concentration would be greater than the target blood lead concentration of 10 µg/dL is greater than 5 percent for subsurface soil. Therefore, exposure to lead in subsurface soil is a health concern for the fetuses of industrial workers.

Future Adult Resident

The RME non-carcinogenic hazard associated with exposure to the surface soil by future adult residents (5.0) exceeds the USEPA's target hazard index of 1.0 and is driven by arsenic, barium, and PCB Aroclor 1254. The CTE non-carcinogenic hazard to adult residents exposed to surface soil is 1.5, which is still above USEPA's target hazard index, however, there are no target organs/effects with HIs above 1.0. The RME carcinogenic risk associated with exposure to Martin Aaron property surface soil by future adult residents ($8X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, PCE, benzene, benzo(a)anthracene, chloroform, chromium, dieldrin, and indeno(1,2,3-cd)pyrene. The CTE carcinogenic risk to adult residents from surface soil is $8x10^{-5}$, which is within USEPA's target risk range.

The RME non-carcinogenic hazard associated with exposure to the subsurface soil by future adult residents (12) exceeds the USEPA's target hazard index of 1.0 and is driven by arsenic, chromium, and PCB Aroclor 1254. The CTE non-carcinogenic hazard to adult residents exposed to subsurface soil is 3.7, which is above the EPA's target hazard index and is primarily driven by arsenic. The RME carcinogenic risk associated with exposure to Martin Aaron property subsurface soil by future adult residents ($2X10^{-3}$) is above the EPA's target risk range and is driven by arsenic, TCE, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chromium, dibenzo(a,h)anthracene, PCB Aroclor 1254, and PCE. The CTE carcinogenic risk to adult residents from subsurface soil is $4x10^{-4}$, which is above USEPA's target risk range and is driven by TCE, arsenic, benzo(a)pyrene, chloroform, dibenzo(a,h)anthracene, and PCE.

Future Child Resident

The RME non-carcinogenic hazard associated with exposure to the surface soil by future child residents (22) exceeds the USEPA's target hazard index of 1.0 and is driven by barium, iron, and PCB Aroclor 1254. The CTE non-carcinogenic hazard to child residents exposed to surface soil is 6.7, which is still above the USEPA's target hazard index and driven by barium and PCB Aroclor 1254. The RME carcinogenic risk associated with exposure to Martin Aaron property surface soil by future child residents ($2X10^{-3}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, TCE, aldrin, dieldrin, PCB Aroclor 1254, and indeno(1,2,3-cd)pyrene. The CTE carcinogenic risk to child residents from exposure to surface soil is $5x10^{-4}$, which exceeds USEPA's target risk range. The risk drivers are arsenic, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and TCE.

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The RME non-carcinogenic hazard associated with exposure to the subsurface soil by future child residents (30) exceeds the USEPA's target hazard index of 1.0 and is driven by arsenic, barium, chromium, iron, mercury, PCB Aroclor 1254, and TCE. The CTE non-carcinogenic hazard to child residents by subsurface soil is 10, which is above the USEPA's target hazard index and driven by barium, PCB Aroclor 1254, and TCE. The RME carcinogenic risk associated with exposure to Martin Aaron property subsurface soil by future child residents ($2X10^{-3}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, PCB Aroclor 1254, TCE, and PCE.. The CTE carcinogenic risk to child residents exposed to subsurface soil is $1x10^{-3}$, which is above USEPA's target risk range and is driven by driven by arsenic, TCE, benzo(a)pyrene, and dibenzo(a,h)anthracene.

The maximum concentration of lead detected in the surface and subsurface soil at the Martin Aaron property exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the IEUBK model.

The results of the IEUBK model for Martin Aaron surface and subsurface soil are summarized in Table 14. The IEUBK evaluation resulted in a geometric mean blood concentration of 6.3 µg/dL (micrograms of lead per deciliter blood) for surface soil and 19 µg/dL for subsurface soil for children 0 to 84 months old. Approximately 16 to 90 percent of the population had a blood lead level above USEPA's recommended level of 10 µg/dL. USEPA considers lead in soil not to be a health concern if less than 5 percent of the population has a blood-lead level greater than 10 µg/dL. Therefore, residential exposure to lead in surface and subsurface soil at the Martin Aaron property is a potential health concern for residential children.

Future Construction Worker

The RME non-carcinogenic hazard associated with exposure to the surface soil by future construction workers (4.0) exceeds the USEPA's target hazard index of 1.0 and is primarily driven by barium. The CTE non-carcinogenic hazard to future construction workers exposed to surface soil (0.9) is below USEPA's target hazard index of 1.0. The RME carcinogenic risk associated with exposure to Martin Aaron property surface soil by future construction workers ($5X10^{-5}$) is within the USEPA's target risk range.

The RME non-carcinogenic hazard (6.3) associated with exposure to subsurface soil by future construction workers is above USEPA's target hazard index. The hazard is primarily driven by TCE. The CTE non-carcinogenic hazard for construction workers exposed to subsurface soil is 1.2, which is slightly above the USEPA's target hazard index, however, there are no target organs/effects with HIs above 1.0. The RME carcinogenic risk associated with exposure to Martin Aaron property subsurface soil by future construction workers ($2X10^{-4}$) is above the USEPA's target risk range and is driven by TCE and arsenic. The CTE carcinogenic risk to construction workers to subsurface soil is $2x10^{-5}$, which is within USEPA's target risk range.

8.2.2 Junkyard Property

RME risk estimates were calculated for the following scenarios at the Junkyard property:

- Current/Future Adult and Child Residents: incidental ingestion, dermal absorption, and inhalation of fugitive emissions from surface soil and subsurface soil.
- Future Adult Industrial Worker: incidental ingestion, dermal contact, and inhalation fugitive emissions from surface soil.
- Future Adult Construction Worker: incidental ingestion, dermal absorption, and inhalation of fugitive emissions from surface soil, subsurface soil.

The risk calculations are included in the Table 7s, 9s, and 10s in Appendix A, and summarized in Tables 6-5 (RME) and 6-10 (CTE).

Current/Future Adult Resident

The RME non-carcinogenic hazard associated with exposure to the junkyard property surface soil by current/future adult residents (0.9) is below the USEPA's target hazard index of 1.0. The RME carcinogenic risk associated with exposure to the junkyard property surface soil by current/future adult residents ($3X10^{-5}$) is within the USEPA's target risk range of 10^{-4} to 10^{-6}.

The RME non-carcinogenic hazard associated with exposure to the subsurface soil by future adult residents (7.4) exceeds the USEPA's target hazard index of 1.0 and is driven by arsenic. The CTE non-carcinogenic hazard to adult residents exposed to subsurface soil is 2.3, which is above the USEPA's target hazard index and driven by arsenic. The RME carcinogenic risk associated with exposure to junkyard property subsurface soil by future adult residents ($1X10^{-3}$) is above the USEPA's target risk range and is driven by arsenic. The CTE carcinogenic risk to adult residents from subsurface soil is $1x10^{-4}$, which is within USEPA's target risk range.

Current/Future Child Resident

The RME non-carcinogenic hazard associated with exposure to the junkyard property surface soil by current/future child residents (6.4) exceeds the USEPA's target hazard index of 1.0 exposed to surface soil is 1.9, which is still above the USEPA's target hazard index and driven by barium. The RME carcinogenic risk associated with exposure to junkyard property surface soil by current/future child residents ($7X10^{-5}$) is within USEPA's target risk range.

The RME non-carcinogenic hazard associated with exposure to the subsurface soil by future child residents (12) exceeds the USEPA's target hazard index of 1.0 and is driven by arsenic and barium. The CTE non-carcinogenic hazard to child residents by subsurface soil is 3.6, which is above the USEPA's target hazard index and driven by arsenic and barium. The RME carcinogenic risk associated with exposure to junkyard property subsurface soil by future child residents ($2X10^{-3}$) is above the USEPA's target risk range and is driven by arsenic and benzo(a)pyrene. The CTE carcinogenic risk to child residents from exposure to subsurface soil is $7x10^{-4}$, which is above USEPA's target risk range and is driven by driven by arsenic.

The maximum concentration of lead detected in the surface and subsurface soil at the junkyard property exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the IEUBK model.

The results of the IEUBK model for junkyard surface and subsurface soil are summarized in Table 14. The IEUBK evaluation resulted in a geometric mean blood concentration of 12 μg/dL (micrograms of lead per deciliter blood) for surface soil 5.9 μg/dL for subsurface soil for children 0 to 84 months old. Approximately 13 to 66 percent of this population had a blood lead level above USEPA's recommended level of 10 μg/dL. USEPA considers lead in soil not to be a health concern if less than 5 percent of the population has a blood-lead level greater than 10 μg/dL. Therefore, residential exposure to lead in surface and subsurface soil at the junkyard property is a potential health concern for residential children.

Future Industrial Worker

The RME non-carcinogenic hazard (0.76) associated with exposure to junkyard property surface soil by future industrial workers is below the USEPA target hazard index of 1.0. The RME carcinogenic risk associated with exposure to junkyard property surface soil by future industrial workers ($3X10^{-5}$) is within USEPA's target risk range of 10^{-4} to 10^{-6}.

The RME non-carcinogenic hazard (5.7) associated with exposure to subsurface soil by future industrial workers is above USEPA's target hazard index. The hazard is associated with arsenic. The CTE non-carcinogenic hazard for industrial workers exposed to subsurface soil is 2.1 and driven by arsenic. The RME carcinogenic risk associated with exposure to junkyard property surface soil by future industrial workers ($8X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic. The CTE carcinogenic risk to industrial workers exposed to subsurface soil is $8x10^{-5}$, which is within USEPA's target risk range.

The maximum concentration of lead detected in the surface and subsurface soil at the junkyard property exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the adult lead model.

The results of the adult lead model for the junkyard surface and subsurface soil are summarized in Table 14. As shown in the table, the highest 95th percentile blood lead concentration among fetuses of adult workers is 13.3 μg/dL for surface soil and 8.6 μg/dL for subsurface soil. The probability that the fetal lead blood concentration would be greater than the target blood lead concentration of 10 μg/dL is greater than 5 percent for surface soil. Therefore, exposure to lead in surface soil is a health concern for the fetuses of industrial workers.

Future Construction Worker

The RME non-carcinogenic hazard associated with exposure to the junkyard property surface soil by future construction workers (1.1) is just above the USEPA's target hazard index of 1, however, there are no individual target organs/effects with HIs above 1.0. The CTE non-carcinogenic hazard to future construction workers exposed to surface soil (0.25) is below USEPA's target hazard index of 1.0. The RME carcinogenic risk associated with exposure to junkyard property surface soil by future construction workers ($2X10^{-6}$) is within the USEPA's target risk range.

The RME non-carcinogenic hazard (1.9) associated with exposure to subsurface soil by future construction workers is above USEPA's target hazard index. The CTE non-carcinogenic hazard for construction workers exposed to subsurface soil is 0.44, which is below the USEPA's target hazard index. The RME carcinogenic risk associated with

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exposure to junkyard property subsurface soil by future construction workers ($7X10^{-5}$) is within the USEPA's target risk range.

8.2.3 Row Homes and Industrial Area

RME risk estimates were calculated for the following scenarios at the Row Homes and Industrial Area:

- Current/Future Adult and Child Residents: incidental ingestion, dermal absorption, and inhalation of fugitive emissions from surface soil and subsurface soil.
- Future Adult Industrial Worker: incidental ingestion, dermal contact, and inhalation fugitive emissions from surface soil
- Future Adult Construction Worker: incidental ingestion, dermal absorption, and inhalation of fugitive emissions from surface soil, subsurface soil.

The risk calculations are included in the Table 7s, 9s, and 10s in Appendix A, and summarized in Tables 6-6 (RME) and 6-11 (CTE).

Current/Future Adult Resident

The RME non-carcinogenic hazard associated with exposure to the row homes/industrial area surface soil by current/future adult residents (3.6) is above the USEPA's target hazard index of 1.0 and is driven by arsenic. The CTE non-carcinogenic hazard to adult residents (1.0) is equal to the USEPA target hazard index. The RME carcinogenic risk associated with exposure to the row homes/industrial area surface soil by current/future adult residents ($4X10^{-4}$) is above the USEPA's target risk range of 10^{-4} to 10^{-6} and is driven by arsenic, benzo(a)pyrene, benzo(a)anthracene, and dibenzo(a,h)anthracene. The CTE carcinogenic risk to adult residents from exposure to surface soil is $4x10^{-5}$, which is within USEPA's target risk range.

The RME non-carcinogenic hazard associated with exposure to the subsurface soil by future adult residents (3.9) exceeds the USEPA's target hazard index of 1 and is driven by arsenic and barium. The CTE non-carcinogenic hazard to adult residents exposed to subsurface soil is 1.1, which is above the USEPA's target hazard index and driven by arsenic and the circulatory target organ. The RME carcinogenic risk associated with exposure to the row homes/industrial area subsurface soil by future adult residents ($4X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene. The CTE carcinogenic risk to adult residents from subsurface soil is $5x10^{-5}$, which is within USEPA's target risk range.

Current/Future Child Resident

The RME non-carcinogenic hazard associated with exposure to the row homes/industrial area surface soil by current/future child residents (11) exceeds the USEPA's target hazard index of 1.0 and is driven by barium and iron. The CTE non-carcinogenic hazard to child residents exposed to surface soil is 3.1, which is above the USEPA's target hazard index and driven by barium. The RME carcinogenic risk associated with exposure to row homes/industrial area surface soil by current/future child residents ($9X10^{-4}$) is above USEPA's target risk range and is driven by arsenic, benzo(a)anthracene, benzo(a)pyrene,

benzo(b)fluoranthene, and dibenzo(a,h)anthracene. The CTE carcinogenic risk to child residents from exposure to surface soil is $3x10^{-4}$, which is above USEPA's target risk range and is driven by driven by arsenic and benzo(a)pyrene.

The RME non-carcinogenic hazard associated with exposure to the subsurface soil by future child residents (3.2) exceeds the USEPA's target hazard index of 1.0 and is driven by barium, chlordane (alpha), and chlordane (technical mixture). The CTE non-carcinogenic hazard to child residents exposed to subsurface soil is 1.0, which is equal to the USEPA's target hazard index. The RME carcinogenic risk associated with exposure to row/homes industrial area subsurface soil by future child residents ($4X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene. The CTE carcinogenic risk to child residents from subsurface soil is $3x10^{-5}$, which is within USEPA's target risk range.

The maximum concentration of lead detected in the surface and subsurface soil at the row homes/industrial area exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the IEUBK model.

The results of the IEUBK model for the row homes/industrial area surface soil are summarized in Table 14. The IEUBK evaluation resulted in a geometric mean blood concentration of 5.5 µg/dL (micrograms of lead per deciliter blood) for surface soil and 4.6 µg/dL for subsurface soil children 0 to 84 months old. Approximately 4.8 to 10 percent of the population had a blood lead level above USEPA's recommended level of 10 µg/dL. USEPA considers lead in soil not to be a health concern if less than 5 percent of the population has a blood-lead level greater than 10 µg/dL. Therefore, residential exposure to lead in surface soil at the row homes/industrial area is a potential health concern for residential children.

Future Industrial Worker

The RME non-carcinogenic hazard (3.0) associated with exposure to the row homes/industrial area surface soil by future industrial workers is above the USEPA target hazard index of 1.0 and is driven by arsenic. The CTE non-carcinogenic hazard for industrial workers exposed to surface soil is 0.94, which is below the USEPA's target hazard index. The RME carcinogenic risk associated with exposure to row homes/industrial area surface soil by future industrial workers ($3X10^{-4}$) is above USEPA's target risk range of 10^{-4} to 10^{-6} and is driven by arsenic and benzo(a)pyrene. The CTE carcinogenic risk to industrial workers exposed to surface soil is $3x10^{-5}$, which is within USEPA's target risk range.

The RME non-carcinogenic hazard (3.2) associated with exposure to subsurface soil by future industrial workers is above USEPA target hazard index and the hazard is driven by arsenic. The CTE non-carcinogenic hazard for industrial workers exposed to subsurface soil is 1.0, which is equal to the USEPA's target hazard. The RME carcinogenic risk associated with exposure to subsurface soil by future industrial workers ($4X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, benzo(a)anthracene, and dibenzo(a,h)anthracene. The CTE carcinogenic risk to industrial workers exposed to subsurface soil is $3x10^{-5}$, which is within USEPA's target risk range.

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The maximum concentration of lead detected in the surface and subsurface soil at the row homes/industrial area exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the IEUBK model and the adult lead model.

The results of the adult lead model for the junkyard surface and subsurface soil are summarized in Table 14. As shown in the table, the highest 95th percentile blood lead concentration among fetuses of adult workers is 8.3 µg/dL for surface soil and 7.7 µg/dL for subsurface soil. The probability that the fetal lead blood concentration would be greater than the target blood lead concentration of 10 µg/dL is less than 5 percent. Therefore, exposure to lead in surface and subsurface soil is not a health concern for the fetuses of industrial workers.

Future Construction Worker

The RME non-carcinogenic hazard associated with exposure to the row homes/industrial area surface soil by future construction workers (1.8) is above the USEPA's hazard index of 1.0, however, there are no constituents or target organs/effects with HIs above 1.0. The CTE non-carcinogenic hazard to future construction workers exposed to surface soil (0.41) is below USEPA's target hazard index of 1.0. The RME carcinogenic risk associated with exposure to the row homes/industrial area surface soil by future construction workers ($3X10^{-5}$) is within the USEPA's target risk.

The RME non-carcinogenic hazard (2.5) associated with exposure to subsurface soil by future construction workers is above USEPA's target hazard index and is driven by barium. The CTE non-carcinogenic hazard for construction workers exposed to subsurface soil is 0.57, which is below the USEPA's target hazard index. The RME carcinogenic risk associated with exposure to row homes/industrial area subsurface soil by future construction workers ($3X10^{-5}$) is within the USEPA's target risk range.

8.2.4 South Jersey Port Corporation (SJPC) Property

RME risk estimates were calculated for the following scenarios at the South Jersey Port Corporation (SJPC) property:

- Current Adolescent Trespasser/Visitor: incidental ingestion, dermal contact, and inhalation fugitive emissions and volatiles from surface soil.
- Future Adult Industrial Worker: incidental ingestion, dermal contact, and inhalation fugitive emissions and volatiles from surface soil.
- Future Adult and Child Residents: incidental ingestion, dermal absorption, and inhalation of fugitive emissions and volatiles from surface soil and subsurface soil.
- Future Adult Construction Worker: incidental ingestion, dermal absorption, and inhalation of fugitive emissions and volatiles from surface soil and subsurface soil.

The risk calculations are included in the Table 7s, 9s, and 10s in Appendix A, and summarized in Tables 6-7 (RME) and 6-11 (CTE).

Current Adolescent Trespasser/Visitor

As shown on Table 7, the non-carcinogenic hazard (0.49) and carcinogenic risk ($9x10^{-5}$) associated with exposure to surface soil by adolescent trespassers/visitors at the SJPC property are within or below USEPA's target risk levels.

Future Industrial Worker

The RME non-carcinogenic hazard (0.47) associated with exposure to surface soil by future industrial workers is below USEPA's target hazard index of 1.0. The RME carcinogenic risk associated with exposure to SJPC property surface soil by future industrial workers ($2X10^{-4}$) is above the USEPA's target risk range and is driven by benzo(a)pyrene, arsenic, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene. The CTE carcinogenic risk to industrial workers exposed to surface soil is $2x10^{-5}$, which is within USEPA's target risk range.

The RME non-carcinogenic hazard (0.78) associated with exposure to subsurface soil by future industrial workers is below USEPA's target hazard index. The RME carcinogenic risk associated with exposure to SJPC property subsurface soil by future industrial workers ($2X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene. The CTE carcinogenic risk to industrial workers exposed to subsurface soil is$2x10^{-5}$, which is within USEPA's target risk range.

The maximum concentration of lead detected in the surface and subsurface soil at the SJPC property exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the adult lead model.

The results of the adult lead model for the SJPC property surface and subsurface soil are summarized in Table 14. As shown in the table, the highest 95th percentile blood lead concentration among fetuses of adult workers is 8.3 µg/dL for surface soil and 8.8 µg/dL for subsurface soil. The probability that the fetal lead blood concentration would be greater than the target blood lead concentration of 10 µg/dL is less than 5 percent for both surface and subsurface soil. Therefore, exposure to lead in surface and subsurface soil is not a health concern for the fetuses of industrial workers.

Future Adult Resident

The RME non-carcinogenic hazard (0.54) associated with exposure to surface soil by future adult residents is below USEPA's target hazard index of 1.0. The RME carcinogenic risk associated with exposure to SJPC property surface soil by future adult residents ($3X10^{-4}$) is above the USEPA's target risk range and is driven by benzo(a)pyrene, arsenic, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene. The CTE carcinogenic risk to adult residents from surface soil is $3x10^{-5}$ which is within USEPA's target risk range.

The RME non-carcinogenic hazard (1.1) associated with exposure to subsurface soil by future adult residents is just above USEPA's target hazard index of 1.0, however, there are no target organs/effects with HIs above 1.0. The CTE non-carcinogenic hazard for adult residents exposed to subsurface soil (0.37) is below USEPA's target hazard index. The RME carcinogenic risk associated with exposure to SJPC property subsurface soil by future adult residents ($3X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene.

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The CTE carcinogenic risk to adult residents from exposure to subsurface soil is $3x10^{-5}$, which is within USEPA's target risk range.

Future Child Resident

The RME non-carcinogenic hazard associated with exposure to the surface soil by future child residents (2.5) exceeds the USEPA's target hazard index of 1.0 and is driven by barium. The CTE non-carcinogenic hazard to child residents exposed to surface soil is 0.75, which is below USEPA's target hazard index. The RME carcinogenic risk associated with exposure to SJPC property surface soil by future child residents ($5X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene. The CTE carcinogenic risk to child residents from surface soil is $2x10^{-4}$ which is above USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, and benzo(b)fluoranthene.

The RME non-carcinogenic hazard associated with exposure to the subsurface soil by future child residents (4.5) exceeds the USEPA's target hazard index of 1.0 and is driven by barium. The CTE non-carcinogenic hazard to child residents exposed to subsurface soil is 1.5, which is above the USEPA's target hazard index. The RME carcinogenic risk associated with exposure to SJPC property subsurface soil by future child residents ($6X10^{-4}$) is above the USEPA's target risk range and is driven by arsenic, benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. The CTE carcinogenic risk to child residents from exposure to subsurface soil is $2x10^{-4}$, which is above USEPA's target risk range and is driven by driven by arsenic, benzo(a)pyrene, and dibenzo(a,h)anthracene.

The maximum concentration of lead detected in the surface and subsurface soil at the SJPC property exceeded the lead screening level of 400 mg/kg. Therefore, lead was evaluated using the IEUBK model.

The results of the IEUBK model for SJPC surface and subsurface soil are summarized in Table 14. The IEUBK evaluation resulted in a geometric mean blood concentration of 5.9 µg/dL (micrograms of lead per deciliter blood) for surface soil and 6.3 µg/dL for subsurface soil for children 0 to 84 months old. Approximately 13 to 16 percent of this population had a blood lead level above USEPA's recommended level of 10 µg/dL for both surface and subsurface soil. USEPA considers lead in soil not to be a health concern if less than 5 percent of the population has a blood-lead level greater than 10 µg/dL. Therefore, residential exposure to lead in surface and subsurface soil at the SJPC property is a potential health concern for residential children.

Future Construction Worker

As shown on Table 7, the non-carcinogenic hazard (0.43) and carcinogenic risk ($2x10^{-5}$) associated with exposure to surface soil by future construction workers at the SJPC property are within or below USEPA's target risk levels. Additionally, the non-carcinogenic hazard (0.7) and carcinogenic risk ($2x10^{-5}$) associated with exposure to subsurface soil by future construction workers at the SJPC property are within or below USEPA's target risk levels.

8.2.5 Groundwater

Potable use of the groundwater within the Martin Aaron site was evaluated assuming the groundwater would not be treated prior to use. As stated in Section 6.1, the Upper and Middle PRM Aquifers are major water supply aquifers in Camden County and throughout New Jersey. Both units are classified as Class 2A. Therefore, future use of groundwater as a potable water source was evaluated in the HHRA.

The following scenarios were evaluated for the two aquifers:

- Adult and Child Residents: ingestion of groundwater and inhalation and dermal absorption while showering or bathing(Upper and Middle PRM aquifers).
- Adult Industrial Worker (Inside and Outside): ingestion of groundwater and inhalation and dermal absorption while showering(Upper and Middle PRM aquifers).
- Adult Construction Worker: dermal absorption and inhalation of VOCs from groundwater in an excavation ditch (Upper PRM aquifer only).

The risk calculations are included in the Table 7s in Appendix A, and summarized in Tables 6-8 (RME) and 6-13 (CTE).

Upper PRM Aquifer – Future Resident

As shown on Table 8, the non-carcinogenic hazards to adult (383) and child (492) residents who use groundwater from the Upper PRM aquifer without treatment would exceed the USEPA's target HI of 1.0. The majority of the hazard is associated with arsenic (for adult HI = 331, for child HI = 46) and naphthalene (child HI = 390), with smaller contributions that are also above 1 from several inorganic constituents (antimony, barium and iron), SVOCs (p-Cresol and bis(2-chloroethyl)ether), and VOCs (benzene). The carcinogenic risk to the adult ($5x10^{-2}$) and child ($3x10^{-2}$) exceeds USEPA's target risk range of 10^{-6} to 10^{-4}. The carcinogenic risk is primarily associated with arsenic (for adult CR = $5x10^{-2}$ and for child CR= $3x10^{-2}$), with additional contributions from benzene, TCE, and vinyl chloride. The CTE hazards and risks associated with residential use of groundwater from the Upper PRM also exceed USEPA's target levels. The CTE non-carcinogenic hazard to the adult is 170 and to the child is 73. The CTE carcinogenic risk for the adult is $9x10^{-3}$ and the child is $2x10^{-2}$.

The maximum concentration of lead detected in the Upper PRM aquifer exceeded the lead screening level of 15 µg/L. Therefore, lead was evaluated using the IEUBK model.

The results of the IEUBK model for the Upper PRM aquifer are summarized in Table 14. The IEUBK evaluation resulted in a geometric mean blood concentration of 4.1 µg/dL for children 0 to 84 months old. Approximately 2.4 percent of this population had a blood lead level above USEPA's recommended level of 10 µg/dL. USEPA considers lead in groundwater not to be a health concern if less than 5 percent of the population has a blood-lead level greater than 10 µg/dL. Therefore, residential exposure to lead in groundwater is not a potential health concern for residential children.

Upper PRM Aquifer – Future Industrial Worker

The non-carcinogenic hazard to the industrial workers who use groundwater from the Upper PRM aquifer as a potable water supply without treatment would be 150, which

exceeds USEPA's target HI of 1.0. The majority of the hazard is associated with arsenic (HI=119), with additional contributions from barium, iron, and naphthalene. The carcinogenic risk, $2x10^{-2}$, also exceeds USEPA's target risk range of 10^{-6} to 10^{-4}. The risk is primarily associated with arsenic (CR = $2x10^{-2}$), with some contribution from bis(2-chloroethyl)ether, benzene, and vinyl chloride. The CTE hazards (112) and risks ($4x10^{-3}$) associated with potable use of groundwater from the Upper PRM aquifer by industrial workers also exceed USEPA's target levels.

Upper PRM Aquifer – Future Construction Worker

The non-carcinogenic hazard to the construction workers exposed to the Upper PRM aquifer groundwater in a ditch (inhalation and dermal contact) would be 31, which exceeds USEPA's target HI of 1.0. The majority of the hazard is associated with naphthalene. The carcinogenic risk, $8x10^{-6}$, is within USEPA's target risk range of 10^{-6} to 10^{-4}. The CTE hazard (16) associated with a ditch scenario for groundwater from the Upper PRM aquifer by construction workers also exceeds USEPA's target levels.

Middle PRM Aquifer – Future Resident

As shown on Table 8, the non-carcinogenic hazards to adult (21) and child (41) residents who use groundwater from the Middle PRM aquifer without treatment would exceed the USEPA's target HI of 1.0. The majority of the hazard is associated with iron (for adult HI = 15, for child HI = 37), with smaller contributions that are also above 1 from several inorganic constituents including manganese and thallium. The carcinogenic risk to the adult ($2x10^{-4}$) and child ($2x10^{-4}$) exceeds USEPA's target risk range of 10^{-6} to 10^{-4}. The carcinogenic risk is primarily associated with vinyl chloride (for adult and child CR = $1x10^{-4}$), with additional contributions from arsenic and TCE. The CTE non-carcinogenic hazard to the adult is 9.7 and to the child is 26.6, which exceed the USEPA's target hazard index. The CTE carcinogenic risk for the adult is $3x10^{-5}$ and the child is $8x10^{-5}$, which are within USEPA's target risk range.

Middle PRM Aquifer – Future Industrial Worker

The non-carcinogenic hazard to the industrial workers who use groundwater from the Middle PRM aquifer as a potable water supply without treatment would be 7.6, which exceeds USEPA's target HI of 1.0. The majority of the hazard is associated with arsenic HI=5.3 with additional contributions from thallium. The carcinogenic risk, $9x10^{-5}$, is within USEPA's target risk range of 10^{-6} to 10^{-4}. The CTE hazard (6.5) associated with potable use of groundwater from the Upper PRM aquifer by industrial workers also exceeds USEPA's target risk range.

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9.0 Uncertainty Assessment

The risk measures used in Superfund risk assessments are not fully probabilistic estimates of risk but are conditional estimates given that a set of assumptions about exposure and toxicity are realized. Thus, it is important to specify the assumptions and uncertainties inherent in the risk assessment to place the risk estimates in proper perspective (USEPA, December 1989).

9.1 Uncertainty in COPC Selection

The purpose of the sampling conducted at the Martin Aaron site was to determine the potential source areas and to determine the nature and extent of the potential contamination. The uncertainty associated with sampling and the possibility of missing a contaminant is expected to be minimal.

A background evaluation was not conducted for the Martin Aaron site, so it is not know if the concentrations of metals and PAHs found at the areas are site-related or associated with background. The data were not screened against background levels to select the COPCs.

The uncertainty associated with the data analysis is minimal because all samples were analyzed through CLP or using CLP procedures and all data were fully validated by USEPA prior to use in the risk assessment.

The general assumptions used in the COPC selection process were conservative to ensure that true COPCs were not eliminated from the quantitative risk assessment and that the highest possible risk was estimated.

9.2 Uncertainty Associated with Exposure Assessment

Many of the exposure pathways evaluated at each area were assumed and are not currently occurring. It was assumed that all of the areas may be used for residential development in the future. It was also assumed that the groundwater from the two separate aquifers would be used as a potable water supply without any treatment. The regional aquifer groundwater is currently used as a water supply, but it is treated with activated carbon or air stripping prior to use and meets all requirements of the Safe Drinking Water Act.

The exposure factors used for the quantitation of exposure were conservative and reflect upper-bound assumptions on the exposure. The reliability of the values chosen for the exposure factors also contributes substantially to the uncertainty of the resulting risk estimates. Because most of the exposure factors are upper-bound assumptions, the resulting risks likely overestimate the actual risk.

The model used to estimate fugitive and volatile emissions from soil during construction activities is very conservative and most likely over-estimates the risks associated with this exposure pathway. For example, it was assumed that construction would occur across the

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whole site, and in realty, for some of the larger sites construction may occur in a smaller area at the site.

Site-related contamination would be expected to decrease with time. The risk assessment assumed concentrations would remain constant throughout the exposure period. This will result in an over-estimation of risk. However, it is also possible for chemicals to degrade to more potent chemicals such as, TCE to vinyl chloride. This could result in an increase in risk and an under-estimation of future risks.

Risks associated with dermal exposure to soil were not evaluated for the VOCs detected and retained as COPCs in the soil samples. There are no published dermal absorption factors for these constituents, so it is not possible to quantify these exposures and, therefore, risk. Therefore, risks associated with dermal exposure to the soil may be underestimated. However, it is expected that most of the VOCs would volatize from the skin surface and soil prior to absorption through the skin.

The exposure pathways (Table 1, Attachment A) presented in the PAR identified inhalation of VOCs that have migrated from the soil and/or groundwater into buildings (i.e. vapor intrusion) as a potentially complete exposure pathway for several receptors and areas. The PAR stated that these potentially complete exposure pathways would be quantitatively evaluated in the HHRA. However, it was found that the available data are inadequate for evaluating the potential indoor air pathway. The data collection effort conducted during the RI was not designed to evaluate the indoor air pathway. Therefore, risks associated with this pathway were not quantified in the risk assessment. A qualitative evaluation of the data is provided in Appendix C. Due to the presence of VOCs in soil and groundwater, this may result in an underestimation of risks associated with the Martin Aaron site.

9.3 Uncertainty Associated with Toxicity Assessment

Uncertainties associated with the non-carcinogenic toxicity factors are included in Appendix A Tables 5.1 and 5.2. The USEPA applies several UFs to extrapolate dose points from animal studies to humans. These UFs range between 10 to 3,000. Additional modification factors are also used based on the professional judgment of the USEPA. Therefore, there is a high degree of uncertainty in the non-carcinogenic toxicity criteria, based on the available scientific data for each compound. The non-carcinogenic toxicity factors are most likely an overestimate of actual toxicity.

The uncertainty associated with CSFs is mostly associated with the low dose extrapolation where carcinogenicity at low doses is assumed to be straight line responses. This is a conservative assumption, which introduces a high uncertainty into slope factors that are extrapolated from this area of the dose-response curve. The CSFs are based on the assumption that there is no threshold level for carcinogenicity; however, most of the experimental studies indicate existence of a threshold level. Therefore, CSFs developed by USEPA represent upper bound estimates. Carcinogenic risks generated in this assessment should be regarded as an upper bound estimate on the potential carcinogenic risks rather than an accurate representation of carcinogenic risk. The true carcinogenic risk is likely to be less than the predicted value (USEPA, December 1989).

There is a large degree of uncertainty associated with the oral to dermal adjustment factors (based on chemical-specific gastrointestinal absorption factors) used to transform the oral RfDs and CSFs based on administered doses to dermal RfDs and CSFs based on absorbed doses. For constituents that do not have dermal absorption factors listed in the USEPA dermal guidance (USEPA, September 2001), a value of 100% was assumed, as recommended by the guidance. This assumption may contribute to an underestimation of risk, particularly for inorganics that are actually poorly absorbed.

There is a large degree of uncertainty associated with the TCE toxicity values used in the risk assessment (USEPA, December 2002). Following USEPA Region 2 practice, the most conservative TCE toxicity values available (USEPA, December 2002) were used in the risk assessment, presented in Table 15. The Science Advisory Board has reviewed these toxicity data. The Agency is currently responding to the comments, which may take an additional year or two before toxicity values are included in IRIS. The risks associated with exposure to TCE in soil exceed USEPA's target risk range. Therefore, USEPA Region 2 recommends also evaluating the risks due to TCE using the less stringent CSFs shown below. Although in some cases using these less stringent CSFs would result in the risk associated with TCE alone to fall within USEPA's acceptable risk range, the cumulative carcinogenic risk would still exceed the acceptable risk range. Therefore, use of these values would not substantially alter the results and conclusions of the risk assessment. The calculation of TCE risks using the recommended USEPA Region 2 values is presented on Table 16 and it yields risks within USEPA's acceptable risk range.

9.4 Uncertainty in Risk Characterization

The uncertainties identified in each component of the risk assessment ultimately contribute to uncertainty in final risk characterization. The addition of risks and HIs across pathways and chemicals contributes to uncertainty based on the interaction of chemicals, such as additivity, synergism, potentiation, and susceptibility of exposed receptors. The simple assumption of additivity used for this site may or may not be accurate and may over- or under-estimate risk; however, a better alternative is not available at this time.

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10.0 Summary

This risk assessment evaluated the potential non-carcinogenic hazards and carcinogenic risks associated with potential exposures to surface soil, subsurface soil, and groundwater (from 2 separate aquifers) for the Martin Aaron site. Tables 6-4 through 6-13 summarize the potential non-carcinogenic hazards and carcinogenic risks calculated in the human health risk assessment. These risks are discussed in the following paragraphs. This summary focuses on subsurface soil (zero to 10 feet bgs) and both the upper and middle PRM aquifers.

A background evaluation has not been conducted for the Martin Aaron site, so it is possible that potential risks and hazards associated with metals exposures are associated with background conditions and not related to past uses of the site.

10.1 Martin Aaron Property

The potential non-carcinogenic hazards and risks that are above EPA target risk levels are mainly associated with metals (primarily arsenic, barium, chromium, iron, and mercury), PCB Aroclor 1254, and TCE. The potential carcinogenic hazards and risks that are above EPA target risk levels are associated with arsenic, TCE, and carcinogenic PAHs. Lead is also a potential health concern to fetuses of industrial workers and residential children.

The Martin Aaron property housed a former drum recycling and reconditioning facility, as well as several USTs and ASTs that are likely the source of potential contamination.

The potential non-carcinogenic hazards and carcinogenic risks for current (adolescent trespassers and industrial workers) and future receptors (industrial workers, adult and child residents, and construction workers) associated with potential exposures to environmental media at the Martin Aaron property exceed USEPA target risk levels.

10.2 Junkyard Property

The potential non-carcinogenic hazards and risks that are above USEPA target risk levels are mainly associated with metals (primarily arsenic and barium). The potential carcinogenic hazards and risks that are above USEPA target risk levels are associated with arsenic and benzo(a)pyrene. Lead is also a potential health concern to fetuses of industrial workers and residential children.

The property is an active scrapyard that may be the source of potential contamination at this property. The junkyard also has a residence located on the property.

The potential non-carcinogenic hazards and carcinogenic risks for current (adult and child residents) and future receptors (adult and child residents and industrial workers) associated with potential exposures to environmental media at the junkyard property exceed USEPA target risk levels. There is limited non-carcinogenic risk to future construction workers just

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above the USEPA's target hazard index of 1 and carcinogenic risks were within the USEPA's target risk range.

10.3 Row Homes/Industrial Area

The potential non-carcinogenic hazards and risks that are above EPA target risk levels are mainly associated with metals (primarily arsenic and barium) and chlordane pesticides. The potential carcinogenic hazards and risks that are above EPA target risk levels are associated with arsenic and carcinogenic PAHs. Lead is also a potential health concern to residential children.

This area is associated with Comarco (an active meat processing plant), an abandoned warehouse owned by Ponte Company, and residential row homes.

The potential non-carcinogenic hazards and carcinogenic risks for current (adult and child residents) and future receptors (adult and child residents and industrial workers) associated with potential exposure to environmental media at the row homes/industrial area exceed EPA target risk levels. The potential non-carcinogenic risk to future construction workers is above the USEPA's target hazard index of 1; however, potential carcinogenic risks were within the USEPA's target risk range.

10.4 South Jersey Port Corporation (SJPC) Property

The potential non-carcinogenic hazards and risks that are above EPA target risk levels are mainly associated with metals (primarily barium). The potential carcinogenic hazards and risks that are above EPA target risk levels are associated with arsenic and carcinogenic PAHs. Lead is also a potential health concern to residential children.

The SJPC property was formerly leased to Wadco, which used the property for office space and drum receiving/sorting. Three commercial buildings occupy the SJPC lot, with the remaining acreage consisting of paved and unpaved lots (which may be the source of carcinogenic PAHs).

The potential non-carcinogenic risk for all current and future receptors, except for the child resident, were below the USEPA's target hazard index of 1. The potential carcinogenic risk for future industrial workers and adult and child residents exceeded the USEPA's target risk range. There were no exceedances of USEPA's target risk range for current adolescent trespassers or future construction workers.

10.5 Upper PRM Aquifer

The potential non-carcinogenic hazards and risks that are above EPA target risk levels are mainly associated with metals (primarily arsenic and barium) and naphthalene, with additional smaller contributions from antimony, barium, iron, bis(2-chloroethylether), p-cresol, and benzene. The potential carcinogenic risks that are above USEPA's target risk levels are associated with arsenic, benzene, TCE, and vinyl chloride.

The potential non-carcinogenic risk for future receptors (adult and child residents, industrial worker, and construction workers) associated with potential exposure to the Upper PRM aquifer exceed the USEPA's target hazard index of 1. The potential carcinogenic risk for future industrial workers and adult and child residents exceeded the USEPA's target risk range.

10.6 Middle PRM Aquifer

The potential non-carcinogenic hazards and risks that are above USEPA's target risk levels are mainly associated with iron and arsenic, with additional smaller contributions from manganese and thallium. The potential carcinogenic risks that are above USEPA's target risk levels are mainly associated with vinyl chloride, with additional smaller contributions from arsenic and TCE.

The potential non-carcinogenic risk for future receptors (adult and child residents, and construction workers) associated with potential exposure to the Middle PRM aquifer exceed the USEPA's target hazard index of 1. The carcinogenic risk for future adult and child residents exceeded the USEPA's target risk range. There were no exceedances of EPA's target risk range for future construction workers.

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11.0 References

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Tables

TABLE 1
Samples Used in the Risk Assessment
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Sample Grouping	Station Identifier	Sample Identifier	Matrix	Upper Depth	Lower Depth	DateCollected	Comments
Surface Soil Martin Aaron property	MA-SB-14	MA-SB14-SS	SO	1	1.5	15-Oct-01	
Surface Soil Martin Aaron property	MA-SB-09	MA-SB09-SS	SO	0.5	1	15-Oct-01	
Surface Soil Martin Aaron property	MA-SB-06	MA-SB06-SS	SO	0.5	1	15-Oct-01	
Surface Soil Martin Aaron property	MA-SB-11	MA-SB11-SS	SO	1.5	2	15-Oct-01	
Surface Soil Martin Aaron property	MA-SB-56	MA-SB56-SS	SO	0.5	1	16-Oct-01	
Surface Soil Martin Aaron property	MA-SB-56	MA-SB56-SS-D	SO	0.5	1	16-Oct-01	Field Duplicate
Surface Soil Martin Aaron property	MA-SB-60	MA-SB60-SS	SO	1.5	2	16-Oct-01	
Surface Soil Martin Aaron property	MA-SB-04	MA-SB04-SS	SO	0.5	1	16-Oct-01	
Surface Soil Martin Aaron property	MA-SB-08	MA-SB08-SS	SO	1	1.5	16-Oct-01	
Surface Soil Martin Aaron property	MA-SB-120	MA-SB120-SS	SO	1	2.5	16-Oct-01	
Surface Soil Martin Aaron property	MA-SB-122	MA-SB122-SS	SO	0.5	1	16-Oct-01	
Surface Soil Martin Aaron property	MA-SB-124	MA-SB124-SS	SO	0.5	1	17-Oct-01	
Surface Soil Martin Aaron property	MA-SB-124	MA-SB124-SS-D	SO	0.5	1	17-Oct-01	Field Duplicate
Surface Soil Martin Aaron property	MA-SO-201	MA-SO201-SS	SO	1.5	2	17-Oct-01	
Surface Soil Martin Aaron property	MA-SB-130	MA-SB130-SS	SO	0.5	1	17-Oct-01	
Surface Soil Martin Aaron property	MA-SB-31	MA-SB31-SS	SO	1	1.5	17-Oct-01	
Surface Soil Martin Aaron property	MA-SB-112	MA-SB112-SS	SO	0.5	1	17-Oct-01	
Surface Soil Martin Aaron property	MA-SO-214	MA-SO214-SS	SO	0.5	1	18-Oct-01	
Surface Soil Martin Aaron property	MA-SB-42	MA-SB42-SS	SO	0.5	1	18-Oct-01	
Surface Soil Martin Aaron property	MA-SB-02	MA-SB02-SS	SO	0.5	1	18-Oct-01	
Surface Soil Martin Aaron property	MA-SB-81	MA-SB81-SS	SO	0.5	1	18-Oct-01	
Surface Soil Martin Aaron property	MA-SB-81	MA-SB81-SS-D	SO	0.5	1	18-Oct-01	Field Duplicate
Surface Soil Martin Aaron property	MA-SB-82	MA-SB82-SS	SO	0.5	1	19-Oct-01	
Surface Soil Martin Aaron property	MA-SB-131	MA-SB131-SS	SO	0.5	1	19-Oct-01	
Surface Soil Martin Aaron property	MA-SB-96	MA-SB96-SS	SO	0.5	1	22-Oct-01	
Surface Soil Martin Aaron property	MA-SB-97	MA-SB97-SS	SO	0.5	1	22-Oct-01	
Surface Soil Martin Aaron property	MA-SB-98	MA-SB98-SS	SO	0.5	1	22-Oct-01	
Surface Soil Junkyard	MA-SO-211	MA-SO211-SS-1.0	SO	1	1.5	14-Dec-01	
Surface Soil Junkyard	MA-SO-212	MA-SO212-SS-1.0	SO	1	1.5	14-Dec-01	
Surface Soil Junkyard	MA-SO-212	MA-SO212-SS-1.0D	SO	1	1.5	14-Dec-01	Field Duplicate
Surface Soil Row Homes/Industrial Area	MA-SO-202	MA-SO202-SS-1	SO	1	1.5	14-Dec-01	Gravel/rock
Surface Soil Row Homes/Industrial Area	MA-SO-204	MA-SO204-SS-0.5	SO	0.5	1	17-Dec-01	
Surface Soil Row Homes/Industrial Area	MA-SO-401	MA-SO401-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Surface Soil Row Homes/Industrial Area	MA-SO-402	MA-SO402-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Surface Soil Row Homes/Industrial Area	MA-SO-403	MA-SO403-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Surface Soil Row Homes/Industrial Area	MA-SO-404	MA-SO404-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Surface Soil South Jersey Port property	MA-SB-75	MA-SB75-SS-1.0	SO	1	1.5	12-Dec-01	
Surface Soil South Jersey Port property	MA-SB-69	MA-SB69-SS-1.0	SO	1	1.5	12-Dec-01	
Surface Soil South Jersey Port property	MA-SO-302	MA-SO302-SS-1.0	SO	1	1.5	12-Dec-01	
Surface Soil South Jersey Port property	MA-SB-62	MA-SB62-SS-1	SO	1	1.5	12-Dec-01	
Surface Soil South Jersey Port property	MA-SB-67	MA-SB67-SS-1.0	SO	1	1.5	12-Dec-01	
Surface Soil South Jersey Port property	MA-SB-29	MA-SB29-SS-1.0	SO	1	1.5	12-Dec-01	
Surface Soil South Jersey Port property	MA-SB-77	MA-SB77-SS-1.0	SO	1	1.5	12-Dec-01	
Surface Soil South Jersey Port property	MA-SO-301	MA-SO301-SS-1.0	SO	1	1.5	13-Dec-01	
Surface Soil South Jersey Port property	MA-SO-301	MA-SO301-SS-1.0D	SO	1	1.5	13-Dec-01	Field Duplicate
Surface Soil South Jersey Port property	MA-SO-303	MA-SO303-SS-1.0	SO	1	1.5	13-Dec-01	
Surface Soil South Jersey Port property	MA-SB-68	MA-SB68-SS-1.0	SO	1	1.5	13-Dec-01	
Surface Soil South Jersey Port property	MA-SB-78	MA-SB78-SS-0.5	SO	0.5	1	13-Dec-01	
Surface Soil South Jersey Port property	MA-SB-66	MA-SB66-SS-0.5	SO	0.5	1	13-Dec-01	
Surface Soil South Jersey Port property	MA-SB-72	MA-SB72-SS-0.5	SO	0.5	1	13-Dec-01	
Surface Soil South Jersey Port property	MA-SB-79	MA-SB79-SS-0.5	SO	0.5	1	13-Dec-01	
Subsurface Soil Martin Aaron property	MA-SB-14	MA-SB14-SS	SO	1	1.5	15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-14	MA-SB14-S	SO	9	9.5	15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-09	MA-SB09-SS	SO	0.5	1	15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-09	MA-SB09-S	SO	3	3.5	15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-06	MA-SB06-SS	SO	0.5	1	15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-06	MA-SB06-S	SO	5	5.5	15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-11	MA-SB11-SS	SO	1.5	2	15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-11	MA-SB11-S	SO			15-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-56	MA-SB56-SS	SO	0.5	1	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-56	MA-SB56-SS-D	SO	0.5	1	16-Oct-01	Field Duplicate
Subsurface Soil Martin Aaron property	MA-SB-56	MA-SB56-S	SO	8.5	9	16-Oct-01	

TABLE 1
Samples Used in the Risk Assessment
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Sample Grouping	Station Identifier	Sample Identifier	Matrix	Upper Depth	Lower Depth	DateCollected	Comments
Subsurface Soil Martin Aaron property	MA-SB-60	MA-SB60-SS	SO	1.5	2	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-60	MA-SB60-S	SO	6.5	7	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-04	MA-SB04-S	SO	5	5.5	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-04	MA-SB04-SS	SO	0.5	1	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-08	MA-SB08-SS	SO	1	1.5	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-08	MA-SB08-S	SO	6.5	7	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-120	MA-SB120-SS	SO	1	2.5	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-122	MA-SB122-SS	SO	0.5	1	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-122	MA-SB122-S	SO	8	8.5	16-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-124	MA-SB124-SS	SO	0.5	1	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-124	MA-SB124-SS-D	SO	0.5	1	17-Oct-01	Field Duplicate
Subsurface Soil Martin Aaron property	MA-SB-124	MA-SB124-S	SO	4	4.5	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SO-201	MA-SO201-SS	SO	1.5	2	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SO-201	MA-SO201-S	SO	4.5	5	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-130	MA-SB130-SS	SO	0.5	1	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-130	MA-SB130-S	SO	5	5.5	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-31	MA-SB31-SS	SO	1	1.5	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-31	MA-SB31-S	SO	6.5	7	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-112	MA-SB112-SS	SO	0.5	1	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-112	MA-SB112-S	SO	4	4.5	17-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-47	MA-SB47-SS	SO	0.5	1	18-Oct-01	Concrete
Subsurface Soil Martin Aaron property	*MA-SB-47*	*MA-SB47-S*	*SO*	*4.5*	*5*	*18-Oct-01*	*Concrete*
Subsurface Soil Martin Aaron property	MA-SO-214	MA-SO214-SS	SO	0.5	1	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SO-214	MA-SO214-S	SO	4	4.5	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-42	MA-SB42-SS	SO	0.5	1	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-42	MA-SB42-S	SO	4.5	5	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-02	MA-SB02-SS	SO	0.5	1	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-02	MA-SB02-S	SO	4.5	5	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-118	MA-SB118-SS	SO	0.5	1	18-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-118	MA-SB118-S	SO	4.5	5	18-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-81	MA-SB81-SS	SO	0.5	1	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-81	MA-SB81-SS-D	SO	0.5	1	18-Oct-01	Field Duplicate
Subsurface Soil Martin Aaron property	MA-SB-81	MA-SB81-S	SO	4.5	5	18-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-82	MA-SB82-SS	SO	0.5	1	19-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-82	MA-SB82-S	SO	4	4.5	19-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-120	MA-SB120-S	SO	2	2.5	19-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-131	MA-SB131-SS	SO	0.5	1	19-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-131	MA-SB131-S	SO	5	5.5	19-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-13	MA-SB13-SS	SO	0.5	1	19-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-13	MA-SB13-S	SO	8.5	9	19-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-108	MA-SB108-SS	SO	0.5	1	22-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-108	MA-SB108-SS-D	SO	0.5	1	22-Oct-01	Concrete, Field Duplicate
Subsurface Soil Martin Aaron property	MA-SB-108	MA-SB108-S	SO	4.5	5	22-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-106	MA-SB106-SS	SO	0.5	1	22-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-106	MA-SB106-S	SO	5	5.5	22-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SB-96	MA-SB96-SS	SO	0.5	1	22-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-96	MA-SB96-S	SO	4.5	5	22-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-97	MA-SB97-SS	SO	0.5	1	22-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-97	MA-SB97-S	SO	4.5	5	22-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-98	MA-SB98-SS	SO	0.5	1	22-Oct-01	
Subsurface Soil Martin Aaron property	MA-SB-98	MA-SB98-S	SO	5	5.5	22-Oct-01	
Subsurface Soil Martin Aaron property	MA-SO-209	MA-SO209-SS	SO	0.5	1	22-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SO-209	MA-SO209-S	SO	5	5.5	22-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SO-208	MA-SO208-SS	SO	0.5	1	22-Oct-01	Concrete
Subsurface Soil Martin Aaron property	MA-SO-208	MA-SO208-S	SO	4.5	5	22-Oct-01	Concrete
Subsurface Soil Junkyard	MA-SO-210	MA-SO210-SS-0.5	SO	0.5	1	14-Dec-01	Concrete
Subsurface Soil Junkyard	MA-SO-210	MA-SO210-S-5.0	SO	5	5.5	14-Dec-01	Concrete
Subsurface Soil Junkyard	MA-SO-211	MA-SO211-SS-1.0	SO	1	1.5	14-Dec-01	
Subsurface Soil Junkyard	MA-SO-211	MA-SO211-S-4.5	SO	4.5	5	14-Dec-01	
Subsurface Soil Junkyard	MA-SO-212	MA-SO212-SS-1.0	SO	1	1.5	14-Dec-01	
Subsurface Soil Junkyard	MA-SO-212	MA-SO212-SS-1.0D	SO	1	1.5	14-Dec-01	Field Duplicate
Subsurface Soil Junkyard	MA-SO-212	MA-SO212-S-5.0	SO	5	5.5	14-Dec-01	

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TABLE 1
Samples Used in the Risk Assessment
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Sample Grouping	Station Identifier	Sample Identifier	Matrix	Upper Depth	Lower Depth	DateCollected	Comments
Subsurface Soil Junkyard	MA-SO-213	MA-SO213-SS-1.0	SO	1	1.5	14-Dec-01	Concrete
Subsurface Soil Junkyard	MA-SO-213	MA-SO213-S-5.5	SO	5.5	6	14-Dec-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SO-203	MA-SO203-SS	SO	0.5	1	19-Oct-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SO-203	MA-SO203-S	SO	4	4.5	19-Oct-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SO-207	MA-SO207-SS	SO	0.5	1	22-Oct-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SO-207	MA-SO207-S	SO	4.5	5	22-Oct-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SO-202	MA-SO202-SS-1	SO	1	1.5	14-Dec-01	Gravel/rock
Subsurface Soil Row Homes/Industrial Area	MA-SO-206	MA-SO206-SS-1.5	SO	1.5	2	17-Dec-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SO-206	MA-SO206-S-5.0	SO	5	5.5	17-Dec-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SB-85	MA-SB85-SS-1.0	SO	1	1.5	17-Dec-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SB-85	MA-SB85-S-6.0	SO	6	6.5	17-Dec-01	Concrete
Subsurface Soil Row Homes/Industrial Area	MA-SO-204	MA-SO204-SS-0.5	SO	0.5	1	17-Dec-01	
Subsurface Soil Row Homes/Industrial Area	MA-SO-204	MA-SO204-S-5.0	SO	5	5.5	17-Dec-01	
Subsurface Soil Row Homes/Industrial Area	MA-SO-401	MA-SO401-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Subsurface Soil Row Homes/Industrial Area	MA-SO-401	MA-SO401-SS-1.0D	SO	1	1.5	17-Dec-01	Gravel/rock, Field Duplicate
Subsurface Soil Row Homes/Industrial Area	MA-SO-402	MA-SO402-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Subsurface Soil Row Homes/Industrial Area	MA-SO-403	MA-SO403-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Subsurface Soil Row Homes/Industrial Area	MA-SO-404	MA-SO404-SS-1.0	SO	1	1.5	17-Dec-01	Gravel/rock
Subsurface Soil Row Homes/Industrial Area	MA-SO-404	MA-SO404-S-8.5	SO	8.5	9	17-Dec-01	Gravel/rock
Subsurface Soil South Jersey Port property	MA-SB-75	MA-SB75-SS-1.0	SO	1	1.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-75	MA-SB75-S-4.5	SO	4.5	5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-69	MA-SB69-SS-1.0	SO	1	1.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-69	MA-SB69-S-2.0	SO	2	2.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SO-302	MA-SO302-SS-1.0	SO	1	1.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SO-302	MA-SO302-S-6.0	SO	6	6.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-62	MA-SB62-SS-1	SO	1	1.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-62	MA-SB62-S-5.0	SO	5	5.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-67	MA-SB67-SS-1.0	SO	1	1.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-67	MA-SB67-S-5.0	SO	5	5.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-29	MA-SB29-SS-1.0	SO	1	1.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-29	MA-SB29-S-5.0	SO	5	5.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-77	MA-SB77-SS-1.0	SO	1	1.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-77	MA-SB77-S-5.0	SO	5	5.5	12-Dec-01	
Subsurface Soil South Jersey Port property	MA-SO-301	MA-SO301-SS-1.0	SO	1	1.5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SO-301	MA-SO301-SS-1.0D	SO	1	1.5	13-Dec-01	Field Duplicate
Subsurface Soil South Jersey Port property	MA-SO-301	MA-SO301-S-5.0	SO	5	5.5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SO-303	MA-SO303-SS-1.0	SO	1	1.5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SO-303	MA-SO303-S-6.0	SO	6	6.5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-68	MA-SB68-SS-1.0	SO	1	1.5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-68	MA-SB68-S-4.5	SO	4.5	5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-78	MA-SB78-SS-0.5	SO	0.5	1	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-78	MA-SB78-S-6.0	SO	6	6.5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-71	MA-SB71-SS-0.5	SO	0.5	1	13-Dec-01	Concrete
Subsurface Soil South Jersey Port property	MA-SB-71	MA-SB71-S-6.0	SO	6	6.5	13-Dec-01	Concrete
Subsurface Soil South Jersey Port property	MA-SB-66	MA-SB66-SS-0.5	SO	0.5	1	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-66	MA-SB66-S-4.5	SO	4.5	5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-72	MA-SB72-SS-0.5	SO	0.5	1	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-72	MA-SB72-S-6.0	SO	6	6.5	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-79	MA-SB79-SS-0.5	SO	0.5	1	13-Dec-01	
Subsurface Soil South Jersey Port property	MA-SB-79	MA-SB79-S-5.0	SO	5	5.5	13-Dec-01	
Upper PRM Aquifer	MA-MW-01M	BMA004	WG	50	60	20-Jun-02	
Upper PRM Aquifer	MA-MW-01M	CMA002	WG	50	60	23-Sep-02	
Upper PRM Aquifer	MA-MW-01M	MA-MW-1M-R1	WG	50	60	20-Jun-02	
Upper PRM Aquifer	MA-MW-01M	MA-MW-1M-R2	WG	50	60	23-Sep-02	
Upper PRM Aquifer	MA-MW-01S	BMA005	WG	4	14	20-Jun-02	
Upper PRM Aquifer	MA-MW-01S	CMA001	WG	4	14	23-Sep-02	
Upper PRM Aquifer	MA-MW-01S	MA-MW-1S-R1	WG	4	14	20-Jun-02	
Upper PRM Aquifer	MA-MW-01S	MA-MW-1S-R2	WG	4	14	23-Sep-02	
Upper PRM Aquifer	MA-MW-04S	BMA008	WG	4	14	12-Jun-02	
Upper PRM Aquifer	MA-MW-04S	CMA003	WG	4	14	17-Sep-02	
Upper PRM Aquifer	MA-MW-04S	MA-MW-4S-R1	WG	4	14	12-Jun-02	
Upper PRM Aquifer	MA-MW-04S	MA-MW-4S-R2	WG	4	14	17-Sep-02	

TABLE 1
Samples Used in the Risk Assessment
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Sample Grouping	Station Identifier	Sample Identifier	Matrix	Upper Depth	Lower Depth	DateCollected	Comments
Upper PRM Aquifer	MA-MW-05S	BMA009	WG	6	16	27-Jun-02	
Upper PRM Aquifer	MA-MW-05S	CMA004	WG	6	16	25-Sep-02	
Upper PRM Aquifer	MA-MW-05S	MA-MW-5S-R1	WG	6	16	27-Jun-02	
Upper PRM Aquifer	MA-MW-05S	MA-MW-5S-R1-D	WG	6	16	27-Jun-02	Field Duplicate
Upper PRM Aquifer	MA-MW-05S	MA-MW-5S-R2	WG	6	16	25-Sep-02	
Upper PRM Aquifer	MA-MW-09S	BMA013	WG	16	26	19-Jun-02	
Upper PRM Aquifer	MA-MW-09S	CMA006	WG	16	26	19-Sep-02	
Upper PRM Aquifer	MA-MW-09S	MA-MW-9S-R1	WG	16	26	19-Jun-02	
Upper PRM Aquifer	MA-MW-09S	MA-MW-9S-R2	WG	16	26	19-Sep-02	
Upper PRM Aquifer	MA-MW-10S	BMA001	WG	8	18	19-Jun-02	
Upper PRM Aquifer	MA-MW-10S	CMA008	WG	8	18	19-Sep-02	
Upper PRM Aquifer	MA-MW-10S	MA-MW-10S-R1	WG	8	18	19-Jun-02	
Upper PRM Aquifer	MA-MW-10S	MA-MW-10S-R2	WG	8	18	19-Sep-02	
Upper PRM Aquifer	MA-MW-11M	BMA002	WG	46	56	20-Jun-02	
Upper PRM Aquifer	MA-MW-11M	CMA010	WG	46	56	23-Sep-02	
Upper PRM Aquifer	MA-MW-11M	MA-MW-11M-R1	WG	46	56	20-Jun-02	
Upper PRM Aquifer	MA-MW-11M	MA-MW-11M-R2	WG	46	56	23-Sep-02	
Upper PRM Aquifer	MA-MW-11S	BMA003	WG	11	21	20-Jun-02	
Upper PRM Aquifer	MA-MW-11S	CMA009	WG	11	21	23-Sep-02	
Upper PRM Aquifer	MA-MW-11S	MA-MW-11S-R1	WG	11	21	20-Jun-02	
Upper PRM Aquifer	MA-MW-11S	MA-MW-11S-R2	WG	11	21	23-Sep-02	
Upper PRM Aquifer	MA-MW-12M	BMA015	WG	38.1	48.1	18-Jun-02	
Upper PRM Aquifer	MA-MW-12M	CMA012	WG	38.1	48.1	24-Sep-02	
Upper PRM Aquifer	MA-MW-12M	MA-MW-12M-R1	WG	38.1	48.1	18-Jun-02	
Upper PRM Aquifer	MA-MW-12M	MA-MW-12M-R2	WG	38.1	48.1	24-Sep-02	
Upper PRM Aquifer	MA-MW-12S	BMA016	WG	5.4	15.4	18-Jun-02	
Upper PRM Aquifer	MA-MW-12S	CMA011	WG	5.4	15.4	24-Sep-02	
Upper PRM Aquifer	MA-MW-12S	MA-MW-12S-R1	WG	5.4	15.4	18-Jun-02	
Upper PRM Aquifer	MA-MW-12S	MA-MW-12S-R2	WG	5.4	15.4	24-Sep-02	
Upper PRM Aquifer	MA-MW-13M	BMA017	WG	48.35	58.35	27-Jun-02	
Upper PRM Aquifer	MA-MW-13M	CMA014	WG	48.35	58.35	25-Sep-02	
Upper PRM Aquifer	MA-MW-13M	MA-MW-13M-R1	WG	48.35	58.35	27-Jun-02	
Upper PRM Aquifer	MA-MW-13M	MA-MW-13M-R1-D	WG	48.35	58.35	27-Jun-02	Field Duplicate
Upper PRM Aquifer	MA-MW-13M	MA-MW-13M-R2	WG	48.35	58.35	25-Sep-02	
Upper PRM Aquifer	MA-MW-13M	MA-MW-13M-R2-D	WG	48.35	58.35	25-Sep-02	Field Duplicate
Upper PRM Aquifer	MA-MW-13S	BMA018	WG	6.6	16.6	28-Jun-02	
Upper PRM Aquifer	MA-MW-13S	CMA013	WG	6.6	16.6	25-Sep-02	
Upper PRM Aquifer	MA-MW-13S	MA-MW-13S-R1	WG	6.6	16.6	28-Jun-02	
Upper PRM Aquifer	MA-MW-13S	MA-MW-13S-R2	WG	6.6	16.6	25-Sep-02	
Upper PRM Aquifer	MA-MW-14R	BMA020	WG	109.5	119.5	18-Jun-02	
Upper PRM Aquifer	MA-MW-14R	CMA016	WG	109.5	119.5	24-Sep-02	
Upper PRM Aquifer	MA-MW-14R	MA-MW-14R-R1	WG	109.5	119.5	18-Jun-02	
Upper PRM Aquifer	MA-MW-14R	MA-MW-14R-R2	WG	109.5	119.5	24-Sep-02	
Upper PRM Aquifer	MA-MW-14S	BMA021	WG	7	20	18-Jun-02	
Upper PRM Aquifer	MA-MW-14S	CMA015	WG	7	20	24-Sep-02	
Upper PRM Aquifer	MA-MW-14S	MA-MW-14S-R1	WG	7	20	18-Jun-02	
Upper PRM Aquifer	MA-MW-14S	MA-MW-14S-R2	WG	7	20	24-Sep-02	
Upper PRM Aquifer	MA-MW-14S	MA-MW-14S-R2-D	WG	7	20	24-Sep-02	Field Duplicate
Upper PRM Aquifer	MA-MW-15M	BMA022	WG	59.4	69.4	19-Jun-02	
Upper PRM Aquifer	MA-MW-15M	CMA020	WG	59.4	69.4	23-Sep-02	
Upper PRM Aquifer	MA-MW-15M	MA-MW-15M-R1	WG	59.4	69.4	19-Jun-02	
Upper PRM Aquifer	MA-MW-15M	MA-MW-15M-R2	WG	59.4	69.4	23-Sep-02	
Upper PRM Aquifer	MA-MW-15S	BMA023	WG	6.8	16.8	19-Jun-02	
Upper PRM Aquifer	MA-MW-15S	CMA018	WG	6.8	16.8	25-Sep-02	
Upper PRM Aquifer	MA-MW-15S	MA-MW-15S-R1	WG	6.8	16.8	19-Jun-02	
Upper PRM Aquifer	MA-MW-15S	MA-MW-15S-R2	WG	6.8	16.8	25-Sep-02	
Upper PRM Aquifer	MA-MW-16S	BMA024	WG	6.5	16.5	27-Jun-02	
Upper PRM Aquifer	MA-MW-16S	CMA021	WG	6.5	16.5	25-Sep-02	
Upper PRM Aquifer	MA-MW-16S	MA-MW-16S-R1	WG	6.5	16.5	27-Jun-02	
Upper PRM Aquifer	MA-MW-16S	MA-MW-16S-R2	WG	6.5	16.5	25-Sep-02	
Upper PRM Aquifer	MA-MW-17M	BMA025	WG	41.82	51.82	14-Jun-02	
Upper PRM Aquifer	MA-MW-17M	CMA019	WG	41.82	51.82	18-Sep-02	

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TABLE 1
Samples Used in the Risk Assessment
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Sample Grouping	Station Identifier	Sample Identifier	Matrix	Upper Depth	Lower Depth	DateCollected	Comments
Upper PRM Aquifer	MA-MW-17M	MA-MW-17M-R1	WG	41.82	51.82	14-Jun-02	
Upper PRM Aquifer	MA-MW-17M	MA-MW-17M-R2	WG	41.82	51.82	18-Sep-02	
Upper PRM Aquifer	MA-MW-17S	BMA026	WG	8	18	14-Jun-02	
Upper PRM Aquifer	MA-MW-17S	CMA022	WG	8	18	18-Sep-02	
Upper PRM Aquifer	MA-MW-17S	MA-MW-17S-R1	WG	8	18	14-Jun-02	
Upper PRM Aquifer	MA-MW-17S	MA-MW-17S-R2	WG	8	18	18-Sep-02	
Upper PRM Aquifer	MA-MW-18M	BMA028	WG	31.77	41.77	17-Jun-02	
Upper PRM Aquifer	MA-MW-18M	CMA026	WG	31.77	41.77	18-Sep-02	
Upper PRM Aquifer	MA-MW-18M	MA-MW-18M-R1	WG	31.77	41.77	17-Jun-02	
Upper PRM Aquifer	MA-MW-18M	MA-MW-18M-R2	WG	31.77	41.77	18-Sep-02	
Upper PRM Aquifer	MA-MW-18S	BMA029	WG	7.8	17.8	17-Jun-02	
Upper PRM Aquifer	MA-MW-18S	CMA025	WG	7.8	17.8	18-Sep-02	
Upper PRM Aquifer	MA-MW-18S	MA-MW-18S-R1	WG	7.8	17.8	17-Jun-02	
Upper PRM Aquifer	MA-MW-18S	MA-MW-18S-R2	WG	7.8	17.8	18-Sep-02	
Upper PRM Aquifer	MA-MW-19M	BMA030	WG	42	52	17-Jun-02	
Upper PRM Aquifer	MA-MW-19M	CMA029	WG	42	52	19-Sep-02	
Upper PRM Aquifer	MA-MW-19M	MA-MW-19M-R1	WG	42	52	17-Jun-02	
Upper PRM Aquifer	MA-MW-19M	MA-MW-19M-R2	WG	42	52	19-Sep-02	
Upper PRM Aquifer	MA-MW-19R	BMA038	WG	103	113	17-Jun-02	
Upper PRM Aquifer	MA-MW-19R	CMA030	WG	103	113	19-Sep-02	
Upper PRM Aquifer	MA-MW-19R	MA-MW-19R-R1	WG	103	113	17-Jun-02	
Upper PRM Aquifer	MA-MW-19R	MA-MW-19R-R2	WG	103	113	19-Sep-02	
Upper PRM Aquifer	MA-MW-19S	BMA031	WG	5.05	15.05	17-Jun-02	
Upper PRM Aquifer	MA-MW-19S	CMA028	WG	5.05	15.05	19-Sep-02	
Upper PRM Aquifer	MA-MW-19S	MA-MW-19S-R1	WG	5.05	15.05	17-Jun-02	
Upper PRM Aquifer	MA-MW-19S	MA-MW-19S-R2	WG	5.05	15.05	19-Sep-02	
Upper PRM Aquifer	MA-MW-20M	BMA033	WG	42	52	13-Jun-02	
Upper PRM Aquifer	MA-MW-20M	MA-MW-20M-R1	WG	42	52	13-Jun-02	
Upper PRM Aquifer	MA-MW-20M	MA-MW-20M-R2	WG	42	52	20-Sep-02	
Upper PRM Aquifer	MA-MW-20R	BMA034	WG	113	123	13-Jun-02	
Upper PRM Aquifer	MA-MW-20R	CMA031	WG	113	123	20-Sep-02	
Upper PRM Aquifer	MA-MW-20R	MA-MW-20R-R1	WG	113	123	13-Jun-02	
Upper PRM Aquifer	MA-MW-20R	MA-MW-20R-R2	WG	113	123	20-Sep-02	
Upper PRM Aquifer	MA-MW-20S	BMA035	WG	7.9	17.9	13-Jun-02	
Upper PRM Aquifer	MA-MW-20S	CMA032	WG	7.9	17.9	20-Sep-02	
Upper PRM Aquifer	MA-MW-20S	MA-MW-20S-R1	WG	7.9	17.9	13-Jun-02	
Upper PRM Aquifer	MA-MW-20S	MA-MW-20S-R2	WG	7.9	17.9	20-Sep-02	
Upper PRM Aquifer	MA-MW-21S	BMA036	WG	10	21	12-Jun-02	
Upper PRM Aquifer	MA-MW-21S	CMA023	WG	10	21	17-Sep-02	
Upper PRM Aquifer	MA-MW-21S	MA-MW-21S-R1	WG	10	21	12-Jun-02	
Upper PRM Aquifer	MA-MW-21S	MA-MW-21S-R2	WG	10	21	17-Sep-02	
Middle PRM Aquifer	MA-MW-20D	MA-MW-20D-R1	WG	123	133	13-Jun-02	
Middle PRM Aquifer	MA-MW-20D	BMA032	WG	123	133	13-Jun-02	
Middle PRM Aquifer	MA-MW-18D	BMA027	WG	140	152	17-Jun-02	
Middle PRM Aquifer	MA-MW-18D	MA-MW-18D-R1	WG	140	152	17-Jun-02	
Middle PRM Aquifer	MA-MW-14D	BMA019	WG	170	188	18-Jun-02	
Middle PRM Aquifer	MA-MW-14D	MA-MW-14D-R1	WG	170	188	18-Jun-02	
Middle PRM Aquifer	MA-MW-09D	BMA012	WG	44	54	19-Jun-02	
Middle PRM Aquifer	MA-MW-09D	MA-MW-9D-R1	WG	44	54	19-Jun-02	
Middle PRM Aquifer	MA-MW-18D	MA-MW-18D-R2	WG	140	152	18-Sep-02	
Middle PRM Aquifer	MA-MW-18D	CMA027	WG	140	152	18-Sep-02	
Middle PRM Aquifer	MA-MW-09D	CMA007	WG	44	54	19-Sep-02	
Middle PRM Aquifer	MA-MW-09D	MA-MW-9D-R2	WG	44	54	19-Sep-02	
Middle PRM Aquifer	MA-MW-20D	MA-MW-20D-R2	WG	123	133	20-Sep-02	
Middle PRM Aquifer	MA-MW-20D	CMA034	WG	123	133	20-Sep-02	
Middle PRM Aquifer	MA-MW-14D	MA-MW-14D-R2	WG	170	188	24-Sep-02	
Middle PRM Aquifer	MA-MW-14D	CMA017	WG	170	188	24-Sep-02	

Note
Depths presented in feet.
SO - Soil
WG - Groundwater

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TABLE 2
Chemicals of Potential Concern
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Surface Soil Martin Aaron property	Surface Soil Junkyard	Surface Soil Row Homes/Industrial Area	Surface Soil South Jersey Port property	Subsurface Soil Martin Aaron property	Subsurface Soil Junkyard	Subsurface Soil Row Homes/Industrial Area	Subsurface Soil South Jersey Port property	Upper PRM Aquifer	Middle PRM Aquifer
Aluminum	Antimony	Antimony	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum	Aluminum
Antimony	Arsenic	Arsenic	Arsenic	Antimony	Antimony	Antimony	Antimony	Antimony	Antimony
Arsenic	Barium	Barium	Barium	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic	Arsenic
Barium	Cadmium	Cadmium	Cadmium	Barium	Barium	Barium	Barium	Barium	Barium
Cadmium	Chromium	Chromium	Copper	Cadmium	Cadmium	Cadmium	Cadmium	Beryllium	Cadmium
Chromium	Iron	Iron	Iron	Chromium	Chromium	Chromium	Chromium	Cadmium	Chromium
Copper	Lead	Lead	Lead	Copper	Iron	Copper	Copper	Chromium	Cobalt
Iron	Manganese	Manganese	Manganese	Iron	Lead	Iron	Iron	Copper	Copper
Lead	Mercury	Mercury	Mercury	Lead	Manganese	Lead	Lead	Iron	Iron
Manganese	Benzo(a)anthracene	Aldrin	Benzo(a)anthracene	Manganese	Mercury	Manganese	Manganese	Lead	Lead
Mercury	Benzo(a)pyrene	Dieldrin	Benzo(a)pyrene	Mercury	Benzo(a)anthracene	Mercury	Mercury	Manganese	Manganese
Nickel	Benzo(b)fluoranthene	Pcb-Aroclor 1254	Benzo(b)fluoranthene	Nickel	Benzo(a)pyrene	Thallium	Zinc	Mercury	Mercury
Silver		Benzo(a)anthracene	Benzo(k)fluoranthene	Silver	Benzo(b)fluoranthene	Aldrin	Benzo(a)anthracene	Nickel	Thallium
Zinc		Benzo(a)pyrene	Carbazole	Thallium	Dibenzo(a,h)anthracene	Chlordane - alpha	Benzo(a)pyrene	Selenium	Benzene
Aldrin		Benzo(b)fluoranthene	Chrysene	Vanadium	Indeno(1,2,3-cd)pyrene	Chlordane - gamma (technical mixture)	Benzo(b)fluoranthene	Thallium	Dichloroethane-1,2
Chlordane - alpha		Benzo(k)fluoranthene	Dibenzo(a,h)anthracene	Zinc		Dieldrin	Benzo(k)fluoranthene	Vanadium	Dichloroethylene-1,2 cis
Chlordane - gamma (technical mixture)		Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Aldrin		Heptachlor Epoxide	Carbazole	Zinc	Dichloropropane-1,2
DDE-4,4'		Indeno(1,2,3-cd)pyrene		Chlordane - alpha		Pcb-Aroclor 1254	Chrysene	Chlordane - alpha	Tetrachloroethylene
DDT-4,4'		Naphthalene		Chlordane - gamma (technical mixture)		Pcb-Aroclor 1260	Dibenzo(a,h)anthracene	Dieldrin	Trichloroethylene
Dieldrin				DDE-4,4'		Acetophenone	Dibenzofuran	Heptachlor Epoxide	Vinyl chloride
Heptachlor				DDT-4,4'		Benzo(a)anthracene	Fluoranthene	Cresol-o	
PCB-Aroclor 1248				Dieldrin		Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene	Cresol-p	
PCB-Aroclor 1254				Heptachlor		Benzo(b)fluoranthene	Naphthalene	Ether, bis(2-chloroethyl)	
PCB-Aroclor 1260				PCB-Aroclor 1248		Benzo(k)fluoranthene	Phenanthrene	Naphthalene	
Acetophenone				PCB-Aroclor 1254		Dibenzo(a,h)anthracene	Pyrene	Nitrosodiphenylamine-n	
Benzo(a)anthracene				PCB-Aroclor 1260		Indeno(1,2,3-cd)pyrene	Benzene	Phenol	
Benzo(a)pyrene				Acetophenone		Naphthalene		Benzene	
Benzo(b)fluoranthene				Benzo(a)anthracene				Chloroethane	
Benzo(k)fluoranthene				Benzo(a)pyrene				Dichlorobenzene-1,3	
Chrysene				Benzo(b)fluoranthene				Dichlorobenzene-1,4	
Dibenzo(a,h)anthracene				Benzo(k)fluoranthene				Dichloroethane-1,1	
Fluoranthene				Chrysene				Dichloroethane-1,2	
Indeno(1,2,3-cd)pyrene				Dibenzo(a,h)anthracene				Dichloroethene-1,2 trans	
Naphthalene				Fluoranthene				Dichloroethylene-1,2 cis	
Phthalate, bis(2-ethylhexyl) (DEHP)				Indeno(1,2,3-cd)pyrene				Dichloropropane-1,2	
Benzene				Naphthalene				Ethylbenzene	
Chloroform				Phthalate, bis(2-ethylhexyl) (DEHP)				Methyl isobutyl ketone (4-methyl-2-pentanone)	
Dichloroethylene-1,2 cis				Benzene				Methyl tertiary butyl ether (MTBE)	
Tetrachloroethylene				Bromomethane				Tetrachloroethylene	
Toluene				Chloroform				Trichloroethane-1,1,2	
Trichloroethylene				Dichloroethylene-1,2 cis				Trichloroethylene	
Vinyl chloride				Ethylbenzene				Vinyl chloride	
Xylenes, total				Tetrachloroethylene				Xylenes, total	
				Toluene					
				Trichloroethylene					
				Vinyl chloride					
				Xylenes, total					

Notes:
_D - Dissolved

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TABLE 3
Summary of Exposure Pathways Quantitatively Evaluated During the Risk Assessment
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

		Surface [1] Soil	Subsurface [2] Soil	Upper PRM Aquifer	Mid PRM Aquifer
Martin Aaron Property					
Trespasser/Visitor (adolescent)	Current	ing, d, inh			
Industrial Worker	Current	ing, d, inh			
	Future	ing, d, inh	ing, d, inh	ing, d, inh	ing, d, inh
Resident (adult/child) [3]	Future	ing, d, inh	ing, d, inh	ing, d, inh	ing, d, inh
Construction Worker	Future	ing, d, inh	ing, d, inh	d, inh	
South Jersey Port Property					
Trespasser/Visitor (adolescent)	Current	ing, d, inh			
Industrial Worker	Future	ing, d, inh	ing, d, inh	ing, d, inh	ing, d, inh
Resident (adult/child) [3]	Future	ing, d, inh	ing, d, inh	ing, d, inh	ing, d, inh
Construction Worker	Future	ing, d, inh	ing, d, inh	d, inh	
Junkyard, Row Homes, and Industrial Area					
Resident (adult/child)	Current	ing, d, inh			
	Future	ing, d, inh	ing, d, inh	ing, d, inh	ing, d, inh
Industrial Worker	Future	ing, d, inh	ing, d, inh	ing, d, inh	ing, d, inh
Construction Worker	Future	ing, d, inh	ing, d, inh	d, inh	

Notes:
[1] Includes top 2 feet soil.
[2] Includes top 10 feet below ground surface (and samples below concrete).
[3] Although unlikely, future residential use of the site was evaluated.

Exposure pathways:
Ing - Ingestion; d - dermal contact; inh - inhalation

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TABLE 4

Martin Aaron Property - Summary of RME Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Current Trespasser/Visitor	Surface Soil	Ingestion	1E-04		Arsenic Benzo(a)pyrene	Dieldrin Pcb-Aroclor 1254 Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	2.3E+00	
		Dermal Contact	1E-04		Arsenic Benzo(a)pyrene	Dieldrin Pcb-Aroclor 1254 Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	2.0E+00	
		Inhalation	1E-06				2.0E-02	
		Total	2E-04	Benzo(a)pyrene	Arsenic Benzo(a)anthracene Benzo(b)fluoranthene	Aldrin Dibenzo(a,h)anthracene Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	4.2E+00	Arsenic Pcb-Aroclor 1254
Current/Future Adult Industrial Worker	Surface Soil	Ingestion	4E-04	Benzo(a)pyrene	Arsenic Benzo(a)anthracene Benzo(b)fluoranthene	Aldrin Dibenzo(a,h)anthracene Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Pcb-Aroclor 1260 Tetrachloroethylene	2.4E+00	
		Dermal Contact	2E-04	Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene	Aldrin Benzo(a)anthracene Dibenzo(a,h)anthracene Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Pcb-Aroclor 1260	1.5E+00	
		Inhalation	4E-05		Trichloroethylene	Benzene Chloroform Tetrachloroethylene	2.6E-01	
		Total	6E-04	Arsenic Benzo(a)pyrene	Dieldrin Benzo(a)anthracene Benzo(b)fluoranthene Pcb-Aroclor 1254 Trichloroethylene	Aldrin Pcb-Aroclor 1260 Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene Tetrachloroethylene Benzene Chloroform	4.2E+00	Arsenic
	Subsurface Soil	Ingestion	5E-04	Arsenic	Benzo(a)pyrene Trichloroethylene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Tetrachloroethylene	4.8E+00	Arsenic

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TABLE 4

Martin Aaron Property - Summary of RME Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
		Dermal Contact	1E-04		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	3.8E+00	Chromium
		Inhalation	1E-03	Trichloroethylene		Benzene Chloroform Chromium Tetrachloroethylene	1.3E+00	
		Total	2E-03	Arsenic Trichloroethylene	Pcb-Araclor 1254 Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Tetrachloroethylene	Aldrin Benzene Benzo(a)anthracene Chloroform Chromium Dieldrin Indeno(1,2,3-cd)pyrene	9.8E+00	Arsenic Chromium
Future Adult Resident	Surface Soil	Ingestion	5E-04	Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Aldrin Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Pcb-Aroclor 1260 Tetrachloroethylene	3.4E+00	Arsenic
		Dermal Contact	2E-04	Benzo(a)pyrene	Dieldrin Pcb-Aroclor 1254 Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Aldrin Dieldrin Pcb-Aroclor 1260 Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene Tetrachloroethylene	1.3E+00	
		Inhalation	5E-05		Trichloroethylene	Benzene Chloroform Tetrachloroethylene	3.6E-01	
		Total	8E-04	Arsenic Benzo(a)pyrene	Dieldrin Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Pcb-Aroclor 1254 Tetrachloroethylene Trichloroethylene	Aldrin Benzo(k)fluoranthene Pcb-Aroclor 1260	5.0E+00	Arsenic
	Subsurface Soil	Ingestion	7E-04	Arsenic	Benzo(a)pyrene Trichloroethylene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Tetrachloroethylene	6.7E+00	Arsenic Chromium
		Dermal Contact	1E-04		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	3.2E+00	Chromium

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TABLE 4
Martin Aaron Property - Summary of RME Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
		Inhalation	1E-03	Trichloroethylene		Benzene Chloroform Chromium Tetrachloroethylene	1.8E+00	
		Total	2E-03	Arsenic Trichloroethylene	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Chromium Dibenzo(a,h)anthracene Pcb-Aroclor 1254 Tetrachloroethylene	Aldrin Benzene Chloroform Dieldrin Indeno(1,2,3-cd)pyrene	1.2E+01	Arsenic Chromium
Future Child Resident	Surface Soil	Ingestion	1E-03	Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Dieldrin Pcb-Aroclor 1254	Aldrin Benzo(k)fluoranthene Chlordane - alpha Chlordane - gamma (technical mixture) DDE-4,4' Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1260 Tetrachloroethylene	1.7E+01	Barium Iron Pcb-Aroclor 1254
		Dermal Contact	3E-04	Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene	Aldrin Dibenzo(a,h)anthracene Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Pcb-Aroclor 1260	4.8E+00	Barium Iron Pcb-Aroclor 1254
		Inhalation	3E-05		Trichloroethylene	Benzene Chloroform Tetrachloroethylene	6.4E-01	
		Total	2E-03	Arsenic Benzo(a)pyrene	Aldrin Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Trichloroethylene	Benzene Benzo(k)fluoranthene Chlordane - alpha Chlordane - gamma (technical mixture) Chloroform DDE-4,4' Pcb-Aroclor 1260 Tetrachloroethylene	2.2E+01	Barium Iron Pcb-Aroclor 1254
	Subsurface Soil	Ingestion	2E-03	Arsenic	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Pcb-Aroclor 1254 Trichloroethylene	DDE-4,4' Aldrin Dieldrin Indeno(1,2,3-cd)pyrene Tetrachloroethylene	2.0E+01	Arsenic Barium Chromium Iron Mercury Pcb-Aroclor 1254 Trichloroethylene
		Dermal Contact	2E-04	Arsenic	Benzo(a)pyrene Arsenic	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	5.7E+00	Barium Chromium Pcb-Aroclor 1254
		Inhalation	8E-04	Trichloroethylene		Chromium Benzene Chloroform Tetrachloroethylene	4.0E+00	Trichloroethylene

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TABLE 4
Martin Aaron Property - Summary of RME Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
		Total	2E-03	Arsenic Benzo(a)pyrene Trichloroethylene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Tetrachloroethylene	DDE-4,4' Benzene Chloroform Chromium Dieldrin	3.0E+01	Arsenic Barium Chromium Iron Mercury Pcb-Aroclor 1254 Trichloroethylene
Future Adult Construction Worker	Surface Soil	Ingestion	4E-05		Benzo(a)pyrene	Arsenic Benzo(a)anthracene Benzo(b)fluoranthene	3.0E+00	Barium
		Dermal Contact	6E-06			Benzo(a)pyrene	6.2E-01	
		Inhalation	4E-06				3.4E-01	
		Total	5E-05		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene	4.0E+00	Barium
	Subsurface Soil	Ingestion	5E-05		Arsenic	Benzo(a)pyrene Trichloroethylene	3.6E+00	
		Dermal Contact	4E-06			Arsenic	2.1E-01	
		Inhalation	1E-04		Trichloroethylene		2.5E+00	Trichloroethylene
		Total	2E-04	Trichloroethylene	Arsenic		6.3E+00	Trichloroethylene

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TABLE 5
Junkyard - Summary of RME Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Current/Future Adult Resident	Surface Soil	Ingestion	3.E-05		Arsenic	Benzo(a)pyrene	6.5E-01	
		Dermal Contact	6.E-06			Arsenic Benzo(a)pyrene	2.3E-01	
		Inhalation	1.E-07				3.7E-02	
		Total	3.E-05		Arsenic	Benzo(a)pyrene	9.1E-01	
	Subsurface Soil	Ingestion	9.E-04	Arsenic		Benzo(a)pyrene	6.4E+00	Arsenic
		Dermal Contact	1.E-04		Arsenic	Benzo(a)pyrene	9.2E-01	
		Inhalation	2.E-06			Arsenic	4.4E-02	
		Total	1.E-03	Arsenic		Benzo(a)pyrene Dibenzo(a,h)anthracene	7.4E+00	Arsenic
Current/Future Child Resident	Surface Soil	Ingestion	6.E-05		Arsenic	Benzo(a)pyrene	5.0E+00	Barium Iron
		Dermal Contact	9.E-06			Arsenic Benzo(a)pyrene	1.3E+00	Barium
		Inhalation	7.E-08				2.1E-02	
		Total	7E-05		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene	6.4E+00	Barium Iron
	Subsurface Soil	Ingestion	2.E-03	Arsenic	Benzo(a)pyrene	Benzo(b)fluoranthene Dibenzo(a,h)anthracene	1.0E+01	Arsenic Barium
		Dermal Contact	2.E-04	Arsenic		Benzo(a)pyrene	1.8E+00	Barium
		Inhalation	1.E-06				2.9E-02	
		Total	2.E-03	Arsenic	Benzo(a)pyrene	Benzo(b)fluoranthene Dibenzo(a,h)anthracene	1.2E+01	Arsenic Barium
Future Adult Industrial Worker	Surface Soil	Ingestion	2.E-05		Arsenic	Benzo(a)pyrene	4.6E-01	
		Dermal Contact	7.E-06			Arsenic Benzo(a)pyrene	2.7E-01	
		Inhalation	8.E-08				2.6E-02	
		Total	3.E-05		Arsenic	Benzo(a)pyrene	7.6E-01	
	Subsurface Soil	Ingestion	7.E-04	Arsenic		Benzo(a)pyrene	4.6E+00	Arsenic
		Dermal Contact	1.E-04		Arsenic	Benzo(a)pyrene	1.1E+00	
		Inhalation	1.E-06				3.2E-02	
		Total	8.E-04	Arsenic		Benzo(a)pyrene Dibenzo(a,h)anthracene	5.7E+00	Arsenic
Future Adult Construction Worker	Surface Soil	Ingestion	2.E-06				9.1E-01	
		Dermal Contact	2.E-07				1.7E-01	
		Inhalation	2.E-09				3.9E-03	
		Total	2.E-06				1.1E+00	
	Subsurface Soil	Ingestion	6.E-05		Arsenic		1.8E+00	
		Dermal Contact	4.E-06			Arsenic	5.8E-02	
		Inhalation	3.E-08				5.4E-03	
		Total	7.E-05		Arsenic		1.9E+00	

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TABLE 6
Row Homes and Industrial Area - Summary of RME Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Future Adult Resident	Surface Soil	Ingestion	3.E-04	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	2.6E+00	Arsenic
		Dermal Contact	7.E-05		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	8.9E-01	
		Inhalation	2.E-06			Chromium	1.4E-01	
		Total	4.E-04	Arsenic	Benzo(a)anthracene Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(b)fluoranthene Chromium Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	3.6E+00	Arsenic
	Subsurface Soil	Ingestion	4.E-04	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Dieldrin Heptachlor Epoxide Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	2.9E+00	Arsenic
		Dermal Contact	8.E-05	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	9.1E-01	
		Inhalation	2.E-06				1.4E-01	
		Total	4.E-04	Arsenic	Benzo(a)anthracene Benzo(a)pyrene Dibenzo(a,h)anthracene	Dieldrin Heptachlor Epoxide Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	3.9E+00	Arsenic Barium
Future Child Resident	Surface Soil	Ingestion	8.E-04	Arsenic	Benzo(a)anthracene Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(b)fluoranthene Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	7.9E+00	Barium Iron
		Dermal Contact	1.E-04	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	2.5E+00	Barium
		Inhalation	1.E-06				2.3E-01	
		Total	9.E-04	Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Aldrin Benzo(k)fluoranthene Dieldrin Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	1.1E+01	Barium Iron
	Subsurface Soil	Ingestion	3.E-04	Arsenic	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Chlordane - alpha Chlordane - gamma (technical mixture) Dieldrin Heptachlor Epoxide Pcb-Aroclor 1254 Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	2.0E+00	Barium Chlordane - alpha Chlordane - gamma (technical mixture)

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TABLE 6

Row Homes and Industrial Area - Summary of RME Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
		Dermal Contact	1.E-04		Arsenic Benzo(a)pyrene	Pcb-Aroclor 1254 Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	1.1E+00	Barium
		Inhalation	1.E-06				9.7E-02	
		Total	4.E-04	Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Benzo(k)fluoranthene Chlordane - alpha Chlordane - gamma (technical mixture) Dieldrin Heptachlor Epoxide Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254 Pcb-Aroclor 1260	3.2E+00	Barium Chlordane - alpha Chlordane - gamma (technical mixture)
Current/Future Adult Industrial Worker	Surface Soil	Ingestion	2.E-04	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	1.8E+00	Arsenic
		Dermal Contact	9.E-05		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Pcb-Aroclor 1254	1.1E+00	Arsenic
		Inhalation	2.E-06				9.8E-02	
		Total	3.E-04	Arsenic	Benzo(a)pyrene	Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	3.0E+00	Arsenic
	Subsurface Soil	Ingestion	3.E-04	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	2.0E+00	Arsenic
		Dermal Contact	1.E-04		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	1.1E+00	
		Inhalation	1.E-06				9.7E-02	
		Total	4.E-04	Arsenic	Benzo(a)anthracene Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(b)fluoranthene Dieldrin Heptachlor Epoxide Indeno(1,2,3-cd)pyrene Pcb-Aroclor 1254	3.2E+00	Arsenic
Future Adult Construction Worker	Surface Soil	Ingestion	2.E-05		Arsenic	Benzo(a)pyrene	1.4E+00	
		Dermal Contact	3.E-06				3.3E-01	
		Inhalation	4.E-08				3.2E-02	
		Total	3.E-05		Arsenic	Benzo(a)pyrene	1.8E+00	
	Subsurface Soil	Ingestion	2.E-05		Arsenic	Benzo(a)pyrene	2.3E+00	Barium
		Dermal Contact	3.E-06				1.2E-01	
		Inhalation	3.E-08				2.5E-02	
		Total	3.E-05		Arsenic	Benzo(a)pyrene	2.5E+00	Barium

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TABLE 7

South Jersey Port Corporation Property - Summary of RME Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Current Trespasser/Visitor	Surface Soil	Ingestion	4.E-05		Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	2.6E-01	
		Dermal Contact	5.E-05		Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	2.2E-01	
		Inhalation	8.E-09				1.4E-03	
		Total	9.E-05		Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	4.9E-01	
Current/Future Adult Industrial Worker	Surface Soil	Ingestion	1.E-04		Arsenic Benzo(a)pyrene	Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	2.8E-01	
		Dermal Contact	1.E-04		Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	1.7E-01	
		Inhalation	3.E-07		Cadmium		1.8E-02	
		Total	2.E-04	Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene Dibenzo(a,h)anthracene	4.7E-01	
	Subsurface Soil	Ingestion	1.E-04		Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(a)anthracene Benzo(b)fluoranthene Arsenic	5.8E-01	
		Dermal Contact	9.E-05		Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(a)anthracene Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	2.0E-01	
		Inhalation	2.E-07				NA	
		Total	2.E-04		Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	7.8E-01	
Future Adult Resident	Surface Soil	Ingestion	2.E-04	Benzo(a)pyrene	Arsenic	Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Benzo(b)fluoranthene	4.0E-01	
		Dermal Contact	8.E-05		Benzo(a)pyrene	Indeno(1,2,3-cd)pyrene Benzo(b)fluoranthene Arsenic	1.5E-01	
		Inhalation	4.E-07				2.5E-11	
		Total	3.E-04	Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene Dibenzo(a,h)anthracene	5.4E-01	
	Subsurface Soil	Ingestion	2.E-04		Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(a)anthracene Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	8.1E-01	
		Dermal Contact	7.E-05		Benzo(a)pyrene	Arsenic Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	1.7E-01	
		Inhalation	3.E-07				1.3E-01	

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TABLE 7
South Jersey Port Corporation Property - Summary of RME Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
		Total	3.E-04		Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Indeno(1,2,3-cd)pyrene	1.1E+00	
Future Child Resident	Surface Soil	Ingestion	4.E-04	Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene Dibenzo(a,h)anthracene	2.0E+00	
		Dermal Contact	1.E-04		Benzo(a)pyrene	Dibenzo(a,h)anthracene Arsenic Indeno(1,2,3-cd)pyrene Benzo(b)fluoranthene	4.5E-01	
		Inhalation	2.E-07			Cadmium	4.2E-02	
		Total	5.E-04	Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene Dibenzo(a,h)anthracene	2.5E+00	Barium
	Subsurface Soil	Ingestion	5.E-04	Arsenic	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	Benzo(k)fluoranthene Indeno(1,2,3-cd)pyrene	3.6E+00	
		Dermal Contact	1.E-04		Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(a)anthracene Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	6.3E-01	
		Inhalation	2.E-07				2.7E-01	
		Total	6.E-04	Arsenic Dibenzo(a,h)anthracene Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Indeno(1,2,3-cd)pyrene	Benzo(k)fluoranthene	4.5E+00	Barium
Future Adult Construction Worker	Surface Soil	Ingestion	1.E-05			Arsenic Benzo(a)pyrene	3.6E-01	
		Dermal Contact	3.E-06			Benzo(a)pyrene	5.8E-02	
		Inhalation	7.E-09				7.8E-03	
		Total	2.E-05		Benzo(a)pyrene	Arsenic	4.3E-01	
	Subsurface Soil	Ingestion	1.E-05			Arsenic Benzo(a)pyrene	6.6E-01	
		Dermal Contact	3.E-06				1.7E-02	
		Inhalation	6.E-09				2.4E-02	
		Total	2.E-05			Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	7.0E-01	

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TABLE 8

Groundwater - Summary of RME Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Future Adult Resident	Upper PRM Aquifer	Ingestion	5.E-02	Arsenic Ether, bis(2-chloroethyl) Vinyl chloride	Benzene	Dieldrin Tetrachloroethylene Trichloroethylene	3.5E+02	Arsenic Barium Iron Thallium Vanadium
		Dermal Contact	1.E-04	Arsenic		Dieldrin Ether, bis(2-chloroethyl) Benzene Tetrachloroethylene Trichloroethylene Vinyl chloride	1.6E+00	
		Inhalation	6.E-05		Benzene Trichloroethylene	Dichloroethane-1,2 Vinyl chloride	2.8E+01	Naphthalene
		Total	5.E-02	Arsenic *Ether, bis(2-chloroethyl)* Vinyl chloride	Benzene *Trichloroethylene*	Dieldrin *Tetrachloroethylene* Dichloroethane-1,2	3.8E+02	Arsenic *Barium* Iron Thallium Vanadium Naphthalene
	Middle PRM Aquifer	Ingestion	2.E-04		Arsenic Vinyl chloride	Tetrachloroethylene Trichloroethylene	2.1E+01	Iron Thallium
		Dermal Contact	7.E-06			Tetrachloroethylene Vinyl chloride	1.4E-01	
		Inhalation	2.E-05			Dichloroethane-1,2 Trichloroethylene Vinyl chloride	1.2E-01	
		Total	2.E-04	Vinyl chloride	Arsenic Trichloroethylene	Tetrachloroethylene Dichloroethane-1,2	2.1E+01	Iron Thallium
Future Child Resident	Upper PRM Aquifer	Ingestion	3.E-02	Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	Benzene Dieldrin Tetrachloroethylene Trichloroethylene	9.1E+01	Antimony Arsenic Barium Iron Cresol-p Naphthalene
		Dermal Contact	1.E-04		Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	1.7E+00	
		Inhalation	2.E-04		Benzene Trichloroethylene Vinyl chloride	Dichlorobenzene-1,4 Dichloroethane-1,2 Trichloroethane-1,1,2	4.0E+02	Naphthalene Benzene
		Total	3.E-02	Arsenic Vinyl chloride	Benzene Ether, bis(2-chloroethyl) Trichloroethylene	Dieldrin Tetrachloroethylene Dichlorobenzene-1,4 Dichloroethane-1,2 Trichloroethane-1,1,2	4.9E+02	Antimony Arsenic Barium Benzene Cresol-p Iron Naphthalene
	Middle PRM Aquifer	Ingestion	1.E-04		Arsenic Vinyl chloride	Tetrachloroethylene Trichloroethylene	4.0E+01	Iron Manganese
		Dermal Contact	4.E-06			Tetrachloroethylene Vinyl chloride	3.2E-01	

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TABLE 8
Groundwater - Summary of RME Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
		Inhalation	7.E-05		Trichloroethylene	Tetrachloroethylene Dichloroethane-1,2 Vinyl chloride	1.2E+00	
		Total	2.E-04		Arsenic Vinyl chloride Trichloroethylene	Tetrachloroethylene Dichloroethane-1,2	4.1E+01	Iron Manganese
Current/Future Adult Industrial Worker	Upper PRM Aquifer	Ingestion	2.E-02	Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	Benzene Dieldrin Tetrachloroethylene Trichloroethylene	1.3E+02	Arsenic Barium Iron
		Dermal Contact	1.E-04		Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride Benzene	1.1E+00	
		Inhalation	4.E-05		Benzene Trichloroethylene	Vinyl chloride	2.0E+01	Naphthalene
		Total	2.E-02	Arsenic	Ether, bis(2-chloroethyl) Benzene Trichloroethylene Vinyl chloride	Dieldrin Tetrachloroethylene	1.5.E+02	Arsenic Barium Iron Naphthalene
	Middle PRM Aquifer	Ingestion	7.E-05		Arsenic Vinyl chloride	Tetrachloroethylene Trichloroethylene	7.4E+00	Iron Thallium
		Dermal Contact	5.E-06			Tetrachloroethylene Vinyl chloride	1.0E-01	
		Inhalation	1.E-05			Trichloroethylene Vinyl chloride	8.3E-02	
		Total	9.E-05		Arsenic Trichloroethylene Vinyl chloride	Tetrachloroethylene Trichloroethylene	7.6E+00	Iron Thallium
Future Adult Construction Worker	Upper PRM Aquifer	Dermal Contact	5.E-06			Arsenic	4.1E-01	
		Inhalation	3.E-06				3.1E+01	Naphthalene
		Total	8.E-06	Trichloroethylene	Arsenic		3.1E+01	Naphthalene

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TABLE 9

Martin Aaron - Summary of CTE Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Current Trespasser/Visitor	Surface Soil	Ingestion	3E-05			Arsenic Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene	5.7E-01	
		Dermal Contact	4E-05		Benzo(a)pyrene	Arsenic Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	7.9E-01	
		Inhalation	5E-07				1.0E-02	
		Total	8E-05		Arsenic Benzo(a)pyrene	Dieldrin Pcb-araclor 1254 Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	1.4E+00	
Current/Future Adult Industrial Worker	Surface Soil	Ingestion	4E-05		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene	1.1E+00	
		Dermal Contact	3E-06			Benzo(a)pyrene	8.0E-02	
		Inhalation	4E-06			Trichloroethylene	1.1E-01	
		Total	5E-05		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Trichloroethylene	1.3E+00	
	Subsurface Soil	Ingestion	6E-05		Arsenic	Benzo(a)pyrene Trichloroethylene	2.1E+00	Arsenic
		Dermal Contact	2E-06			Arsenic	2.0E-01	
		Inhalation	1E-04	Trichloroethylene			5.5E-01	
		Total	2E-04	Trichloroethylene	Arsenic	Benzo(a)pyrene	2.9E+00	Arsenic
Future Adult Resident	Surface Soil	Ingestion	6E-05		Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	1.1E+00	
		Dermal Contact	7E-06			Benzo(a)pyrene	1.2E-01	
		Inhalation	1E-05			Trichloroethylene Tetrachloroethylene	2.4E-01	
		Total	8E-05		Arsenic Benzo(a)pyrene	Pcb-araclor 1254 Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Tetrachloroethylene Trichloroethylene	1.5E+00	
	Subsurface Soil	Ingestion	8E-05		Arsenic	Benzo(a)pyrene Dibenzo(a,h)anthracene Trichloroethylene	2.3E+00	Arsenic
		Dermal Contact	4E-06			Arsenic	3.0E-01	
		Inhalation	3E-04	Trichloroethylene		Chloroform Tetrachloroethylene	1.2E+00	
		Total	4E-04	Trichloroethylene	Arsenic	Benzo(a)pyrene Chloroform Dibenzo(a,h)anthracene Tetrachloroethylene	3.7E+00	Arsenic
Future Child Resident	Surface Soil	Ingestion	4E-04	Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene	Aldrin Dibenzo(a,h)anthracene Dieldrin	5.6E+00	Barium

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TABLE 9
Martin Aaron - Summary of CTE Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
						Indeno(1,2,3-cd)pyrene Pcb-araclor 1254 Pcb-araclor 1260 Tetrachloroethylene		
		Dermal Contact	4E-05		Benzo(a)pyrene	Arsenic Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene	6.4E-01	
		Inhalation	2E-05			Trichloroethylene Tetrachloroethylene	4.3E-01	
		Total	5E-04	Arsenic Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Trichloroethylene	Dieldrin Pcb-araclor 1254 Pcb-araclor 1260 Indeno(1,2,3-cd)pyrene Tetrachloroethylene	6.7E+00	Barium Pcb-araclor 1254
	Subsurface Soil	Ingestion	5E-04	Arsenic	Benzo(a)pyrene Trichloroethylene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-araclor 1254 Tetrachloroethylene	6.7E+00	Barium
		Dermal Contact	3E-05			Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	7.6E-01	
		Inhalation	5E-04	Trichloroethylene		Benzene Chloroform Chromium Tetrachloroethylene	2.7E+00	Trichloroethylene
		Total	1E-03	Arsenic Trichloroethylene	Benzo(a)pyrene Dibenzo(a,h)anthracene	Pcb-araclor 1254 Benzene Benzo(a)anthracene Benzo(b)fluoranthene Chloroform Chromium Indeno(1,2,3-cd)pyrene Tetrachloroethylene	1.0E+01	Barium Pcb-araclor 1254 Trichloroethylene
Future Adult Construction Worker	Surface Soil	Ingestion	9E-06			Arsenic Benzo(a)pyrene	7.1E-01	
		Dermal Contact	2E-06				1.4E-01	
		Inhalation	5E-07				3.9E-02	
		Total	1E-05			Arsenic Benzo(a)pyrene	9.0E-01	
	Subsurface Soil	Ingestion	1E-05			Arsenic	8.5E-01	
		Dermal Contact	1E-06				5.0E-02	
		Inhalation	1E-05			Trichloroethylene	2.9E-01	
		Total	2E-05		Trichloroethylene	Arsenic	1.2E+00	

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TABLE 10
Junkyard - Summary of CTE Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Current/Future Adult Resident	Subsurface Soil	Ingestion	1.E-04	Arsenic			2.1E+00	Arsenic
		Dermal Contact	4.E-06			Benzo(a)pyrene	8.8E-02	
		Inhalation	5.E-07				3.0E-02	
		Total	1.E-04	Arsenic			2.3E+00	Arsenic
Current/Future Child Resident	Surface Soil	Ingestion	2.E-05		Arsenic	Benzo(a)pyrene	1.7E+00	Barium
		Dermal Contact	1.E-06				1.8E-01	
		Inhalation	4.E-08				1.4E-02	
		Total	2.E-05		Arsenic	Benzo(a)pyrene	1.9.E+00	Barium
	Subsurface Soil	Ingestion	7.E-04	Arsenic		Benzo(a)pyrene	3.3E+00	Arsenic Barium
		Dermal Contact	2.E-05		Arsenic		2.4E-01	
		Inhalation	7.E-07				2.0E-02	
		Total	7.E-04	Arsenic		Benzo(a)pyrene	3.6E+00	Arsenic Barium
Future Adult Industrial Worker	Surface Soil	Ingestion	2.E-06			Arsenic	2.0E-01	
		Dermal Contact	1.E-07				1.4E-02	
		Inhalation	1.E-08				1.2E-02	
		Total	2.E-06			Arsenic	2.3.E-01	
	Subsurface Soil	Ingestion	8.E-05		Arsenic		2.0E+00	Arsenic
		Dermal Contact	2.E-06			Arsenic	5.8E-02	
		Inhalation	2.E-07				1.4E-02	
		Total	8.E-05		Arsenic		2.1E+00	Arsenic
Future Adult Construction Worker	Surface Soil	Ingestion	4.E-07				2.1E-01	
		Dermal Contact	5.E-08				4.1E-02	
		Inhalation	2.E-10				4.6E-04	
		Total	5.E-07				2.5.E-01	
	Subsurface Soil	Ingestion	1.E-05		Arsenic		4.2E-01	
		Dermal Contact	9.E-07				1.4E-02	
		Inhalation	4.E-09				6.3E-04	
		Total	2.E-05		Arsenic		4.4E-01	

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TABLE 11

Row Homes and Industrial Area - Summary of CTE Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Future Adult Resident	Surface Soil	Ingestion	4.E-05		Arsenic	Benzo(a)pyrene	8.6E-01	
		Dermal Contact	3.E-06				8.5E-02	
		Inhalation	5.E-07				9.2E-02	
		Total	4.E-05		Arsenic	Benzo(a)pyrene	1.0E+00	
	Subsurface Soil	Ingestion	4.E-05		Arsenic	Benzo(a)pyrene	9.5E-01	
		Dermal Contact	3.E-06				8.7E-02	
		Inhalation	4.E-07				9.1E-02	
		Total	5.E-05		Arsenic	Benzo(a)pyrene	1.1E+00	
Future Child Resident	Surface Soil	Ingestion	3.E-04	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-araclor 1254	2.6E+00	Barium
		Dermal Contact	2.E-05			Arsenic Benzo(a)pyrene	3.4E-01	
		Inhalation	8.E-07				1.6E-01	
		Total	3.E-04	Arsenic	Benzo(a)pyrene	Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene Pcb-araclor 1254	3.1E+00	Barium
	Subsurface Soil	Ingestion	3.E-05	Arsenic	Benzo(a)pyrene	Heptachlor Epoxide Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	8.9E-01	Barium
		Dermal Contact	2.E-06			Arsenic Benzo(a)pyrene	9.4E-02	
		Inhalation	1.E-07				4.3E-02	
		Total	3.E-05	Arsenic	Benzo(a)pyrene	Dieldrin Heptachlor Epoxide Pcb-Aroclor 1254 Benzo(a)anthracene Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2;3-cd)pyrene	1.0E+00	
Current/Future Adult Industrial Worker	Surface Soil	Ingestion	3.E-05		Arsenic	Benzo(a)pyrene	8.1E-01	
		Dermal Contact	2.E-06				9.2E-02	
		Inhalation	2.E-07				4.3E-02	
		Total	3.E-05		Arsenic	Benzo(a)pyrene	9.4E-01	
	Subsurface Soil	Ingestion	3.E-05		Arsenic	Benzo(a)pyrene	8.9E-01	
		Dermal Contact	2.E-06				9.4E-02	
		Inhalation	1.E-07				4.3E-02	
		Total	3.E-05		Arsenic	Benzo(a)pyrene	1.0E+00	
Future Adult Construction Worker	Surface Soil	Ingestion	5.E-06			Arsenic	3.3E-01	
		Dermal Contact	6.E-07				7.7E-02	
		Inhalation	4.E-09				3.8E-03	
		Total	6.E-06			Arsenic	4.1E-01	
	Subsurface Soil	Ingestion	6.E-06			Arsenic	5.4E-01	
		Dermal Contact	7.E-07				2.9E-02	
		Inhalation	3.E-09				2.9E-03	
		Total	6.E-06			Arsenic	5.7E-01	

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TABLE 12

South Jersey Port property - Summary of RME Cancer Risks and Hazard Indices

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Current Trespasser/Visitor	Surface Soil	Ingestion	1.E-05			Arsenic Benzo(a)pyrene	6.6E-02	
		Dermal Contact	2.E-05		Benzo(a)pyrene	Benzo(b)fluoranthene	9.0E-02	
		Inhalation	4.E-09				7.0E-04	
		Total	3.E-05		Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene	1.6E-01	
Current/Future Adult Industrial Worker	Surface Soil	Ingestion	2.E-05			Arsenic Benzo(a)pyrene	1.2E-01	
		Dermal Contact	2.E-06			Benzo(a)pyrene	1.5E-02	
		Inhalation	3.E-08				7.9E-03	
		Total	2.E-05		Benzo(a)pyrene	Arsenic	1.5E-01	
	Subsurface Soil	Ingestion	2.E-05			Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	2.5E-01	
		Dermal Contact	2.E-06				1.8E-02	
		Inhalation	3.E-08				3.9E-02	
		Total	2.E-05			Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	3.1E-01	
Future Adult Resident	Surface Soil	Ingestion	2.E-05		Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene	1.3E-01	
		Dermal Contact	3.E-06			Benzo(a)pyrene	1.4E-02	
		Inhalation	1.E-07				1.7E-11	
		Total	3.E-05		Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene	1.5E-01	
	Subsurface Soil	Ingestion	2.E-05			Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	2.7E-01	
		Dermal Contact	3.E-06				1.6E-02	
		Inhalation	8.E-08				8.4E-02	
		Total	3.E-05			Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	3.7E-01	
Future Child Resident	Surface Soil	Ingestion	1.E-04		Arsenic Benzo(a)pyrene	Benzo(b)fluoranthene Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	6.6E-01	
		Dermal Contact	2.E-05		Benzo(a)pyrene	Benzo(b)fluoranthene	6.0E-02	
		Inhalation	2.E-07				2.8E-02	
		Total	2.E-04	Benzo(a)pyrene	Arsenic Benzo(b)fluoranthene	Dibenzo(a,h)anthracene Indeno(1,2,3-cd)pyrene	7.5E-01	
	Subsurface Soil	Ingestion	2.E-04		Arsenic *Benzo(a)pyrene* Dibenzo(a,h)anthracene	Benzo(a)anthracene *Benzo(b)fluoranthene* Indeno(1,2,3-cd)pyrene	1.2E+00	
		Dermal Contact	2.E-05			Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	8.5E-02	
		Inhalation	1.E-07				1.8E-01	
		Total	2.E-04		Arsenic Benzo(a)pyrene Dibenzo(a,h)anthracene	Benzo(a)anthracene Indeno(1,2,3-cd)pyrene	1.5E+00	

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TABLE 12
South Jersey Port property - Summary of RME Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Future Adult Construction Worker	Surface Soil	Ingestion	3.E-06			Benzo(a)pyrene	8.4E-02	
		Dermal Contact	7.E-07				1.4E-02	
		Inhalation	8.E-10				9.1E-04	
		Total	4.E-06			Benzo(a)pyrene	9.8E-02	
	Subsurface Soil	Ingestion	3.E-06			Arsenic	1.5E-01	
		Dermal Contact	6.E-07				3.9E-03	
		Inhalation	7.E-10				2.9E-03	
		Total	4.E-06			Arsenic	1.6E-01	

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TABLE 13
Groundwater - Summary of CTE Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Future Adult Resident	Upper PRM Aquifer	Ingestion	9.E-03	Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	Trichloroethylene Benzene	1.7E+02	Arsenic Barium Iron
		Dermal Contact	1.E-05			Arsenic	4.9E-01	
		Inhalation	1.E-06				1.3E+00	Naphthalene
		Total	9.E-03	Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	Benzene Trichloroethylene	1.7E+02	Arsenic Barium Iron Naphthalene
	Middle PRM Aquifer	Ingestion	3.E-05		Vinyl chloride	Arsenic	9.7E+00	Iron Thallium
		Dermal Contact	1.E-06				4.2E-02	
		Inhalation	3.E-07				5.4E-03	
		Total	3.E-05		Vinyl chloride	Arsenic	9.8E+00	Iron Thallium
Future Child Resident	Upper PRM Aquifer	Ingestion	2.E-02	Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	Benzene Tetrachloroethylene Trichloroethylene	6.1E+01	Antimony Barium Iron Cresol-p Naphthalene
		Dermal Contact	2.E-05		Arsenic		5.0E-01	
		Inhalation	6.E-06			Benzene Trichloroethylene	1.2E+01	Naphthalene
		Total	2.E-02	Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	Dieldrin Benzene Tetrachloroethylene Trichloroethylene	7.3E+01	Barium Antimony Cresol-p Iron Naphthalene Pcb-araclor 1254 Trichloroethylene
	Middle PRM Aquifer	Ingestion	7.E-05		Arsenic Vinyl chloride	Tetrachloroethylene Trichloroethylene	2.6E+01	Iron Manganese
		Dermal Contact	2.E-06				7.3E-02	
		Inhalation	2.E-06				3.6E-02	
		Total	8.E-05		Arsenic Vinyl chloride	Tetrachloroethylene Trichloroethylene	2.7E+01	Iron Manganese

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TABLE 13
Groundwater - Summary of CTE Cancer Risks and Hazard Indices
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $>10^{-4}$	Chemicals with Cancer Risks $>10^{-5}$ and $<10^{-4}$	Chemicals with Cancer Risks $>10^{-6}$ and $<10^{-5}$	Hazard Index	Chemicals with HI>1
Current/Future Adult Industrial Worker	Upper PRM Aquifer	Ingestion	4.E-03	Arsenic	Vinyl chloride	Benzene Ether, bis(2-chloroethyl)	1.1E+02	Arsenic Barium Iron
		Dermal Contact	1.E-05			Arsenic	4.5E-01	
		Inhalation	7.E-07				1.2E+00	Naphthalene
		Total	4.E-03	Arsenic	Ether, bis(2-chloroethyl) Vinyl chloride	Benzene	1.1E+02	Arsenic Barium Iron Naphthalene
	Middle PRM Aquifer	Ingestion	2.E-05		Vinyl chloride	Arsenic	6.5E+00	Iron Thallium
		Dermal Contact	8.E-07				3.9E-02	
		Inhalation	2.E-07				5.1E-03	
		Total	2.E-05		Vinyl chloride	Arsenic	6.5E+00	Iron
Future Adult Construction Worker	Upper PRM Aquifer	Dermal Contact	3.E-06			Arsenic	2.2E-01	
		Inhalation	1.E-06				1.5E+01	Naphthalene
		Total	4.E-06			Arsenic	1.6E+01	Naphthalene

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TABLE 14
Lead Model Results
Baseline Human Health Risk Assessment
Martin Aaron, Camden, NJ

	Concentration		IEUBK Results		Adult Lead Model Results [1]		
Area	Average Lead Concentration	Units	Geometric Mean PbB (ug/dL)	% Population Above PbBt	Maternal Blood Level Concentration (ug/dL)	95th Percentile PbB Among Fetuses of Adult Workers	Probability that fetal PbB > PbBt, assuming lognormal distribution
Groundwater							
Maximum Average Aquifer Concentration (Upper)	13.34	ug/L	4.1	2.4	NA	NA	NA
Soil							
Martin Aaron property - Maximum Average (Surface)	552	mg/kg	6.3	16	2.3 - 2.5	7.0 - 8.8	1.7 - 3.6%
Martin Aaron property - Maximum Average (Subsurface)	2726	mg/kg	19	90	5.4 - 5.6	16.5 - 19.9	16.7 - 20.7%
Junk yard - Maximum Average (Surface)	1435	mg/kg	12	66	3.6 - 3.8	10.9 - 13.3	6.3 - 9.7%
Junk yard - Maximum Average (Subsurface)	497	mg/kg	5.9	13	2.2 - 2.4	6.8 - 8.6	1.5 - 3.3%
Row Homes/Industrial Area - Maximum Average (Surface)	449	mg/kg	5.5	10	2.1 - 2.3	6.5 - 8.3	1.3 - 3.1%
Row Homes/Industrial Area - Maximum Average (Subsurface)	337	mg/kg	4.6	4.8	2.0 - 2.2	6.1 - 7.7	1.0 - 2.5%
South Jersey Port Corporation property - Maximum Average (Surface)	499	mg/kg	5.9	13	2.1 - 2.3	6.5 - 8.3	1.3 - 3.1%
South Jersey Port Corporation property - Maximum Average (Subsurface)	553	mg/kg	6.3	16	2.3 - 2.5	7.0 - 8.8	1.7 - 3.7%

Definitions:
PbB - concentration of lead in blood
PbBt - target USEPA blood lead concentration of concern, 10 ug/dL
Notes:
If % Population Above PbBt greater than 5%, exposure to lead in soil may be a health concern for the child resident.
If Probability that fetal PbB > PbBt greater than 5%, exposure to lead in soil by adult workers may be a health concern to fetuses.
1 Default Input parameters were used.

TABLE 15

Additional toxicity values for TCE from USEPA Region 2

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Compound	Endpoint	Value	Reference
Trichloroethylene (TCE) [provides lower bound of risk estimate range]	RfDo		
	RfDi		
	CSFo	1.1 E-02 mg/kg-day	NCEA, 1987
	CSFi	6.0 E-03 mg/kg-day	NCEA, 1987
Trichloroethylene (TCE) [provides risk estimate within the range]	RfDo		
	RfDi		
	CSFo	1.3 E-02 mg/kg-day	CalEPA
	CSFi	7.0 E-03 mg/kg-day	CalEPA

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TABLE 16

Evaluation of TCE Cancer Risks Using alternative Sources of Toxicity Values

Baseline Human Health Risk Assessment

Martin Aaron, Camden, NJ

Receptor	Medium	Exposure Medium	Exposure Pathway	Inhalation Cancer Slope Factor (mg/kg-day)-1		
				NCEA, 2002 4.0E-01	NCEA, 1987 6.00E-03	Cal EPA 7.03E-03
Reasonable Maximum Exposure						
Current/Future Adult Industrial Worker	Martin Aaron property Subsurface Soil	Ambient Air	Inhalation	9.3E-04	1.4E-05	1.6E-05
Future Adult Resident	Martin Aaron property Subsurface Soil	Ambient Air	Inhalation	1.2E-03	1.9E-05	2.2E-05
Future Child Resident	Martin Aaron property Subsurface Soil	Ambient Air	Inhalation	7.4E-04	1.1E-05	1.3E-05
Central Tendency Exposure						
Future Adult Resident	Martin Aaron property Subsurface Soil	Ambient Air	Inhalation	3.1E-04	4.7E-06	5.5E-06
Future Child Resident	Martin Aaron property Subsurface Soil	Ambient Air	Inhalation	4.9E-04	7.4E-06	8.7E-06

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Appendix A
RAGS D Tables

TABLE 1

SELECTION OF EXPOSURE PATHWAYS

Martin Aaron

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Groundwater	Groundwater	Upper and Middle PRM Aquifer - Tap Water	Resident	Adult	Dermal Absorption	On-site	None	Groundwater not currently used on-site as a water supply.
						Ingestion	On-site	None	Groundwater not currently used on-site as a water supply.
					Child	Dermal Absorption	On-site	None	Groundwater not currently used on-site as a water supply.
						Ingestion	On-site	None	Groundwater not currently used on-site as a water supply.
Current	Surface Soil	Surface Soil	Martin Aaron property Surface Soil and South Jersey Port property Surface Soil	Trespasser/Visitor	Adolescents	Dermal Absorption	On-site and Off-site	Quant	Site is in a mixed residential/industrial area. Nearby adolescents may trespass on site and contact surface soil.
						Ingestion	*On-site and* Off-site	Quant	*Site is in a mixed residential/industrial area. Nearby adolescents may trespass* on site and contact surface soil.
		Ambient Air	Emissions from Martin Aaron property Surface Soil and South Jersey Port Surface Soil	Trespasser/Visitor	Adolescents	Inhalation	On-site and Off-site	Quant	Adolescent trespassers may inhale vapors and dust while trespassing on site.
Current/Future	Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Industrial Worker	Adult	Dermal Absorption	On-site	Quant	Site workers could contact surface soil while performing activities at site.
						Ingestion	On-site	Quant	Site workers could contact surface soil while performing activities at site.
		Ambient Air	Emissions from Martin Aaron property Surface Soil	Industrial Worker	Adult	Inhalation	On-site	Quant	Site workers may inhale vapors and dust while working at site.
		Indoor Air	Emissions from Martin Aaron property Surface Soil	Industrial Worker	Adult	Inhalation	On-site	Qual	Site workers may inhale vapors inside buildings at site.
		Surface Soil	Junkyard Surface Soil and Row Homes/Industrial Area Surface Soil	Resident	Adult	Dermal Absorption	Off-site	Quant	Current resident(s) could contact soil.
						Ingestion	Off-site	Quant	Current resident(s) could contact soil.
					Child	Dermal Absorption	Off-site	Quant	Current resident(s) could contact soil.
						Ingestion	Off-site	Quant	Current resident(s) could contact soil.
		Ambient Air	Emissions from Junkyard Surface Soil and Row Homes/Industrial area Surface Soil	Resident	Adult	Inhalation	Off-site	Quant	Residents may inhale vapors and dust while at site.
					Child	Inhalation	Off-site	Quant	Residents may inhale vapors and dust while at site.
Future	Groundwater	Groundwater	Upper and Middle PRM Aquifer - Tap Water	Resident	Adult	Dermal Absorption	On-site	Quant	Groundwater on-site could be used as a potable water supply in the future. Groundwater is used as public water supply within 4 miles of site.
						Ingestion	On-site	Quant	Groundwater on-site could be used as a potable water supply in the future. Groundwater is used as public water supply within 4 miles of site.
					Child	Dermal Absorption	On-site	Quant	Groundwater on-site could be used as a potable water supply in the future. Groundwater is used as public water supply within 4 miles of site.
						Ingestion	On-site	Quant	Groundwater on-site could be used as a potable water supply in the future. Groundwater is used as public water supply within 4 miles of site.

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TABLE 1

SELECTION OF EXPOSURE PATHWAYS

Martin Aaron

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future (cont.)	Groundwater (Cont.)	Groundwater (Cont.)	Upper and Middle PRM Aquifer - Tap Water (Cont.)	Industrial Worker	Adult	Dermal Absorption	On-site	Quant	Workers may contact groundwater while at work if it is used as a future potable water supply.
						Ingestion	On-site	Quant	Workers may ingest groundwater while at work if it is used as a future potable water supply.
			Upper PRM Aquifer - Excavation Pit	Construction Worker	Adult	Dermal Absorption	On-site	Quant	Construction workers could contact shallow groundwater during excavation activities (depth to groundwater 3.5 to 12.5 ft).
						Ingestion	On-site	None	Ingestion of groundwater during construction activities expected to be minimal.
		Air	Upper and Middle PRM Aquifer -Water Vapors at Showerhead	Resident	Adult	Inhalation	On-site	Quant	Groundwater on-site could be used as a potable water supply in the future. Groundwater is used as public water supply within 4 miles of site.
					Child	Inhalation	On-site	Quant	Groundwater on-site could be used as a potable water supply in the future. Groundwater is used as public water supply within 4 miles of site.
				Industrial Worker	Adult	Inhalation	On-site	Quant	Workers may contact groundwater while at work if it is used as a future potable water supply.
			Upper PRM Aquifer - Water Vapors at Excavation Pit	Construction Worker	Adult	Inhalation	On-site	Quant	Construction workers could inhale vapors from groundwater in an open excavation during construction activities.
	Surface Soil	Surface Soil	Martin Aaron property Surface Soil[1], Junkyard Surface Soil[2], Row Homes and Industrial Area Surface Soil[2], and South Jersey Port property Surface Soil	Resident[2]	Adult	Dermal Absorption	On-site and Off-site	Quant	Current resident(s) could contact soil.
						Ingestion	On-site and Off-site	Quant	Current resident(s) could contact soil.
					Child	Dermal Absorption	On-site and Off-site	Quant	Current resident(s) could contact soil.
						Ingestion	On-site and Off-site	Quant	Current resident(s) could contact soil.
				Industrial Worker[1]	Adult	Dermal Absorption	On-site and Off-site	Quant	Site workers could contact surface soil while performing activities at site.
						Ingestion	On-site and Off-site	Quant	Site workers could contact surface soil while performing activities at site.
				Construction Worker	Adult	Dermal Absorption	On-site and Off-site	Quant	Exposure to soil during construction activities.
						Ingestion	On-site and Off-site	Quant	Exposure to soil during construction activities.
		Ambient Air	Emissions from Martin Aaron property Surface Soil[1], Junkyard Surface Soil[2], Row Homes/Industrial Area Surface Soil[2], and South Jersey Port property Surface Soil	Resident[2]	Adult	Inhalation	On-site and Off-site	Quant	Residents may inhale vapors and dust while at site.
					Child	Inhalation	On-site and Off-site	Quant	Residents may inhale vapors and dust while at site.
				Construction Worker	Adult	Inhalation	On-site and Off-site	Quant	Site workers may inhale vapors and dust while working at site.
				Industrial Worker[1]	Adult	Inhalation	On-site and Off-site	Quant	Site workers may inhale vapors and dust while working at site.
		Indoor Air		Industrial Worker[1]	Adult	Inhalation	On-site and Off-site	Qual	Site workers may inhale vapors inside buildings at site.

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TABLE 1

SELECTION OF EXPOSURE PATHWAYS

Martin Aaron

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future (cont.)	Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil , Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, South Jersey Port property Subsurface Soil	Resident	Adult	Dermal Absorption	On-site and Off-site	Quant	If site used for future residential development, residents could contact soil.
						Ingestion	On-site and Off-site	Quant	If site used for future residential development, residents could contact soil.
					Child	Dermal Absorption	On-site and Off-site	Quant	If site used for future residential development, residents could contact soil.
						Ingestion	On-site and Off-site	Quant	If site used for future residential development, residents could contact soil.
				Industrial Worker	Adult	Dermal Absorption	On-site and Off-site	Quant	Exposure to soil during construction activities.
						Ingestion	On-site and Off-site	Quant	Exposure to soil during construction activities.
				Construction Worker	Adult	Dermal Absorption	On-site and Off-site	Quant	Exposure to soil during construction activities.
						Ingestion	On-site and Off-site	Quant	Exposure to soil during construction activities.
		Ambient Air	Emissions from, Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, South Jersey Port property Subsurface Soil	Resident	Adult	Inhalation	On-site and Off-site	Quant	If site used for future residential development, residents could inhale vapors and dust from soil.
					Child	Inhalation	On-site and Off-site	Quant	If site used for future residential development, residents could inhale vapors and dust from soil.
				Construction Worker	Adult	Inhalation	On-site and Off-site	Quant	Exposure to emissions from soil during construction activities.
				Industrial Worker	Adult	Inhalation	On-site and Off-site	Quant	Site workers may inhale vapors and dust while working at site.
		Indoor Air		Industrial Worker	Adult	Inhalation	On-site and Off-site	*Qual*	*Site workers may inhale vapors inside buildings at site.*

Note:

Surface soil is top 2 feet of soil and subsurface soil is top 10 feet of soil.

On-site refers to the Martin Aaron property .

Off-site refers to areas outside of the Martin Aaron property.

Upper PRM aquifer refers to shallow (S), intermediate (M), and regional (R) wells.

Middle PRM aquifer refers to deep (D) wells.

1) Martin Aaron property surface soil for industrial worker was evaluated under current and future scenario.

2) Junkyard surface soil and Row Homes and industrial Area surface soil for residents were evaluated under current and future scenario.

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TABLE 2.1

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Martin Aaraon	7429-90-5	Aluminum	2.46E+03		1.33E+04		mg/Kg	MA-SB-56	24/24	40 - 40	1.33E+04	NA	7.6E+03	nc	NA		Yes	ASL
Property	7440-36-0	Antimony	1.20E+00	BJ	7.60E+00	BJ	mg/Kg	MA-SB-31	16/24	0.77 - 12	7.60E+00	NA	3.1E+00	nc	1.40E+01	NJDEP	Yes	ASL
Surface Soil	7440-38-2	Arsenic	2.10E+00	J	7.66E+02		mg/Kg	MA-SB-60	24/24	3 - 3	7.66E+02	NA	3.9E-01	ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	1.85E+01	B	3.79E+04		mg/Kg	MA-SB-81	24/24	40 - 40	3.79E+04	NA	5.4E+02	nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	1.20E-01	B	1.20E+00	J	mg/Kg	MA-SB-81	24/24	0.24 - 0.24	1.20E+00	NA	1.5E+01	nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	3.80E-01	B	1.10E+02		mg/Kg	MA-SB-31	22/24	0.083 - 1	1.10E+02	NA	3.7E+00	nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	4.00E+02	B	3.21E+04		mg/Kg	MA-SB-31	24/24	1000 - 1000	3.21E+04	NA	NA		NA		No	NUT
	7440-47-3	Chromium	9.80E+00		1.08E+03		mg/Kg	MA-SB-124	24/24	2 - 2	1.08E+03	NA	2.2E+01	ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	3.00E-01	B	4.20E+01		mg/Kg	MA-SB-124	24/24	10 - 10	4.20E+01	NA	1.4E+02	ca**	NA		No	BSL
	7440-50-8	Copper	4.00E+00	B	1.40E+03		mg/Kg	MA-SB-130	24/24	5 - 5	1.40E+03	NA	3.1E+02	nc	6.00E+02	NJDEP	Yes	ASL
	7439-89-6	Iron	7.88E+03		1.03E+05		mg/Kg	MA-SO-201	24/24	20 - 20	1.03E+05	NA	2.3E+03	nc	NA		Yes	ASL
	7439-92-1	Lead	8.30E+00		3.31E+03		mg/Kg	MA-SB-97	24/24	2 - 2	3.31E+03	NA	4.0E+01	nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	3.02E+02	B	1.69E+04		mg/Kg	MA-SB-60	24/24	1000 - 1000	1.69E+04	NA	NA		NA		No	NUT
	7439-96-5	Manganese	2.13E+01		7.44E+02	J	mg/Kg	MA-SB-11	24/24	3 - 3	7.44E+02	NA	1.8E+02	nc	NA		Yes	ASL
	7439-97-6	Mercury	6.90E-02	BJ	3.10E+00		mg/Kg	MA-SB-56	20/22	0.06 - 0.1	3.10E+00	NA	6.1E-01	nc	1.40E+01		Yes	ASL
	7440-02-0	Nickel	1.50E+00	B	5.76E+02		mg/Kg	MA-SB-31	24/24	8 - 8	5.76E+02	NA	1.6E+02	nc	2.50E+02	NJDEP	Yes	ASL
	7440-09-7	Potassium	2.11E+02	B	1.37E+03	J	mg/Kg	MA-SB-02	24/24	1000 - 1000	1.37E+03	NA	NA		NA		No	NUT
	7782-49-2	Selenium	1.10E+00		4.30E+00		mg/Kg	MA-SB-31	15/24	0.99 - 3.3	4.30E+00	NA	3.9E+01	nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	3.50E-01	B	4.57E+01		mg/Kg	MA-SB-31	12/24	0.21 - 2	4.57E+01	NA	3.9E+01	nc	1.10E+02	NJDEP	Yes	ASL
	7440-23-5	Sodium	1.37E+02	B	4.77E+03	J	mg/Kg	MA-SB-81	24/24	61.6 - 61.6	4.77E+03	NA	NA		NA		No	NUT
	7440-62-2	Vanadium	1.14E+01		4.14E+01		mg/Kg	MA-SO-201	24/24	10 - 10	4.14E+01	NA	5.5E+01	nc	3.70E+02	NJDEP	No	BSL
	7440-66-6	Zinc	9.90E+00		6.64E+03		mg/Kg	MA-SB-81	24/24	12 - 12	6.64E+03	NA	2.3E+03	nc	1.50E+03	NJDEP	Yes	ASL
	309-00-2	Aldrin	2.60E-03	JN	1.30E+00		mg/kg	MA-SB-60	4/23	0.0018 - 1.7	1.30E+00	NA	2.9E-02	ca*	4.00E-02	NJDEP	Yes	ASL
	319-85-7	BHC, beta	6.80E-03	J	9.40E-02	JN	mg/kg	MA-SB-124	3/22	0.0018 - 0.042	9.40E-02	NA	3.2E-01	ca	NA		No	BSL
	5103-71-9	Chlordane - alpha	6.80E-03	JN	8.10E+00	JN	mg/kg	MA-SB-60	15/23	0.0018 - 1.7	8.10E+00	NA	1.1E-01	ca	NA		Yes	ASL
	12789-03-6	Chlordane - gamma (technical mixture)	2.90E-03	J	8.90E+00		mg/kg	MA-SB-60	15/23	0.0018 - 1.7	8.90E+00	NA	1.6E+00	ca*	NA		Yes	ASL
	72-54-8	DDD-4,4'	8.70E-03		8.70E-03		mg/kg	MA-SB-56	1/23	0.0035 - 0.081	8.70E-03	NA	2.4E+00	ca	3.00E+00	NJDEP	No	BSL
	72-55-9	DDE-4,4'	7.20E-03	NJ	1.50E+01	J	mg/kg	MA-SO-201	17/22	0.0035 - 3.3	1.50E+01	NA	1.7E+00	ca	2.00E+00	NJDEP	Yes	ASL
	50-29-3	DDT-4,4'	4.70E-03		2.60E+00		mg/kg	MA-SB-130	9/19	0.0035 - 3.3	2.60E+00	NA	1.7E+00	ca*	2.00E+00	NJDEP	Yes	ASL
	60-57-1	Dieldrin	5.70E-03	JN	1.30E+00		mg/kg	MA-SB-124	7/22	0.0035 - 3.3	1.30E+00	NA	3.0E-02	ca	4.20E-02	NJDEP	Yes	ASL
	959-98-8	Endosulfan I (alpha)	1.20E-01		1.20E-01		mg/kg	MA-SB-60	1/21	0.0018 - 0.042	1.20E-01	NA	3.7E+01	nc	NA		No	BSL
	33213-65-9	Endosulfan II (beta)	2.50E-02	J	2.50E-02	J	mg/kg	MA-SB-124	1/21	0.0035 - 0.081	2.50E-02	NA	3.7E+01	nc	NA		No	BSL
	1031-07-8	Endosulfan Sulfate	9.50E-03	JN	1.80E-01	JN	mg/kg	MA-SB-06	6/22	0.0035 - 0.045	1.80E-01	NA	3.7E+01	nc	NA		No	BSL
	72-20-8	Endrin	8.60E-03		1.90E-01	J	mg/kg	MA-SB-06	8/23	0.0035 - 0.081	1.90E-01	NA	1.8E+00	nc	1.70E+01	NJDEP	No	BSL
	7421-93-4	Endrin Aldehyde	1.00E-02	J	4.00E-02		mg/kg	MA-SB-112	5/23	0.0035 - 0.081	4.00E-02	NA	1.8E+00	nc	NA		No	BSL
	53494-70-5	Endrin ketone	6.80E-03	NJ	1.20E-01		mg/kg	MA-SO-214	7/22	0.0035 - 0.038	1.20E-01	NA	1.8E+00	nc	NA		No	BSL
	76-44-8	Heptachlor	6.80E-03	JN	2.60E-01	J	mg/kg	MA-SB-06	3/23	0.0018 - 1.7	2.60E-01	NA	1.1E-01	ca	1.50E-01	NJDEP	Yes	ASL
	1024-57-3	Heptachlor Epoxide	1.00E-02	JN	2.00E-02	JN	mg/kg	MA-SB-124	3/23	0.0018 - 1.7	2.00E-02	NA	5.3E-02	ca*	NA		No	BSL
	72-43-5	Methoxychlor	1.60E-01	J	1.80E+00	J	mg/kg	MA-SB-06	3/21	0.018 - 0.42	1.80E+00	NA	3.1E+01	nc	2.80E+02	NJDEP	No	BSL
	12672-29-6	Pcb-Aroclor 1248	8.40E-01	J	8.40E-01	J	mg/kg	MA-SB-81	1/23	0.035 - 33	8.40E-01	NA	2.2E-01	ca	4.90E-01	NJDEP	Yes	ASL
	11097-69-1	Pcb-Aroclor 1254	4.70E-02		1.90E+01		mg/kg	MA-SO-201	7/23	0.035 - 33	1.90E+01	NA	1.1E-01	ca**	4.90E-01	NJDEP	Yes	ASL
	11096-82-5	Pcb-Aroclor 1260	1.10E-01	NJ	7.20E+00	J	mg/kg	MA-SB-08	3/24	0.035 - 33	7.20E+00	NA	2.2E-01	ca	4.90E-01	NJDEP	Yes	ASL
	83-32-9	Acenaphthene	1.30E-02	J	1.70E+01	J	mg/kg	MA-SB-02	15/24	0.35 - 120	1.70E+01	NA	3.7E+02	nc	3.40E+03	NJDEP	No	BSL
	208-96-8	Acenaphthylene	1.30E-02	J	2.20E+00	J	mg/kg	MA-SB-112	15/24	0.35 - 120	2.20E+00	NA	2.3E+02	nc	NA		No	BSL
	98-86-2	Acetophenone	1.10E-02	J	2.90E+00	J	mg/kg	MA-SB-31	4/24	0.35 - 10000	2.90E+00	NA	4.9E-02	nc	NA		Yes	ASL
	120-12-7	Anthracene	1.40E-02	J	6.10E+01	J	mg/kg	MA-SB-02	20/24	0.35 - 39	6.10E+01	NA	2.2E+03	nc	1.00E+04	NJDEP	No	BSL
	100-52-7	Benzaldehyde	8.00E-03	J	1.40E+00	J	mg/kg	MA-SB-11	10/24	0.35 - 120	1.40E+00	NA	6.1E+02	nc	NA		No	BSL
	56-55-3	Benzo(a)anthracene	2.80E-02	J	1.20E+02	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	1.20E+02	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	4.00E-02	J	1.10E+02	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	1.10E+02	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	6.50E-02	J	1.10E+02	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	1.10E+02	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,I)perylene	9.40E-02	J	5.80E+01	J	mg/kg	MA-SB-02	19/24	0.35 - 39	5.80E+01	NA	2.3E+02	nc	NA		No	BSL
	207-08-9	Benzo(k)fluoranthene	2.30E-02	J	7.10E+01	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	7.10E+01	NA	6.2E+00	ca	9.00E-01	NJDEP	Yes	ASL

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TABLE 2.1

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	92-52-4	Biphenyl	4.70E-02	J	4.60E+00	J	mg/kg	MA-SO-201	9/24	0.35 - 120	4.60E+00	NA	3.0E+02	sat	#N/A		No	BSL
	85-68-7	Butylbenzyl phthalate	4.30E-02	J	9.20E+00		mg/kg	MA-SO-201	6/24	0.35 - 120	9.20E+00	NA	1.2E+03	nc	1.10E+03	NJDEP	No	BSL
	105-60-2	Caprolactam	2.80E-02	J	2.80E-02	J	mg/kg	MA-SB-56	1/24	0.35 - 120	2.80E-02	NA	3.1E+03	nc	NA		No	BSL
	86-74-8	Carbazole	2.30E-02	J	1.20E+01	J	mg/kg	MA-SB-02	15/24	0.35 - 10000	1.20E+01	NA	2.4E+01	ca	NA		No	BSL
	218-01-9	Chrysene	3.80E-02	J	1.20E+02	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	1.20E+02	NA	6.2E+01	ca	9.00E+00	NJDEP	Yes	ASL
	95-48-7	Cresol-o	4.70E-02	J	1.00E+00		mg/kg	MA-SO-201	3/24	0.35 - 120	1.00E+00	NA	3.1E+02	nc	2.80E+03	NJDEP	No	BSL
	106-44-5	Cresol-p	4.30E-02	J	9.40E-01		mg/kg	MA-SO-201	4/24	0.35 - 120	9.40E-01	NA	3.1E+01	nc	2.80E+03	NJDEP	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	1.20E-02	J	1.90E+01	J	mg/kg	MA-SB-02	20/24	0.35 - 10000	1.90E+01	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	132-64-9	Dibenzofuran	8.10E-02	J	1.00E+01	J	mg/kg	MA-SB-02	13/24	0.35 - 10000	1.00E+01	NA	2.9E+01	nc	NA		No	BSL
	105-67-9	Dimethylphenol-2,4	6.50E-02	J	6.50E-02	J	mg/kg	MA-SB-09	1/24	0.35 - 120	6.50E-02	NA	1.2E+02	nc	1.10E+03	NJDEP	No	BSL
	206-44-0	Fluoranthene	4.30E-02	J	2.90E+02	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	2.90E+02	NA	2.3E+02	nc	2.30E+03	NJDEP	Yes	ASL
	86-73-7	Fluorene	1.60E-02	J	2.20E+01	J	mg/kg	MA-SB-02	13/24	0.35 - 39	2.20E+01	NA	2.7E+02	nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	3.50E-02	J	5.90E+01	J	mg/kg	MA-SB-02	22/24	0.35 - 10000	5.90E+01	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	78-59-1	Isophorone	2.30E-02	J	2.30E-02	J	mg/kg	MA-SB-09	1/24	0.35 - 120	2.30E-02	NA	5.1E+02	ca*	1.10E+03	NJDEP	No	BSL
	91-57-6	Methylnaphthalene-2	9.00E-02	J	7.40E+00		mg/kg	MA-SB-31	12/24	0.35 - 120	7.40E+00	NA	7.0E+01	nc	NA		No	BSL
	91-20-3	Naphthalene	1.70E-02	J	3.40E+01		mg/kg	MA-SO-201	15/24	0.35 - 10000	3.40E+01	NA	5.6E+00	nc	2.30E+02	NJDEP	Yes	ASL
	86-30-6	Nitrosodiphenylamine-n	1.30E+00		1.30E+00		mg/kg	MA-SO-201	1/24	0.35 - 120	1.30E+00	NA	9.9E+01	ca	1.40E+02	NJDEP	No	BSL
	87-86-5	PCP (Pentachlorophenol)	1.10E+00	J	1.10E+00	J	mg/kg	MA-SB-31	1/24	0.87 - 300	1.10E+00	NA	3.0E+00	ca	6.00E+00	NJDEP	No	BSL
	85-01-8	Phenanthrene	1.60E-02	J	2.20E+02	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	2.20E+02	NA	2.3E+02	nc	NA		No	BSL
	108-95-2	Phenol	9.90E-02	J	3.20E+00		mg/kg	MA-SO-201	2/24	0.35 - 120	3.20E+00	NA	3.7E+03	nc	1.00E+04	NJDEP	No	BSL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	8.20E-02	J	5.90E+01		mg/kg	MA-SO-201	10/24	0.35 - 10000	5.90E+01	NA	3.5E+01	ca*	4.90E+01	NJDEP	Yes	ASL
	84-74-2	Phthalate, di-n-butyl	3.80E-02	J	9.10E+00		mg/kg	MA-SB-08	16/24	0.35 - 120	9.10E+00	NA	6.1E+02	nc	5.70E+03	NJDEP	No	BSL
	117-84-0	Phthalate, di-n-octyl	3.00E-02	J	2.80E-01	J	mg/kg	MA-SB-09	2/23	0.35 - 120	2.80E-01	NA	2.4E+02	nc	1.10E+03	NJDEP	No	BSL
	84-66-2	Phthalate, diethyl	1.00E-02	J	5.70E+00	J	mg/kg	MA-SO-201	4/24	0.35 - 120	5.70E+00	NA	4.9E+03	nc	1.00E+04	NJDEP	No	BSL
	129-00-0	Pyrene	4.30E-02	J	2.30E+02	J	mg/kg	MA-SB-02	23/24	0.35 - 10000	2.30E+02	NA	2.3E+02	nc	1.70E+03	NJDEP	No	BSL
	67-64-1	Acetone	8.00E-03	J	4.60E-01	J	mg/kg	MA-SO-214	14/24	0.01 - 14	4.60E-01	NA	1.6E+02	nc	1.00E+03	NJDEP	No	BSL
	71-43-2	Benzene	1.00E-03	J	4.50E+00		mg/kg	MA-SO-201	12/24	0.01 - 1200	4.50E+00	NA	6.0E-01	ca*	3.00E+00	NJDEP	Yes	ASL, TOX
	75-25-2	Bromoform	2.00E-03	J	2.00E-03	J	mg/kg	MA-SB-04, MA-SB-11	2/24	0.01 - 14	2.00E-03	NA	6.2E+01	ca*	8.60E+01	NJDEP	No	BSL
	74-83-9	Bromomethane	3.00E-03	J	1.20E-01	J	mg/kg	MA-SB-60	2/24	0.01 - 1200	1.20E-01	NA	3.9E-01	nc	7.90E+01	NJDEP	No	BSL
	75-15-0	Carbon disulfide	2.00E-03	J	1.30E-01		mg/kg	MA-SB-11	10/24	0.01 - 14	1.30E-01	NA	3.6E+01	nc	NA		No	BSL
	108-90-7	Chlorobenzene	5.00E-03	J	3.20E+00		mg/kg	MA-SB-60	2/24	0.01 - 14	3.20E+00	NA	1.5E+01	nc	3.70E+01	NJDEP	No	BSL
	75-00-3	Chloroethane	2.70E+00	J	2.70E+00	J	mg/kg	MA-SB-60	1/24	0.01 - 14	2.70E+00	NA	3.0E+00	ca	NA		No	BSL
	67-66-3	Chloroform	6.00E-03	J	1.40E+00		mg/kg	MA-SO-201	3/24	0.01 - 1200	1.40E+00	NA	3.6E-01	ca/nc	1.90E+01	NJDEP	Yes	ASL
	110-82-7	Cyclohexane	1.00E-03	J	6.60E-02	J	mg/kg	MA-SB-08	4/24	0.01 - 14	6.60E-02	NA	1.4E+02	sat	NA		No	BSL
	95-50-1	Dichlorobenzene-1,2	1.00E-03	J	5.50E+00		mg/kg	MA-SB-60	5/24	0.01 - 2.2	5.50E+00	NA	1.1E+02	sat	5.10E+03	NJDEP	No	BSL
	106-46-7	Dichlorobenzene-1,4	1.70E-01	J	2.30E-01	J	mg/kg	MA-SB-60	2/24	0.01 - 14	2.30E-01	NA	3.4E+00	ca	5.70E+02	NJDEP	No	BSL
	75-34-3	Dichloroethane-1,1	1.80E-02	J	1.10E+01	J	mg/kg	MA-SB-31	5/24	0.01 - 2.2	1.10E+01	NA	5.1E+01	nc	5.70E+02	NJDEP	No	BSL
	156-60-5	Dichloroethene-1,2 trans	3.00E-03	J	3.50E-01	J	mg/kg	MA-SB-60	3/24	0.01 - 14	3.50E-01	NA	6.9E+00	nc	1.00E+03	NJDEP	No	BSL
	75-35-4	Dichloroethylene-1,1	2.00E-03	J	2.00E-03	J	mg/kg	MA-SB-02	1/24	0.01 - 14	2.00E-03	NA	1.2E+01	nc	8.00E+00	NJDEP	No	BSL
	156-59-2	Dichloroethylene-1,2 cis	2.00E-03	J	2.40E+01		mg/kg	MA-SB-31	8/24	0.01 - 1200	2.40E+01	NA	4.3E+00	nc	7.90E+01	NJDEP	Yes	ASL
	100-41-4	Ethylbenzene	1.70E-02	J	7.50E+00		mg/kg	MA-SO-201	7/24	0.01 - 1200	7.50E+00	NA	8.9E+00	ca	1.00E+03	NJDEP	No	BSL
	591-78-6	Hexanone-2	4.00E-03	J	4.10E-01	J	mg/kg	MA-SO-201	2/24	0.01 - 14	4.10E-01	NA	1.1E+01	nc	NA		No	BSL
	98-82-8	Isopropylbenzene	3.00E-03	J	5.90E-01	J	mg/kg	MA-SO-201	4/24	0.01 - 14	5.90E-01	NA	5.7E+01	nc	NA		No	BSL
	79-20-9	Methyl acetate	6.20E-01	J	1.30E+00		mg/kg	MA-SB-60	2/24	0.01 - 14	1.30E+00	NA	2.2E+03	nc	NA		No	BSL
	108-87-2	Methyl cyclohexane	1.00E-03	J	5.00E+00	J	mg/kg	MA-SB-31	9/24	0.01 - 2.2	5.00E+00	NA	2.6E+02	nc	NA		No	BSL
	78-93-3	Methyl ethyl ketone (2-butanone)	8.00E-03	J	2.50E-01	J	mg/kg	MA-SB-60	10/24	0.01 - 14	2.50E-01	NA	7.3E+02	nc	1.00E+03	NJDEP	No	BSL
	108-10-1	Methyl isobutyl ketone (4-methyl-2-pentanone)	1.00E-03	J	4.70E-01	J	mg/kg	MA-SB-60	6/24	0.01 - 14	4.70E-01	NA	7.9E+01	nc	1.00E+03	NJDEP	No	BSL
	75-09-2	Methylene chloride	7.10E-02		7.10E-02		mg/kg	MA-SB-130	1/24	0.01 - 14	7.10E-02	NA	9.1E+00	ca	4.90E+01	NJDEP	No	BSL
	100-42-5	Styrene	7.00E-03	J	7.00E-03	J	mg/kg	MA-SB-11	1/24	0.01 - 14	7.00E-03	NA	4.4E+02	sat	2.30E+01	NJDEP	No	BSL
	127-18-4	Tetrachloroethylene	1.00E-03	J	2.60E+01		mg/kg	MA-SB-31	16/24	0.01 - 1200	2.60E+01	NA	1.5E+00	ca*	4.00E+00	NJDEP	Yes	ASL
	108-88-3	Toluene	2.00E-03	J	1.60E+02		mg/kg	MA-SB-31	15/24	0.01 - 1200	1.60E+02	NA	6.6E+01	sat	1.00E+03	NJDEP	Yes	ASL
	120-82-1	Trichlorobenzene-1,2,4	5.90E+00		5.90E+00		mg/kg	MA-SO-201	1/24	0.01 - 14	5.90E+00	NA	6.5E+01	nc	6.80E+01	NJDEP	No	BSL

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TABLE 2.1

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	71-55-6	Trichloroethane-1,1,1	1.10E-02	2.00E+00	mg/kg	MA-SB-60	3/24	0.01 - 14	2.00E+00	NA	2.0E+02 sat	2.10E+02	NJDEP	No	BSL
	79-01-6	Trichloroethylene	2.00E-03 J	6.00E+01	mg/kg	MA-SB-31	14/24	0.01 - 2.2	6.00E+01	NA	5.3E-02 ca	2.30E+01	NJDEP	Yes	ASL
	75-69-4	Trichlorofluoromethane	3.00E-03 J	3.00E-03 J	mg/kg	MA-SB-130	1/24	0.01 - 14	3.00E-03	NA	3.9E+01 nc	NA		No	BSL
	75-01-4	Vinyl chloride	9.00E-03 J	3.20E-01 J	mg/kg	MA-SB-60	3/24	0.01 - 1200	3.20E-01	NA	7.9E-02 ca	2.00E+00	NJDEP	Yes	ASL, TOX
	1330-20-7	Xylenes, total	1.00E-03 J	4.80E+01	mg/kg	MA-SO-201	9/24	0.01 - 1200	4.80E+01	NA	2.7E+01 nc	4.10E+02	NJDEP	Yes	ASL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.
Endosulfan PRG used as surrogate for Endosulfan I (alpha).
Endosulfan PRG used as surrogate for Endosulfan Sulfate.
Endrin PRG used as surrogate for Endrin Aldehyde.
Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Acenaphthylene.
Value from 2000 PRG Table used since Acetophenone withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Benzo(g,h,i)perylene.
Value from 2000 PRG Table used since Methylnaphthalene-2 withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Phenanthrene.
Value from 2000 PRG Table used since Hexanone-2 withdrawn from 2002 PRG Table.
Endosulfan PRG used as surrogate for Endosulfan II (beta).
(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca
J = Estimated Value
N = Lab QC spike is outside of QC limits
NA = Not Available
nc = Noncarcinogen
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)

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TABLE 2.2

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Junk Yard Surface Soil	7429-90-5	Aluminum	4.99E+03		5.93E+03		mg/Kg	MA-SO-211	2/2	40 - 40	5.93E+03	NA	7.6E+03	nc	NA		No	BSL
	7440-36-0	Antimony	1.50E+00	BJ	4.10E+00	BJ	mg/Kg	MA-SO-212	2/2	12 - 12	4.10E+00	NA	3.1E+00	nc	1.40E+01	NJDEP	Yes	ASL
	7440-38-2	Arsenic	1.78E+01	J	2.77E+01	J	mg/Kg	MA-SO-212	2/2	3 - 3	2.77E+01	NA	3.9E-01	ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	1.38E+04		1.60E+04		mg/Kg	MA-SO-211	2/2	40 - 40	1.60E+04	NA	5.4E+02	nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	4.00E-01	B	4.10E-01	B	mg/Kg	MA-SO-212	2/2	0.24 - 0.24	4.10E-01	NA	1.5E+01	nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	4.80E+00		1.83E+01		mg/Kg	MA-SO-212	2/2	1 - 1	1.83E+01	NA	3.7E+00	nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	8.97E+03		1.08E+04		mg/Kg	MA-SO-211	2/2	1000 - 1000	1.08E+04	NA	NA		NA		No	NUT
	7440-47-3	Chromium	1.45E+01		1.62E+01		mg/Kg	MA-SO-212	2/2	2 - 2	1.62E+01	NA	2.2E+01	ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	3.40E+00	B	4.90E+00	B	mg/Kg	MA-SO-212	2/2	10 - 10	4.90E+00	NA	1.4E+02	ca**	NA		No	BSL
	7440-50-8	Copper	4.99E+01		9.97E+01		mg/Kg	MA-SO-212	2/2	5 - 5	9.97E+01	NA	3.1E+02	nc	6.00E+02	NJDEP	No	BSL
	7439-89-6	Iron	1.91E+04		3.28E+04		mg/Kg	MA-SO-211	2/2	20 - 20	3.28E+04	NA	2.3E+03	nc	NA		Yes	ASL
	7439-92-1	Lead	9.89E+02		2.14E+03		mg/Kg	MA-SO-212	2/2	2 - 2	2.14E+03	NA	4.0E+02	nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	9.91E+02	B	1.21E+03		mg/Kg	MA-SO-212	2/2	1000 - 1000	1.21E+03	NA	NA		NA		No	NUT
	7439-96-5	Manganese	1.41E+02	J	2.19E+02	J	mg/Kg	MA-SO-211	2/2	3 - 3	2.19E+02	NA	1.8E+02	nc	NA		Yes	ASL
	7439-97-6	Mercury	3.90E-01		2.40E+00		mg/Kg	MA-SO-212	2/2	0.1 - 0.1	2.40E+00	NA	6.1E-01	nc	1.40E+01	NJDEP	Yes	ASL
	7440-02-0	Nickel	8.80E+00	B	1.08E+01		mg/Kg	MA-SO-212	2/2	8 - 8	1.08E+01	NA	1.6E+02	nc	2.50E+02	NJDEP	No	BSL
	7440-09-7	Potassium	7.11E+02	E	7.38E+02	B	mg/Kg	MA-SO-211	2/2	1000 - 1000	7.38E+02	NA	NA		NA		No	NUT
	7782-49-2	Selenium	1.30E+00		1.60E+00		mg/Kg	MA-SO-211	2/2	3.3 - 3.3	1.60E+00	NA	3.9E+01	nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	5.30E-01	B	5.30E-01	B	mg/Kg	MA-SO-212	1/2	0.25 - 2	5.30E-01	NA	3.9E+01	nc	1.10E+02	NJDEP	No	BSL
	7440-23-5	Sodium	1.66E+03	J	2.28E+03	J	mg/Kg	MA-SO-212	2/2	61.6 - 61.6	2.28E+03	NA	NA		NA		No	NUT
	7440-62-2	Vanadium	1.71E+01		1.84E+01		mg/Kg	MA-SO-211	2/2	10 - 10	1.84E+01	NA	5.5E+01	nc	3.70E+02	NJDEP	No	BSL
	7440-66-6	Zinc	1.20E+03		1.88E+03		mg/Kg	MA-SO-212	2/2	12 - 12	1.88E+03	NA	2.3E+03	nc	1.50E+03	NJDEP	No	BSL
	58-89-9	BHC, gamma (Lindane)	1.90E-03	NJ	1.90E-03	NJ	mg/kg	MA-SO-212	1/2	0.002 - 0.042	1.90E-03	NA	4.4E-01	ca*	5.20E-01	NJDEP	No	BSL
	5103-71-9	Chlordane - alpha	1.20E-03	J	1.20E-03	J	mg/kg	MA-SO-211	1/2	0.0019 - 1.7	1.20E-03	NA	1.1E-01	ca	NA		No	BSL
	72-55-9	DDE-4,4'	3.60E-03	J	3.60E-03	J	mg/kg	MA-SO-212	1/2	0.0038 - 3.3	3.60E-03	NA	1.7E+00	ca	2.00E+00	NJDEP	No	BSL
	50-29-3	DDT-4,4'	9.20E-03		9.20E-03		mg/kg	MA-SO-212	1/2	0.0038 - 3.3	9.20E-03	NA	1.7E+00	ca*	2.00E+00	NJDEP	No	BSL
	72-20-8	Endrin	3.00E-03	J	3.00E-03	J	mg/kg	MA-SO-212	1/2	0.0038 - 0.081	3.00E-03	NA	1.8E+00	nc	1.70E+01	NJDEP	No	BSL
	53494-70-5	Endrin ketone	8.00E-03	NJ	8.00E-03	NJ	mg/kg	MA-SO-212	1/2	0.0038 - 0.038	8.00E-03	NA	1.8E+00	nc	NA		No	BSL
	72-43-5	Methoxychlor	1.10E-02	J	1.10E-02	J	mg/kg	MA-SO-211	1/2	0.019 - 0.42	1.10E-02	NA	3.1E+01	nc	2.80E+02	NJDEP	No	BSL
	120-12-7	Anthracene	3.60E-01	J	3.60E-01	J	mg/kg	MA-SO-212	1/2	3.8 - 39	3.60E-01	NA	2.2E+03	nc	1.00E+04	NJDEP	No	BSL
	56-55-3	Benzo(a)anthracene	4.60E-01	J	1.60E+00	J	mg/kg	MA-SO-212	2/2	330 - 330	1.60E+00	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	1.50E+00	J	1.50E+00	J	mg/kg	MA-SO-212	1/2	3.8 - 330	1.50E+00	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	1.50E+00	J	1.50E+00	J	mg/kg	MA-SO-212	1/2	3.8 - 330	1.50E+00	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,I)perylene	3.70E-01	J	3.70E-01	J	mg/kg	MA-SO-212	1/2	3.8 - 39	3.70E-01	NA	2.3E+02	nc	NA		No	BSL
	207-08-9	Benzo(k)fluoranthene	1.60E+00	J	1.60E+00	J	mg/kg	MA-SO-212	1/2	3.8 - 10000	1.60E+00	NA	6.2E+00	ca	9.00E-01	NJDEP	No	BSL
	85-68-7	Butylbenzyl phthalate	2.90E-01	J	2.90E-01	J	mg/kg	MA-SO-212	1/2	1.9 - 120	2.90E-01	NA	1.2E+03	nc	1.10E+03	NJDEP	No	BSL
	218-01-9	Chrysene	5.90E-01	J	1.70E+00	J	mg/kg	MA-SO-212	2/2	10000 - 10000	1.70E+00	NA	6.2E+01	ca	9.00E+00	NJDEP	No	BSL
	206-44-0	Fluoranthene	8.20E-01	J	3.00E+00	J	mg/kg	MA-SO-212	2/2	10000 - 10000	3.00E+00	NA	2.3E+02	nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	4.40E-01	J	4.40E-01	J	mg/kg	MA-SO-212	1/2	3.8 - 330	4.40E-01	NA	6.2E-01	ca	9.00E-01	NJDEP	No	BSL
	85-01-8	Phenanthrene	5.90E-01	J	1.90E+00	J	mg/kg	MA-SO-212	2/2	10000 - 10000	1.90E+00	NA	2.3E+02	nc	NA		No	BSL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	1.10E+00	J	1.10E+00	J	mg/kg	MA-SO-212	1/2	2 - 10000	1.10E+00	NA	3.5E+01	ca*	4.90E+01	NJDEP	No	BSL
	129-00-0	Pyrene	7.10E-01	J	2.70E+00	J	mg/kg	MA-SO-212	2/2	10000 - 10000	2.70E+00	NA	2.3E+02	nc	1.70E+03	NJDEP	No	BSL
	67-64-1	Acetone	2.00E-03	J	2.00E-03	J	mg/kg	MA-SO-211	1/2	0.012 - 14	2.00E-03	NA	1.6E+02	nc	1.00E+03	NJDEP	No	BSL
	108-88-3	Toluene	1.00E-03	J	3.00E-03	J	mg/kg	MA-SO-212	2/2	1200 - 1200	3.00E-03	NA	6.6E+01	sat	1.00E+03	NJDEP	No	BSL
	1330-20-7	Xylenes, total	2.00E-03	J	2.00E-03	J	mg/kg	MA-SO-212	1/2	0.012 - 1200	2.00E-03	NA	2.7E+01	nc	4.10E+02	NJDEP	No	BSL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.

Definitions: COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca

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TABLE 2.2

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Benzo(g,h,I)perylene.
Pyrene PRG used as surrogate for Phenanthrene.

(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.

(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)

E = result exceeded the initial calibration range and should be diluted
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
NA = Not Available
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)

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TABLE 2.3

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Row Homes and	7429-90-5	Aluminum	2.21E+03	J	5.81E+03	J	mg/Kg	MA-SO-404	5/5	40 - 40	5.81E+03	NA	7.6E+03	nc	NA		No	BSL
Industrial Area	7440-36-0	Antimony	1.10E+00	BJ	3.40E+00	BJ	mg/Kg	MA-SO-202	4/5	0.81 - 12	3.40E+00	NA	3.1E+00	nc	1.40E+01	NJDEP	Yes	ASL
Surface Soil	7440-38-2	Arsenic	3.20E+00		3.39E+02		mg/Kg	MA-SO-401	5/5	3 - 3	3.39E+02	NA	3.9E-01	ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	8.05E+01		2.26E+04		mg/Kg	MA-SO-404	5/5	40 - 40	2.26E+04	NA	5.4E+02	nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	2.20E-01	B	7.40E-01	B	mg/Kg	MA-SO-402	5/5	0.24 - 0.24	7.40E-01	NA	1.5E+01	nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	1.60E+00	J	4.60E+00	J	mg/Kg	MA-SO-401	4/5	0.09 - 1	4.60E+00	NA	3.7E+00	nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	3.88E+03		4.58E+04		mg/Kg	MA-SO-204	5/5	1000 - 1000	4.58E+04	NA	NA		NA		No	NUT
	7440-47-3	Chromium	1.23E+01		4.13E+02		mg/Kg	MA-SO-202	5/5	2 - 2	4.13E+02	NA	2.2E+01	ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	2.20E+00	B	6.60E+00	B	mg/Kg	MA-SO-404	5/5	10 - 10	6.60E+00	NA	1.4E+02	ca**	NA		No	BSL
	7440-50-8	Copper	1.88E+01		1.59E+02		mg/Kg	MA-SO-202	5/5	5 - 5	1.59E+02	NA	3.1E+02	nc	6.00E+02	NJDEP	No	BSL
	7439-89-6	Iron	8.35E+03		2.77E+04		mg/Kg	MA-SO-404	5/5	20 - 20	2.77E+04	NA	2.3E+03	nc	NA		Yes	ASL
	7439-92-1	Lead	5.32E+01		6.61E+02		mg/Kg	MA-SO-401	5/5	2 - 2	6.61E+02	NA	4.0E+02	nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	9.50E+02	B	1.18E+04		mg/Kg	MA-SO-204	5/5	1000 - 1000	1.18E+04	NA	NA		NA		No	NUT
	7439-96-5	Manganese	1.04E+02	J	2.11E+02	J	mg/Kg	MA-SO-402	5/5	3 - 3	2.11E+02	NA	1.8E+02	nc	NA		Yes	ASL
	7439-97-6	Mercury	1.10E-01	J	5.70E+00	J	mg/Kg	MA-SO-202	5/5	0.1 - 0.1	5.70E+00	NA	6.1E-01	nc	1.40E+01	NJDEP	Yes	ASL
	7440-02-0	Nickel	7.20E+00	B	1.55E+01		mg/Kg	MA-SO-401	5/5	8 - 8	1.55E+01	NA	1.6E+02	nc	2.50E+02	NJDEP	No	BSL
	7440-09-7	Potassium	2.36E+02	B	7.60E+02	B	mg/Kg	MA-SO-204	5/5	1000 - 1000	7.60E+02	NA	NA		NA		No	NUT
	7782-49-2	Selenium	1.00E+00		1.60E+00		mg/Kg	MA-SO-401	4/5	1.1 - 3.3	1.60E+00	NA	3.9E+01	nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	1.70E+00	B	1.70E+00	B	mg/Kg	MA-SO-202	1/5	0.22 - 2	1.70E+00	NA	3.9E+01	nc	1.10E+02	NJDEP	No	BSL
	7440-23-5	Sodium	3.58E+02	BJ	2.32E+03	J	mg/Kg	MA-SO-401	5/5	61.6 - 61.6	2.32E+03	NA	NA		NA		No	NUT
	7440-62-2	Vanadium	8.10E+00	B	1.94E+01		mg/Kg	MA-SO-401	5/5	10 - 10	1.94E+01	NA	5.5E+01	nc	3.70E+02	NJDEP	No	BSL
	7440-66-6	Zinc	7.11E+01		1.74E+03		mg/kg	MA-SO-401	5/5	12 - 12	1.74E+03	NA	2.3E+03	nc	1.50E+03	NJDEP	No	BSL
	309-00-2	Aldrin	7.30E-02	JN	7.30E-02	JN	mg/kg	MA-SO-204	1/6	0.0018 - 1.7	7.30E-02	NA	2.9E-02	ca*	4.00E-02	NJDEP	Yes	ASL
	5103-71-9	Chlordane - alpha	1.00E-03	J	1.00E-03	J	mg/kg	MA-SO-403	1/5	0.0018 - 1.7	1.00E-03	NA	1.1E-01	ca	NA		No	BSL
	12789-03-6	Chlordane - gamma (technical mixture)	2.70E-02	J	2.70E-02	J	mg/kg	MA-SO-204	1/6	0.0018 - 1.7	2.70E-02	NA	1.6E+00	ca*	NA		No	BSL
	72-55-9	DDE-4,4'	1.70E-01		1.70E-01		mg/kg	MA-SO-204	1/6	0.0034 - 3.3	1.70E-01	NA	1.7E+00	ca	2.00E+00	NJDEP	No	BSL
	50-29-3	DDT-4,4'	3.50E-03	J	2.10E-02	NJ	mg/kg	MA-SO-204	5/6	0.0035 - 3.3	2.10E-02	NA	1.7E+00	ca*	2.00E+00	NJDEP	No	BSL
	60-57-1	Dieldrin	1.20E-01	JN	1.20E-01	JN	mg/kg	MA-SO-204	1/6	0.0034 - 3.3	1.20E-01	NA	3.0E-02	ca	4.20E-02	NJDEP	Yes	ASL
	33213-65-9	Endosulfan II (beta)	5.30E-03	NJ	5.30E-03	NJ	mg/kg	MA-SO-202	1/6	0.0035 - 0.081	5.30E-03	NA	3.7E+01	nc	NA		No	BSL
	1031-07-8	Endosulfan Sulfate	4.10E-03	J	4.10E-03	J	mg/kg	MA-SO-402	1/6	0.0034 - 0.045	4.10E-03	NA	3.7E+01	nc	NA		No	BSL
	72-20-8	Endrin	7.00E-03	J	1.30E-02	J	mg/kg	MA-SO-403	3/6	0.0036 - 0.081	1.30E-02	NA	1.8E+00	nc	1.70E+01	NJDEP	No	BSL
	53494-70-5	Endrin ketone	1.00E-02	NJ	1.00E-02	NJ	mg/kg	MA-SO-202	1/6	0.0035 - 0.038	1.00E-02	NA	1.8E+00	nc	NA		No	BSL
	76-44-8	Heptachlor	2.30E-03		9.70E-03	J	mg/kg	MA-SO-204	3/6	0.0018 - 1.7	9.70E-03	NA	1.1E-01	ca	1.50E-01	NJDEP	No	BSL
	1024-57-3	Heptachlor Epoxide	1.40E-03	J	2.60E-03	NJ	mg/kg	MA-SO-403	2/6	0.0018 - 1.7	2.60E-03	NA	5.3E-02	ca*	NA		No	BSL
	11097-69-1	Pcb-Aroclor 1254	3.20E+00	J	3.20E+00	J	mg/kg	MA-SO-204	1/6	0.034 - 33	3.20E+00	NA	1.1E-01	ca**	NA		Yes	ASL
	83-32-9	Acenaphthene	5.20E-01	J	6.70E+00	J	mg/kg	MA-SO-404	4/6	3.7 - 120	6.70E+00	NA	3.7E+02	nc	3.40E+03	NJDEP	No	BSL
	208-96-8	Acenaphthylene	1.50E+00	J	1.50E+00	J	mg/kg	MA-SO-403	1/6	3.5 - 120	1.50E+00	NA	2.3E+02	nc	NA		No	BSL
	120-12-7	Anthracene	1.20E+00	J	1.50E+01		mg/kg	MA-SO-404	5/6	3.7 - 39	1.50E+01	NA	2.2E+03	nc	1.00E+04	NJDEP	No	BSL
	56-55-3	Benzo(a)anthracene	5.80E-01	J	2.40E+01		mg/kg	MA-SO-404	6/6	330 - 330	2.40E+01	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	4.90E-01	J	1.80E+01		mg/kg	MA-SO-404	6/6	330 - 330	1.80E+01	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	2.30E+00	J	1.60E+01		mg/kg	MA-SO-404	5/6	3.7 - 330	1.60E+01	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,I)perylene	9.20E-01	J	5.10E+00	J	mg/kg	MA-SO-404	4/6	3.7 - 39	5.10E+00	NA	2.3E+02	nc	NA		No	BSL
	207-08-9	Benzo(k)fluoranthene	5.60E-01	J	1.80E+01		mg/kg	MA-SO-404	6/6	330 - 330	1.80E+01	NA	6.2E+00	ca	9.00E-01	NJDEP	Yes	ASL
	86-74-8	Carbazole	7.20E-01	J	7.20E+00	J	mg/kg	MA-SO-404	4/6	3.7 - 10000	7.20E+00	NA	2.4E+01	ca	NA		No	BSL
	218-01-9	Chrysene	6.50E-01	J	2.30E+01		mg/kg	MA-SO-404	6/6	10000 - 10000	2.30E+01	NA	6.2E+01	ca	9.00E+00	NJDEP	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	6.70E-01	J	2.00E+00	J	mg/kg	MA-SO-404	2/6	3.5 - 330	2.00E+00	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	132-64-9	Dibenzofuran	5.00E-01	J	5.30E+00	J	mg/kg	MA-SO-404	3/6	3.5 - 10000	5.30E+00	NA	2.9E+01	nc	NA		No	BSL
	206-44-0	Fluoranthene	1.30E+00	J	5.70E+01		mg/kg	MA-SO-404	6/6	10000 - 10000	5.70E+01	NA	2.3E+02	nc	2.30E+03	NJDEP	No	BSL
	86-73-7	Fluorene	7.80E-01	J	8.00E+00	J	mg/kg	MA-SO-404	3/6	3.5 - 39	8.00E+00	NA	2.7E+02	nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	1.10E+00	J	5.70E+00	J	mg/kg	MA-SO-404	4/6	3.7 - 330	5.70E+00	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	91-57-6	Methylnaphthalene-2	2.20E+00	J	2.20E+00	J	mg/kg	MA-SO-404	1/6	3.5 - 120	2.20E+00	NA	7.0E+01	nc	NA		No	BSL
	91-20-3	Naphthalene	1.70E+00	J	5.90E+00	J	mg/kg	MA-SO-402	4/6	3.5 - 330	5.90E+00	NA	5.6E+00	nc	2.30E+02	NJDEP	Yes	ASL
	85-01-8	Phenanthrene	8.00E-01	J	7.20E+01		mg/kg	MA-SO-404	6/6	10000 - 10000	7.20E+01	NA	2.3E+02	nc	NA		No	BSL
	129-00-0	Pyrene	1.10E+00	J	4.80E+01		mg/kg	MA-SO-404	6/6	10000 - 10000	4.80E+01	NA	2.3E+02	nc	1.70E+03	NJDEP	No	BSL
	67-64-1	Acetone	2.00E-03	J	1.80E-02		mg/kg	MA-SO-401	4/6	0.011 - 14	1.80E-02	NA	1.6E+02	nc	1.00E+03	NJDEP	No	BSL
	75-15-0	Carbon disulfide	2.00E-03	J	2.00E-03	J	mg/kg	MA-SO-401	1/6	0.011 - 0.017	2.00E-03	NA	3.6E+01	nc	NA		No	BSL

300898

TABLE 2.3

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	67-66-3	Chloroform	2.00E-03 J	2.00E-03 J	mg/kg	MA-SO-401, MA-SO-402	2/6	0.011 - 1200	2.00E-03	NA	3.6E-01 ca/nc	1.90E+01	NJDEP	No	BSL
	156-59-2	Dichloroethylene-1,2 cis	1.00E-03 J	1.00E-03 J	mg/kg	MA-SO-204	1/6	0.012 - 1200	1.00E-03	NA	4.3E+00 nc	7.90E+01	NJDEP	No	BSL
	108-88-3	Toluene	2.00E-03 J	2.00E-03 J	mg/kg	MA-SO-204	5/6	0.014 - 1200	2.00E-03	NA	6.6E+01 sat	1.00E+03	NJDEP	No	BSL
	79-01-6	Trichloroethylene	1.00E-03 J	1.30E-02	mg/kg	MA-SO-403	4/6	0.013 - 2.2	1.30E-02	NA	5.3E-02 ca	2.30E+01	NJDEP	No	BSL
	75-69-4	Trichlorofluoromethane	1.00E-03 J	3.00E-03 J	mg/kg	MA-SO-404	5/6	0.014 - 14	3.00E-03	NA	3.9E+01 nc	NA		No	BSL
	1330-20-7	Xylenes, total	1.00E-03 J	2.00E-03 J	mg/kg	MA-SO-204, MA-SO-402, MA-SO-404	4/6	0.013 - 1200	2.00E-03	NA	2.7E+01 nc	4.10E+02	NJDEP	No	BSL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.
Endosulfan PRG used as surrogate for Endosulfan Sulfate.
Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Acenaphthylene.
Pyrene PRG used as surrogate for Benzo(g,h,I)perylene.
Value from 2000 PRG Table used since Methylnaphthalene-2 withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Phenanthrene.
Endosulfan PRG used as surrogate for Endosulfan II (beta).
(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Definitions: COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)
NA = Not Available

300899

TABLE 2.4

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
South Jersey	7429-90-5	Aluminum	3.15E+03		9.00E+03		mg/Kg	MA-SB-68	14/14	40 - 40	9.00E+03	NA	7.6E+03	nc	NA		Yes	ASL
Port property	7440-36-0	Antimony	8.10E-01	BJ	2.60E+00	BJ	mg/Kg	MA-SB-72	9/14	0.76 - 12	2.60E+00	NA	3.1E+00	nc	1.40E+01	NJDEP	No	BSL
Surface Soil	7440-38-2	Arsenic	3.30E+00		4.64E+01		mg/Kg	MA-SB-29	14/14	3 - 3	4.64E+01	NA	3.9E-01	ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	6.24E+01		5.07E+03		mg/Kg	MA-SB-78	14/14	40 - 40	5.07E+03	NA	5.4E+02	nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	1.60E-01	B	5.60E-01	B	mg/Kg	MA-SB-78	14/14	0.24 - 0.24	5.60E-01	NA	1.5E+01	nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	3.30E-01	B	5.10E+00		mg/Kg	MA-SO-302	13/14	0.09 - 1	5.10E+00	NA	3.7E+00	nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	1.22E+03		3.41E+04		mg/Kg	MA-SB-68	14/14	1000 - 1000	3.41E+04	NA	NA		NA		No	NUT
	7440-47-3	Chromium	9.80E+00	J	1.89E+02	J	mg/Kg	MA-SB-75	14/14	2 - 2	1.89E+02	NA		ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	2.70E+00	B	8.30E+00	B	mg/Kg	MA-SO-301	14/14	10 - 10	8.30E+00	NA		ca**	NA		No	BSL
	7440-50-8	Copper	1.14E+01		3.58E+02		mg/Kg	MA-SO-302	14/14	5 - 5	3.58E+02	NA	3.1E+02	nc	6.00E+02	NJDEP	Yes	ASL
	7439-89-6	Iron	9.82E+03		2.76E+04		mg/Kg	MA-SO-302	14/14	20 - 20	2.76E+04	NA	2.3E+03	nc	NA		Yes	ASL
	7439-92-1	Lead	3.46E+01		1.11E+03		mg/Kg	MA-SO-301	14/14	2 - 2	1.11E+03	NA	4.0E+02	nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	6.97E+02	B	3.33E+03		mg/Kg	MA-SB-77	14/14	1000 - 1000	3.33E+03	NA	NA		NA		No	NUT
	7439-96-5	Manganese	1.03E+02	J	4.88E+02	J	mg/Kg	MA-SB-72	14/14	3 - 3	4.88E+02	NA	1.8E+02	nc	NA		Yes	ASL
	7439-97-6	Mercury	2.10E-01		1.50E+00		mg/Kg	MA-SB-75	13/13	0.1 - 0.1	1.50E+00	NA	6.1E-01	nc	1.40E+01	NJDEP	Yes	ASL
	7440-02-0	Nickel	7.70E+00	B	1.06E+01		mg/Kg	MA-SB-78	5/5	8 - 8	1.06E+01	NA	1.6E+02	nc	2.50E+02	NJDEP	No	BSL
	7440-09-7	Potassium	3.23E+02	B	7.91E+02	B	mg/Kg	MA-SB-78	14/14	1000 - 1000	7.91E+02	NA	NA		NA		No	NUT
	7782-49-2	Selenium	1.00E+00	B	2.50E+00		mg/Kg	MA-SO-301	7/14	0.98 - 3.3	2.50E+00	NA	3.9E+01	nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	2.20E-01	J	2.00E+00	J	mg/Kg	MA-SB-29	6/14	0.21 - 2	2.00E+00	NA	3.9E+01	nc	1.10E+02	NJDEP	No	BSL
	7440-23-5	Sodium	2.35E+02	BJ	1.47E+03	J	mg/Kg	MA-SB-75	14/14	61.6 - 61.6	1.47E+03	NA	NA		NA		No	NUT
	7440-62-2	Vanadium	1.48E+01		3.36E+01		mg/Kg	MA-SO-302	14/14	10 - 10	3.36E+01	NA	5.5E+01	nc	3.70E+02	NJDEP	No	BSL
	7440-66-6	Zinc	5.41E+01		5.50E+02		mg/kg	MA-SB-78	4/4	12 - 12	5.50E+02	NA	2.3E+03	nc	1.50E+03	NJDEP	No	BSL
	5103-71-9	Chlordane - alpha	2.00E-03	J	2.00E-03	J	mg/kg	MA-SB-69	1/14	0.0018 - 1.7	2.00E-03	NA	1.1E-01	ca	NA		No	BSL
	12789-03-6	Chlordane - gamma (technical mixture)	4.80E-03	J	4.80E-03	J	mg/kg	MA-SB-29	1/11	0.0018 - 1.7	4.80E-03	NA	1.6E+00	ca*	NA		No	BSL
	72-54-8	DDD-4,4'	5.00E-03	J	5.00E-03	J	mg/kg	MA-SB-66	1/14	0.0036 - 0.081	5.00E-03	NA	2.4E+00	ca	3.00E+00	NJDEP	No	BSL
	72-55-9	DDE-4,4'	4.90E-03	J	6.10E-03	J	mg/kg	MA-SB-62	2/13	0.0036 - 3.3	6.10E-03	NA	1.7E+00	ca	2.00E+00	NJDEP	No	BSL
	50-29-3	DDT-4,4'	3.80E-03	J	6.80E-03	J	mg/kg	MA-SB-66	4/14	0.0036 - 3.3	6.80E-03	NA	1.7E+00	ca*	2.00E+00	NJDEP	No	BSL
	959-98-8	Endosulfan I (alpha)	2.30E-03	J	2.30E-03	J	mg/kg	MA-SB-69	1/14	0.0018 - 0.042	2.30E-03	NA	3.7E+01	nc	NA		No	BSL
	72-20-8	Endrin	4.90E-02	J	4.90E-02	J	mg/kg	MA-SO-301	1/14	0.0036 - 0.081	4.90E-02	NA	1.8E+00	nc	1.70E+01	NJDEP	No	BSL
	53494-70-5	Endrin ketone	4.00E-03	J	8.40E-03	J	mg/kg	MA-SB-67	3/14	0.0036 - 0.038	8.40E-03	NA	1.8E+00	nc	NA		No	BSL
	76-44-8	Heptachlor	4.40E-03	J	4.40E-03	J	mg/kg	MA-SO-301	1/14	0.0018 - 1.7	4.40E-03	NA	1.1E-01	ca	1.50E-01	NJDEP	No	BSL
	83-32-9	Acenaphthene	4.70E-02	J	3.40E+01	J	mg/kg	MA-SO-301	4/14	0.75 - 120	3.40E+01	NA	3.7E+02	nc	3.40E+03	NJDEP	No	BSL
	208-96-8	Acenaphthylene	5.90E-02	J	3.80E-01	J	mg/kg	MA-SB-72	2/14	0.75 - 120	3.80E-01	NA	2.3E+02	nc	NA		No	BSL
	120-12-7	Anthracene	1.20E-01	J	6.50E+01	J	mg/kg	MA-SO-301	8/14	0.75 - 39	6.50E+01	NA	2.2E+03	nc	1.00E+04	NJDEP	No	BSL
	56-55-3	Benzo(a)anthracene	2.00E-01	J	1.30E+02	J	mg/kg	MA-SO-301	11/14	3.7 - 10000	1.30E+02	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	2.00E-01	J	9.70E+01	J	mg/kg	MA-SO-301	11/14	3.7 - 10000	9.70E+01	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	2.70E-01	J	9.70E+01	J	mg/kg	MA-SO-301	11/14	3.7 - 10000	9.70E+01	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,I)perylene	1.00E-01	J	3.40E+01	J	mg/kg	MA-SO-301	10/14	1.9 - 39	3.40E+01	NA	2.3E+02	nc	NA		No	BSL
	207-08-9	Benzo(k)fluoranthene	2.10E-01	J	1.10E+02	J	mg/kg	MA-SO-301	11/14	3.7 - 10000	1.10E+02	NA	6.2E+00	ca	9.00E-01	NJDEP	Yes	ASL
	86-74-8	Carbazole	1.00E-01	J	4.30E+01	J	mg/kg	MA-SO-301	5/14	0.75 - 10000	4.30E+01	NA	2.4E+01	ca	NA		Yes	ASL
	218-01-9	Chrysene	2.70E-01	J	1.30E+02	J	mg/kg	MA-SO-301	11/14	3.7 - 10000	1.30E+02	NA	6.2E+01	ca	9.00E+00	NJDEP	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	6.10E-02	J	8.00E-01	J	mg/kg	MA-SO-303	4/14	0.75 - 330	8.00E-01	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	132-64-9	Dibenzofuran	7.80E-02	J	2.70E+01	J	mg/kg	MA-SO-301	3/14	0.75 - 10000	2.70E+01	NA	2.9E+01	nc	NA		No	BSL
	206-44-0	Fluoranthene	3.10E-01	J	3.30E+02	J	mg/kg	MA-SO-301	12/14	11 - 10000	3.30E+02	NA	2.3E+02	nc	2.30E+03	NJDEP	Yes	ASL
	86-73-7	Fluorene	9.60E-02	J	4.20E+01	J	mg/kg	MA-SO-301	4/14	0.75 - 39	4.20E+01	NA	2.7E+02	nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	1.30E-01	J	4.00E+01	J	mg/kg	MA-SO-301	10/14	1.9 - 10000	4.00E+01	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	91-57-6	Methylnaphthalene-2	6.90E-02	J	4.10E-01	J	mg/kg	MA-SO-303	2/14	0.75 - 120	4.10E-01	NA	7.0E+01	nc	NA		No	BSL
	91-20-3	Naphthalene	9.10E-02	J	6.50E-01	J	mg/kg	MA-SO-303	2/14	0.75 - 330	6.50E-01	NA	5.6E+00	nc	2.30E+02	NJDEP	No	BSL
	85-01-8	Phenanthrene	2.00E-01	J	3.40E+02	J	mg/kg	MA-SO-301	10/14	1.9 - 10000	3.40E+02	NA	2.3E+02	nc	NA		Yes	ASL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	4.60E-02	J	2.40E-01	J	mg/kg	MA-SB-62	3/14	1.9 - 10000	2.40E-01	NA	3.5E+01	ca*	4.90E+01	NJDEP	No	BSL
	129-00-0	Pyrene	2.60E-01	J	2.20E+02	J	mg/kg	MA-SO-301	12/14	11 - 10000	2.20E+02	NA	2.3E+02	nc	1.70E+03	NJDEP	No	BSL
	67-64-1	Acetone	4.00E-03	J	2.10E-02		mg/kg	MA-SB-72	6/14	0.011 - 14	2.10E-02	NA	1.6E+02	nc	1.00E+03	NJDEP	No	BSL

300900

TABLE 2.4

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	78-93-3	Methyl ethyl ketone (2-butanone)	8.00E-03 J	8.00E-03 J	mg/kg	MA-SB-67	1/14	0.01 - 14	8.00E-03	NA	7.3E+02 nc	1.00E+03	NJDEP	No	BSL
	108-88-3	Toluene	2.00E-03 J	2.00E-03 J	mg/kg	MA-SB-68	1/14	0.01 - 1200	2.00E-03	NA	6.6E+01 sat	1.00E+03	NJDEP	No	BSL
	75-69-4	Trichlorofluoromethane	1.00E-03 J	1.00E-03 J	mg/kg	MA-SB-66, MA-SB-68	2/14	0.01 - 14	1.00E-03	NA	3.9E+01 nc	NA		No	BSL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.
Endosulfan PRG used as surrogate for Endosulfan I (alpha).
Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Acenaphthylene.
Pyrene PRG used as surrogate for Benzo(g,h,I)perylene.
Value from 2000 PRG Table used since Methylnaphthalene-2 withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Phenanthrene.
(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)
NA = Not Available

300901

TABLE 2.5

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Martin Aaraon	7429-90-5	Aluminum	1.15E+03		2.55E+04	J	mg/Kg	MA-SB-06	62/62	40 - 40	2.55E+04	NA	7.6E+03	nc	NA		Yes	ASL
Property	7440-36-0	Antimony	9.00E-01	B	4.10E+01	J	mg/Kg	MA-SB-06	41/62	0.74 - 12	4.10E+01	NA	3.1E+00	nc	1.40E+01	NJDEP	Yes	ASL
Subsurface Soil	7440-38-2	Arsenic	2.10E+00	J	2.33E+04		mg/Kg	MA-SB-60	62/62	3 - 3	2.33E+04	NA	3.9E-01	ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	1.85E+01	B	3.79E+04		mg/Kg	MA-SB-81	62/62	40 - 40	3.79E+04	NA	5.4E+02	nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	1.20E-01	B	1.50E+00	J	mg/Kg	MA-SB-98	61/62	0.14 - 0.24	1.50E+00	NA	1.5E+01	nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	1.20E-01	B	1.10E+02		mg/Kg	MA-SB-31	56/62	0.083 - 1	1.10E+02	NA	3.7E+00	nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	4.00E+02	B	1.86E+05		mg/Kg	MA-SB-122	62/62	1000 - 1000	1.86E+05	NA	NA		NA		No	NUT
	7440-47-3	Chromium	6.40E+00		2.13E+04	J	mg/Kg	MA-SB-06	62/62	2 - 2	2.13E+04	NA	2.2E+01	ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	3.00E-01	B	4.20E+01		mg/Kg	MA-SB-124	62/62	10 - 10	4.20E+01	NA	1.4E+02	ca**	NA		No	BSL
	7440-50-8	Copper	4.00E+00	B	2.59E+03		mg/Kg	MA-SB-42	62/62	5 - 5	2.59E+03	NA	3.1E+02	nc	6.00E+02	NJDEP	Yes	ASL
	7439-89-6	Iron	3.82E+03		1.03E+05		mg/Kg	MA-SO-201	62/62	20 - 20	1.03E+05	NA	2.3E+03	nc	NA		Yes	ASL
	7439-92-1	Lead	8.30E+00		1.12E+05		mg/Kg	MA-SO-209	62/62	2 - 2	1.12E+05	NA	4.0E+02	nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	3.02E+02	B	9.98E+04		mg/Kg	MA-SB-122	62/62	1000 - 1000	9.98E+04	NA	NA		NA		No	NUT
	7439-96-5	Manganese	1.18E+01	J	7.44E+02	J	mg/Kg	MA-SB-11	62/62	3 - 3	7.44E+02	NA	1.8E+02	nc	NA		Yes	ASL
	7439-97-6	Mercury	6.00E-02	B	2.24E+02	J	mg/Kg	MA-SB-06	58/60	0.06 - 0.1	2.24E+02	NA	6.1E-01	nc	1.40E+01	NJDEP	Yes	ASL
	7440-02-0	Nickel	1.50E+00	B	5.76E+02		mg/Kg	MA-SB-31	62/62	8 - 8	5.76E+02	NA	1.6E+02	nc	2.50E+02	NJDEP	Yes	ASL
	7440-09-7	Potassium	1.33E+02	B	2.85E+03	J	mg/Kg	MA-SB-06	62/62	1000 - 1000	2.85E+03	NA	NA		NA		No	NUT
	7782-49-2	Selenium	1.10E+00	B	5.90E+00	J	mg/Kg	MA-SO-208	40/62	0.85 - 3.3	5.90E+00	NA	3.9E+01	nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	2.30E-01	BJ	4.57E+01		mg/Kg	MA-SB-31	21/62	0.19 - 2	4.57E+01	NA	3.9E+01	nc	1.10E+02	NJDEP	Yes	ASL
	7440-23-5	Sodium	9.10E+01	B	8.82E+03	J	mg/Kg	MA-SB-06	62/62	61.6 - 61.6	8.82E+03	NA	NA		NA		No	NUT
	7440-28-0	Thallium	1.60E+00	B	6.40E+00		mg/Kg	MA-SO-209	6/52	1 - 5	6.40E+00	NA	5.2E-01	nc	2.00E+00	NJDEP	Yes	ASL
	7440-62-2	Vanadium	6.90E+00	B	9.08E+01	J	mg/Kg	MA-SB-06	62/62	10 - 10	9.08E+01	NA	5.5E+01	nc	3.70E+02	NJDEP	Yes	ASL
	7440-66-6	Zinc	9.90E+00		2.39E+04		mg/Kg	MA-SO-208	62/62	12 - 12	2.39E+04	NA	2.3E+03	nc	1.50E+03	NJDEP	Yes	ASL
	309-00-2	Aldrin	2.60E-03	JN	1.30E+00		mg/kg	MA-SB-60	6/59	0.0018 - 1.7	1.30E+00	NA	2.9E-02	ca*	4.00E-02	NJDEP	Yes	ASL
	319-84-6	BHC, alpha	2.00E-03	J	2.00E-03	J	mg/kg	MA-SB-131	1/60	0.0018 - 0.042	2.00E-03	NA	9.0E-02	ca	NA		No	BSL
	319-85-7	BHC, beta	3.00E-03	J	9.40E-02	JN	mg/kg	MA-SB-124	10/57	0.0018 - 0.042	9.40E-02	NA	3.2E-01	ca	NA		No	BSL
	58-89-9	BHC, gamma (Lindane)	3.40E-02	J	3.40E-02	J	mg/kg	MA-SB-08	1/60	0.0018 - 0.042	3.40E-02	NA	4.4E-01	ca*	5.20E-01	NJDEP	No	BSL
	5103-71-9	Chlordane - alpha	3.50E-03	J	8.10E+00	JN	mg/kg	MA-SB-60	28/60	0.0018 - 1.7	8.10E+00	NA	1.1E-01	ca	NA		Yes	ASL
	12789-03-6	Chlordane - gamma (technical mixture)	2.80E-03	J	8.90E+00		mg/kg	MA-SB-60	32/58	0.0018 - 1.7	8.90E+00	NA	1.6E+00	ca*	NA		Yes	ASL
	72-54-8	DDD-4,4'	2.50E-03	J	8.70E-03		mg/kg	MA-SB-56	6/60	0.0034 - 0.081	8.70E-03	NA	2.4E+00	ca	3.00E+00	NJDEP	No	BSL
	72-55-9	DDE-4,4'	7.10E-03		1.90E+01		mg/kg	MA-SO-201	32/57	0.0034 - 3.3	1.90E+01	NA	1.7E+00	ca	2.00E+00	NJDEP	Yes	ASL
	50-29-3	DDT-4,4'	4.70E-03		2.60E+00		mg/kg	MA-SB-130	19/53	0.0034 - 3.3	2.60E+00	NA	1.7E+00	ca*	2.00E+00	NJDEP	Yes	ASL
	60-57-1	Dieldrin	3.50E-03	JN	1.30E+00		mg/kg	MA-SB-124	20/58	0.0035 - 3.3	1.30E+00	NA	3.0E-02	ca	4.20E-02	NJDEP	Yes	ASL
	959-98-8	Endosulfan I (alpha)	2.70E-03	JN	1.20E-01		mg/kg	MA-SB-60	4/57	0.0018 - 0.042	1.20E-01	NA	3.7E+01	nc	NA		No	BSL
	33213-65-9	Endosulfan II (beta)	5.10E-03	JN	4.00E-02	J	mg/kg	MA-SB-04	4/59	0.0034 - 0.081	4.00E-02	NA	3.7E+01	nc	NA		No	BSL
	1031-07-8	Endosulfan Sulfate	9.50E-03	JN	1.80E-01	JN	mg/kg	MA-SB-06	8/57	0.0034 - 0.045	1.80E-01	NA	3.7E+01	nc	NA		No	BSL
	72-20-8	Endrin	4.40E-03		1.90E-01	J	mg/kg	MA-SB-06	14/59	0.0034 - 0.081	1.90E-01	NA	1.8E+00	nc	1.70E+01	NJDEP	No	BSL
	7421-93-4	Endrin Aldehyde	4.60E-03	JN	5.30E-02	J	mg/kg	MA-SB-04	17/60	0.0034 - 0.081	5.30E-02	NA	1.8E+00	nc	NA		No	BSL
	53494-70-5	Endrin ketone	6.80E-03	NJ	1.20E-01		mg/kg	MA-SO-214	18/57	0.0034 - 0.038	1.20E-01	NA	1.8E+00	nc	NA		No	BSL
	76-44-8	Heptachlor	2.00E-03		2.60E-01	J	mg/kg	MA-SB-06	4/60	0.0018 - 1.7	2.60E-01	NA	1.1E-01	ca	1.50E-01	NJDEP	Yes	ASL
	1024-57-3	Heptachlor Epoxide	2.30E-03	JN	2.00E-02	JN	mg/kg	MA-SB-124	6/58	0.0018 - 1.7	2.00E-02	NA	5.3E-02	ca*	NA		No	BSL
	72-43-5	Methoxychlor	2.20E-02	J	1.80E+00	J	mg/kg	MA-SB-06	7/59	0.018 - 0.42	1.80E+00	NA	3.1E+01	nc	2.80E+02	NJDEP	No	BSL
	12672-29-6	Pcb-Aroclor 1248	8.40E-01	J	8.40E-01	J	mg/kg	MA-SB-81	1/60	0.034 - 33	8.40E-01	NA	2.2E-01	ca	NA		Yes	ASL
	11097-69-1	Pcb-Aroclor 1254	4.70E-02		4.80E+01		mg/kg	MA-SO-201	13/60	0.034 - 33	4.80E+01	NA	1.1E-01	ca**	NA		Yes	ASL
	11096-82-5	Pcb-Aroclor 1260	1.10E-01		7.20E+00	J	mg/kg	MA-SB-08	12/61	0.035 - 33	7.20E+00	NA	2.2E-01	ca	NA		Yes	ASL
	83-32-9	Acenaphthene	1.30E-02	J	1.70E+01	J	mg/kg	MA-SB-02	36/62	0.35 - 120	1.70E+01	NA	3.7E+02	nc	3.40E+03	NJDEP	No	BSL
	208-96-8	Acenaphthylene	1.10E-02	J	3.50E+00	J	mg/kg	MA-SB-31	36/62	0.35 - 120	3.50E+00	NA	2.3E+02	nc	NA		No	BSL
	98-86-2	Acetophenone	1.10E-02	J	2.90E+00	J	mg/kg	MA-SB-31	10/62	0.34 - 10000	2.90E+00	NA	4.9E-02	ca	NA		Yes	ASL
	120-12-7	Anthracene	1.40E-02	J	6.10E+01	J	mg/kg	MA-SB-02	50/62	0.35 - 39	6.10E+01	NA	2.2E+03	nc	1.00E+04	NJDEP	No	BSL
	100-52-7	Benzaldehyde	8.00E-03	J	1.40E+00	J	mg/kg	MA-SB-11	23/62	0.34 - 120	1.40E+00	NA	6.1E+02	nc	NA		No	BSL
	56-55-3	Benzo(a)anthracene	2.30E-02	J	1.20E+02	J	mg/kg	MA-SB-02	58/62	0.35 - 10000	1.20E+02	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	2.00E-02	J	1.10E+02	J	mg/kg	MA-SB-02	56/62	0.35 - 10000	1.10E+02	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	2.10E-02	J	1.10E+02	J	mg/kg	MA-SB-02	56/62	0.35 - 10000	1.10E+02	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	5.00E-02	J	5.80E+01	J	mg/kg	MA-SB-02	49/62	0.35 - 39	5.80E+01	NA	2.3E+02	nc	NA		No	BSL

300902

TABLE 2.5

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	207-08-9	Benzo(k)fluoranthene	1.90E-02 J	7.10E+01 J	mg/kg	MA-SB-02	55/62	0.35 - 10000	7.10E+01	NA	6.2E+00 ca	9.00E-01	NJDEP	Yes	ASL
	92-52-4	Biphenyl	1.60E-02 J	1.30E+01	mg/kg	MA-SO-201	26/62	0.35 - 120	1.30E+01	NA	3.0E+02 sat	NA		No	BSL
	85-68-7	Butylbenzyl phthalate	4.30E-02 J	2.10E+01	mg/kg	MA-SO-201	15/62	0.34 - 120	2.10E+01	NA	1.2E+03 nc	1.10E+03	NJDEP	No	BSL
	105-60-2	Caprolactam	2.80E-02 J	2.80E-02 J	mg/kg	MA-SB-56	1/62	0.34 - 120	2.80E-02	NA	3.1E+03 nc	NA		No	BSL
	86-74-8	Carbazole	1.20E-02 J	1.20E+01 J	mg/kg	MA-SB-02	40/62	0.35 - 10000	1.20E+01	NA	2.4E+01 ca	NA		No	BSL
	91-58-7	Chloronaphthalene-2	5.40E-02 J	5.40E-02 J	mg/kg	MA-SB-06	1/62	0.34 - 120	5.40E-02	NA	4.9E+02 nc	NA		No	BSL
	218-01-9	Chrysene	2.70E-02 J	1.20E+02 J	mg/kg	MA-SB-02	57/62	0.35 - 10000	1.20E+02	NA	6.2E+01 ca	9.00E+00	NJDEP	Yes	ASL
	95-48-7	Cresol-o	3.80E-02 J	4.10E+00 J	mg/kg	MA-SO-201	8/62	0.34 - 120	4.10E+00	NA	3.1E+02 nc	2.80E+03	NJDEP	No	BSL
	106-44-5	Cresol-p	4.30E-02 J	7.60E+00 J	mg/kg	MA-SB-31	14/62	0.34 - 120	7.60E+00	NA	3.1E+01 nc	2.80E+03	NJDEP	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	1.20E-02 J	1.90E+01 J	mg/kg	MA-SB-02	47/62	0.35 - 10000	1.90E+01	NA	6.2E-02 ca	6.60E-01	NJDEP	Yes	ASL
	132-64-9	Dibenzofuran	1.00E-02 J	1.00E+01 J	mg/kg	MA-SB-02	37/62	0.35 - 10000	1.00E+01	NA	2.9E+01 nc	NA		No	BSL
	91-94-1	Dichlorobenzidine-3,3'	3.50E-01 J	3.50E-01 J	mg/kg	MA-SO-209	1/50	0.34 - 120	3.50E-01	NA	1.1E+00 ca	2.00E+00	NJDEP	No	BSL
	105-67-9	Dimethylphenol-2,4	3.00E-02 J	3.20E-01 J	mg/kg	MA-SB-31	4/62	0.34 - 120	3.20E-01	NA	1.2E+02 nc	1.10E+03	NJDEP	No	BSL
	108-60-1	Ether, bis-chloroisopropyl	9.90E-02 J	9.90E-02 J	mg/kg	MA-SB-56	1/62	0.34 - 120	9.90E-02	NA	2.9E+00 ca	2.30E+03	NJDEP	No	BSL
	206-44-0	Fluoranthene	4.30E-02 J	2.90E+02 J	mg/kg	MA-SB-02	58/62	0.35 - 10000	2.90E+02	NA	2.3E+02 nc	2.30E+03	NJDEP	Yes	ASL
	86-73-7	Fluorene	1.20E-02 J	2.20E+01 J	mg/kg	MA-SB-02	34/62	0.35 - 39	2.20E+01	NA	2.7E+02 nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	2.30E-02 J	5.90E+01 J	mg/kg	MA-SB-02	54/62	0.35 - 10000	5.90E+01	NA	6.2E-01 ca	9.00E-01	NJDEP	Yes	ASL
	78-59-1	Isophorone	2.30E-02 J	9.40E-01	mg/kg	MA-SB-09	2/62	0.34 - 120	9.40E-01	NA	5.1E+02 ca*	1.10E+03	NJDEP	No	BSL
	91-57-6	Methylnaphthalene-2	1.10E-02 J	7.40E+00	mg/kg	MA-SB-31	36/62	0.35 - 120	7.40E+00	NA	7.0E+01 ca	NA		No	BSL
	91-20-3	Naphthalene	1.60E-02 J	1.20E+02 J	mg/kg	MA-SB-60	41/62	0.35 - 10000	1.20E+02	NA	5.6E+00 nc	2.30E+02	NJDEP	Yes	ASL
	88-75-5	Nitrophenol-2	1.90E-02 J	1.90E-02 J	mg/kg	MA-SB-13	1/62	0.34 - 120	1.90E-02	NA	6.3E+00 nc	NA		No	BSL
	86-30-6	Nitrosodiphenylamine-n	1.80E-02 J	1.70E+00	mg/kg	MA-SB-130	5/62	0.34 - 120	1.70E+00	NA	9.9E+01 ca	1.40E+02	NJDEP	No	BSL
	87-86-5	PCP (Pentachlorophenol)	1.10E+00 J	1.10E+00 J	mg/kg	MA-SB-31	1/62	0.86 - 300	1.10E+00	NA	3.0E+00 ca	6.00E+00	NJDEP	No	BSL
	85-01-8	Phenanthrene	1.30E-02 J	2.20E+02 J	mg/kg	MA-SB-02	59/62	0.35 - 10000	2.20E+02	NA	2.3E+02 nc	NA		No	BSL
	108-95-2	Phenol	1.60E-02 J	1.60E+01	mg/kg	MA-SO-201	11/62	0.35 - 120	1.60E+01	NA	3.7E+03 nc	1.00E+04	NJDEP	No	BSL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	7.50E-02 J	9.40E+01 J	mg/kg	MA-SB-120	28/62	0.34 - 10000	9.40E+01	NA	3.5E+01 ca*	4.90E+01	NJDEP	Yes	ASL
	84-74-2	Phthalate, di-n-butyl	2.80E-02 J	1.30E+02 J	mg/kg	MA-SB-120	39/62	0.34 - 120	1.30E+02	NA	6.1E+02 nc	5.70E+03	NJDEP	No	BSL
	117-84-0	Phthalate, di-n-octyl	2.10E-02 J	5.90E-01	mg/kg	MA-SB-09	6/57	0.35 - 120	5.90E-01	NA	2.4E+02 nc	1.10E+03	NJDEP	No	BSL
	84-66-2	Phthalate, diethyl	1.00E-02 J	1.20E+01 J	mg/kg	MA-SO-201	7/62	0.34 - 120	1.20E+01	NA	4.9E+03 nc	1.00E+04	NJDEP	No	BSL
	129-00-0	Pyrene	3.40E-02 J	2.30E+02 J	mg/kg	MA-SB-02	58/62	0.35 - 10000	2.30E+02	NA	2.3E+02 nc	1.70E+03	NJDEP	No	BSL
	67-64-1	Acetone	2.00E-03 J	2.50E+00 J	mg/kg	MA-SB-06	34/62	0.01 - 14	2.50E+00	NA	1.6E+02 nc	1.00E+03	NJDEP	No	BSL
	71-43-2	Benzene	1.00E-03 J	3.10E+01	mg/kg	MA-SO-201	23/62	0.01 - 1200	3.10E+01	NA	6.0E-01 ca*	3.00E+00	NJDEP	Yes	ASL, TOX
	75-25-2	Bromoform	2.00E-03 J	2.00E-03 J	mg/kg	MA-SB-04, MA-SB-11	2/61	0.01 - 14	2.00E-03	NA	6.2E+01 ca*	8.60E+01	NJDEP	No	BSL
	74-83-9	Bromomethane	3.00E-03 J	5.20E-01 J	mg/kg	MA-SB-06	3/62	0.01 - 1200	5.20E-01	NA	3.9E-01 nc	7.90E+01	NJDEP	Yes	ASL
	75-15-0	Carbon disulfide	2.00E-03 J	1.30E-01	mg/kg	MA-SB-11	21/62	0.01 - 14	1.30E-01	NA	3.6E+01 nc	NA		No	BSL
	108-90-7	Chlorobenzene	5.00E-03 J	3.20E+00	mg/kg	MA-SB-60	3/60	0.01 - 14	3.20E+00	NA	1.5E+01 nc	3.70E+01	NJDEP	No	BSL
	75-00-3	Chloroethane	2.00E-02 J	2.70E+00 J	mg/kg	MA-SB-60	2/62	0.01 - 14	2.70E+00	NA	3.0E+00 ca	NA		No	BSL
	67-66-3	Chloroform	6.00E-03 J	1.60E+01	mg/kg	MA-SO-201	6/62	0.01 - 1200	1.60E+01	NA	3.6E-01 ca/nc	1.90E+01	NJDEP	Yes	ASL
	110-82-7	Cyclohexane	1.00E-03 J	1.70E+00 J	mg/kg	MA-SO-201	13/62	0.01 - 14	1.70E+00	NA	1.4E+02 sat	NA		No	BSL
	95-50-1	Dichlorobenzene-1,2	1.00E-03 J	5.50E+00	mg/kg	MA-SB-60	8/60	0.01 - 2.2	5.50E+00	NA	1.1E+02 sat	5.10E+03	NJDEP	No	BSL
	106-46-7	Dichlorobenzene-1,4	2.00E-03 J	2.30E-01 J	mg/kg	MA-SB-60	3/60	0.01 - 14	2.30E-01	NA	3.4E+00 ca	5.70E+02	NJDEP	No	BSL
	75-34-3	Dichloroethane-1,1	4.00E-03 J	1.10E+01 J	mg/kg	MA-SB-31	12/62	0.01 - 2.2	1.10E+01	NA	5.1E+01 nc	5.70E+02	NJDEP	No	BSL
	156-60-5	Dichloroethene-1,2 trans	3.00E-03 J	1.60E+00	mg/kg	MA-SB-11	6/62	0.01 - 14	1.60E+00	NA	6.9E+00 nc	1.00E+03	NJDEP	No	BSL
	75-35-4	Dichloroethylene-1,1	2.00E-03 J	1.30E-01 J	mg/kg	MA-SB-11	2/62	0.01 - 14	1.30E-01	NA	1.2E+01 nc	8.00E+00	NJDEP	No	BSL
	156-59-2	Dichloroethylene-1,2 cis	2.00E-03 J	2.40E+01	mg/kg	MA-SB-31	23/62	0.01 - 1200	2.40E+01	NA	4.3E+00 nc	7.90E+01	NJDEP	Yes	ASL
	100-41-4	Ethylbenzene	1.00E-03 J	2.90E+01	mg/kg	MA-SO-201	18/60	0.01 - 1200	2.90E+01	NA	8.9E+00 ca	1.00E+03	NJDEP	Yes	ASL
	76-13-1	Freon 113 (1,1,2-trichloro-1,2-trifluoroethane)	7.40E-01 J	7.40E-01 J	mg/kg	MA-SO-201	1/62	0.01 - 14	7.40E-01	NA	2.1E+03 sat	NA		No	BSL
	591-78-6	Hexanone-2	4.00E-03 J	4.10E-01 J	mg/kg	MA-SO-201	2/60	0.01 - 14	4.10E-01	NA	1.1E+01 ca	NA		No	BSL
	98-82-8	Isopropylbenzene	3.00E-03 J	7.20E+00	mg/kg	MA-SB-09	12/60	0.01 - 14	7.20E+00	NA	5.7E+01 nc	NA		No	BSL
	79-20-9	Methyl acetate	6.20E-01 J	2.10E+00 J	mg/kg	MA-SB-06	4/62	0.01 - 14	2.10E+00	NA	2.2E+03 nc	NA		No	BSL
	108-87-2	Methyl cyclohexane	1.00E-03 J	1.20E+01	mg/kg	MA-SO-201	20/62	0.01 - 2.2	1.20E+01	NA	2.6E+02 nc	NA		No	BSL
	78-93-3	Methyl ethyl ketone (2-butanone)	8.00E-03 J	2.50E-01 J	mg/kg	MA-SB-60	23/62	0.01 - 14	2.50E-01	NA	7.3E+02 nc	1.00E+03	NJDEP	No	BSL
	108-10-1	Methyl isobutyl ketone (4-methyl-2-pentanone)	1.00E-03 J	3.00E+00 J	mg/kg	MA-SO-201	8/60	0.01 - 14	3.00E+00	NA	7.9E+01 nc	1.00E+03	NJDEP	No	BSL
	75-09-2	Methylene chloride	4.30E-02	1.10E-01	mg/kg	MA-SB-130	3/62	0.01 - 14	1.10E-01	NA	9.1E+00 ca	4.90E+01	NJDEP	No	BSL

300903

TABLE 2.5

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	100-42-5	Styrene	7.00E-03 J	9.00E-03 J	mg/kg	MA-SB-124	2/60	0.01 - 14	9.00E-03	NA	4.4E+02 sat	2.30E+01	NJDEP	No	BSL
	127-18-4	Tetrachloroethylene	1.00E-03 J	1.10E+02	mg/kg	MA-SB-47	39/61	0.01 - 1200	1.10E+02	NA	1.5E+00 ca*	4.00E+00	NJDEP	Yes	ASL
	108-88-3	Toluene	2.00E-03 J	1.60E+02	mg/kg	MA-SB-31	34/62	0.01 - 1200	1.60E+02	NA	6.6E+01 sat	1.00E+03	NJDEP	Yes	ASL
	120-82-1	Trichlorobenzene-1,2,4	1.20E+00 J	1.40E+01 J	mg/kg	MA-SO-201	3/60	0.01 - 14	1.40E+01	NA	6.5E+01 nc	6.80E+01	NJDEP	No	BSL
	71-55-6	Trichloroethane-1,1,1	2.00E-03 J	3.30E+00 J	mg/kg	MA-SO-201	12/62	0.01 - 14	3.30E+00	NA	2.0E+02 sat	2.10E+02	NJDEP	No	BSL
	79-01-6	Trichloroethylene	1.00E-03 J	6.30E+02	mg/kg	MA-SB-11	34/62	0.01 - 2.2	6.30E+02	NA	5.3E-02 ca	2.30E+01	NJDEP	Yes	ASL
	75-69-4	Trichlorofluoromethane	3.00E-03 J	7.10E-01 J	mg/kg	MA-SO-201	2/62	0.01 - 14	7.10E-01	NA	3.9E+01 nc	NA		No	BSL
	75-01-4	Vinyl chloride	9.00E-03 J	4.80E-01 J	mg/kg	MA-SB-11	6/62	0.01 - 1200	4.80E-01	NA	7.9E-02 ca	2.00E+00	NJDEP	Yes	ASL, TOX
	1330-20-7	Xylenes, total	1.00E-03 J	2.20E+02	mg/kg	MA-SO-201	24/61	0.01 - 1200	2.20E+02	NA	2.7E+01 nc	4.10E+02	NJDEP	Yes	ASL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.
Endosulfan PRG used as surrogate for Endosulfan I (alpha).
Endosulfan PRG used as surrogate for Endosulfan II (beta).
Endosulfan PRG used as surrogate for Endosulfan Sulfate.
Endrin PRG used as surrogate for Endrin Aldehyde.
Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Acenaphthylene.
Value from 2000 PRG Table used since Acetophenone withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Benzo(g,h,I)perylene.
Value from 2000 PRG Table used since Methylnaphthalene-2 withdrawn from 2002 PRG Table.
2-Chlorophenol PRG used as surrogate for Nitrophenol-2.
Pyrene PRG used as surrogate for Phenanthrene.
Value from 2000 PRG Table used since Hexanone-2 withdrawn from 2002 PRG Table.
(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)
NA = Not Available

300904

TABLE 2.6

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Junkyard	7429-90-5	Aluminum	9.71E+02		9.13E+03		mg/Kg	MA-SO-213	8/8	40 - 40	9.13E+03	NA	7.6E+03	nc	NA		Yes	ASL
Subsurface Soil	7440-36-0	Antimony	1.20E+00	BJ	4.10E+00	BJ	mg/Kg	MA-SO-212	3/8	0.82 - 12	4.10E+00	NA	3.1E+00	nc	1.40E+01	NJDEP	Yes	ASL
	7440-38-2	Arsenic	5.10E+00	J	1.24E+03	J	mg/Kg	MA-SO-210	8/8	3 - 3	1.24E+03	NA	3.9E-01	ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	6.68E+03		1.85E+04		mg/Kg	MA-SO-212	8/8	40 - 40	1.85E+04	NA	5.4E+02	nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	2.00E-01	B	6.70E-01	B	mg/Kg	MA-SO-210	8/8	0.24 - 0.24	6.70E-01	NA	1.5E+01	nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	6.20E-01	B	2.48E+01		mg/Kg	MA-SO-212	8/8	1 - 1	2.48E+01	NA	3.7E+00	nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	1.56E+03		2.50E+04		mg/Kg	MA-SO-210	8/8	1000 - 1000	2.50E+04	NA	NA		NA		No	NUT
	7440-47-3	Chromium	5.60E+00		1.83E+01		mg/Kg	MA-SO-210	8/8	2 - 2	1.83E+01	NA	2.2E+01	ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	1.90E+00	B	5.20E+00	B	mg/Kg	MA-SO-210	8/8	10 - 10	5.20E+00	NA	1.4E+02	ca**	NA		No	BSL
	7440-50-8	Copper	1.26E+01		9.97E+01		mg/Kg	MA-SO-212	8/8	5 - 5	9.97E+01	NA	3.1E+02	nc	6.00E+02	NJDEP	No	BSL
	7439-89-6	Iron	1.03E+04		6.09E+04		mg/Kg	MA-SO-212	8/8	20 - 20	6.09E+04	NA	2.3E+03	nc	NA		Yes	ASL
	7439-92-1	Lead	3.81E+01		2.14E+03		mg/Kg	MA-SO-212	8/8	2 - 2	2.14E+03	NA	4.0E+02	nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	1.25E+02	B	3.02E+03		mg/Kg	MA-SO-210	8/8	1000 - 1000	3.02E+03	NA	NA		NA		No	NUT
	7439-96-5	Manganese	2.03E+01	J	2.65E+02	J	mg/Kg	MA-SO-210	8/8	3 - 3	2.65E+02	NA	1.8E+02	nc	NA		Yes	ASL
	7439-97-6	Mercury	9.00E-02	B	2.40E+00		mg/Kg	MA-SO-212	4/5	0.057 - 0.1	2.40E+00	NA	6.1E-01	nc	1.40E+01	NJDEP	Yes	ASL
	7440-02-0	Nickel	3.80E+00	B	1.08E+01		mg/Kg	MA-SO-212	8/8	8 - 8	1.08E+01	NA	1.6E+02	nc	2.50E+02	NJDEP	No	BSL
	7440-09-7	Potassium	2.35E+02	B	7.38E+02	B	mg/Kg	MA-SO-211	8/8	1000 - 1000	7.38E+02	NA	NA		NA		No	NUT
	7782-49-2	Selenium	1.30E+00		3.10E+00		mg/Kg	MA-SO-210	6/8	1.1 - 3.3	3.10E+00	NA	3.9E+01	nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	5.30E-01	B	5.30E-01	B	mg/Kg	MA-SO-212	1/8	0.22 - 2	5.30E-01	NA	3.9E+01	nc	1.10E+02	NJDEP	No	BSL
	7440-23-5	Sodium	6.37E+02	BJ	2.55E+03	J	mg/Kg	MA-SO-210	8/8	61.6 - 61.6	2.55E+03	NA	NA		NA		No	NUT
	7440-62-2	Vanadium	1.15E+01	B	1.84E+01		mg/Kg	MA-SO-211	8/8	10 - 10	1.84E+01	NA	5.5E+01	nc	3.70E+02	NJDEP	No	BSL
	7440-66-6	Zinc	2.73E+02		1.96E+03		mg/Kg	MA-SO-210	8/8	12 - 12	1.96E+03	NA	2.3E+03	nc	1.50E+03	NJDEP	No	BSL
	309-00-2	Aldrin	2.50E-03	NJ	3.10E-03	NJ	mg/kg	MA-SO-210	2/8	0.0018 - 1.7	3.10E-03	NA	2.9E-02	ca*	4.00E-02	NJDEP	No	BSL
	58-89-9	BHC, gamma (Lindane)	1.90E-03	NJ	1.90E-03	NJ	mg/kg	MA-SO-212	1/8	0.0018 - 0.042	1.90E-03	NA	4.4E-01	ca*	5.20E-01	NJDEP	No	BSL
	5103-71-9	Chlordane - alpha	1.00E-03	J	4.10E-02		mg/kg	MA-SO-210	3/8	0.0019 - 1.7	4.10E-02	NA	1.1E-01	ca	NA		No	BSL
	12789-03-6	Chlordane - gamma (technical mixture)	4.10E-02	J	4.10E-02	J	mg/kg	MA-SO-210	1/8	0.0019 - 1.7	4.10E-02	NA	1.6E+00	ca*	NA		No	BSL
	72-55-9	DDE-4,4'	3.60E-03	J	4.70E-03	J	mg/kg	MA-SO-210	2/8	0.0038 - 3.3	4.70E-03	NA	1.7E+00	ca	2.00E+00	NJDEP	No	BSL
	50-29-3	DDT-4,4'	2.00E-03	J	2.20E-02		mg/kg	MA-SO-210	3/8	0.0038 - 3.3	2.20E-02	NA	1.7E+00	ca*	2.00E+00	NJDEP	No	BSL
	72-20-8	Endrin	3.00E-03	J	5.30E-03		mg/kg	MA-SO-213	2/8	0.0036 - 0.081	5.30E-03	NA	1.8E+00	nc	1.70E+01	NJDEP	No	BSL
	53494-70-5	Endrin ketone	8.00E-03	NJ	1.30E-02		mg/kg	MA-SO-210	3/8	0.0036 - 0.038	1.30E-02	NA	1.8E+00	nc	NA		No	BSL
	72-43-5	Methoxychlor	1.10E-02	J	1.10E-02	J	mg/kg	MA-SO-210, MA-SO-211	2/8	0.019 - 0.42	1.10E-02	NA	3.1E+01	nc	2.80E+02	NJDEP	No	BSL
	83-32-9	Acenaphthene	5.70E-01	J	5.70E-01	J	mg/kg	MA-SO-210	1/8	0.41 - 120	5.70E-01	NA	3.7E+02	nc	3.40E+03	NJDEP	No	BSL
	120-12-7	Anthracene	3.60E-01	J	7.10E-01	J	mg/kg	MA-SO-210	2/8	0.41 - 39	7.10E-01	NA	2.2E+03	nc	1.00E+04	NJDEP	No	BSL
	56-55-3	Benzo(a)anthracene	2.00E-01	J	1.80E+00	J	mg/kg	MA-SO-210	6/8	0.41 - 330	1.80E+00	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	2.70E-01	J	1.60E+00	J	mg/kg	MA-SO-210	4/8	0.41 - 330	1.60E+00	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	4.60E-01	J	1.90E+00	J	mg/kg	MA-SO-210	4/8	0.41 - 330	1.90E+00	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	2.10E-01	J	9.30E-01	J	mg/kg	MA-SO-210	3/8	0.41 - 39	9.30E-01	NA	2.3E+02	nc	NA		No	BSL
	207-08-9	Benzo(k)fluoranthene	2.30E-01	J	1.60E+00	J	mg/kg	MA-SO-212	4/8	0.41 - 10000	1.60E+00	NA	6.2E+00	ca	9.00E-01	NJDEP	No	BSL
	85-68-7	Butylbenzyl phthalate	2.90E-01	J	2.90E-01	J	mg/kg	MA-SO-212	1/8	0.41 - 120	2.90E-01	NA	1.2E+03	nc	1.10E+03	NJDEP	No	BSL
	86-74-8	Carbazole	4.50E-01	J	4.50E-01	J	mg/kg	MA-SO-210	1/8	0.41 - 10000	4.50E-01	NA	2.4E+01	ca	NA		No	BSL
	218-01-9	Chrysene	4.70E-01	J	1.90E+00	J	mg/kg	MA-SO-210	6/8	0.41 - 10000	1.90E+00	NA	6.2E+01	ca	9.00E+00	NJDEP	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	3.60E-01	J	3.60E-01	J	mg/kg	MA-SO-210	1/8	0.41 - 330	3.60E-01	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	132-64-9	Dibenzofuran	2.10E-01	J	2.10E-01	J	mg/kg	MA-SO-210	1/8	0.41 - 10000	2.10E-01	NA	2.9E+01	nc	NA		No	BSL
	206-44-0	Fluoranthene	6.20E-02	J	3.80E+00	J	mg/kg	MA-SO-210	6/8	0.41 - 10000	3.80E+00	NA	2.3E+02	nc	2.30E+03	NJDEP	No	BSL
	86-73-7	Fluorene	3.20E-01	J	3.20E-01	J	mg/kg	MA-SO-210	1/8	0.41 - 39	3.20E-01	NA	2.7E+02	nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	2.60E-01	J	1.00E+00	J	mg/kg	MA-SO-210	3/8	0.41 - 330	1.00E+00	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	91-57-6	Methylnaphthalene-2	4.00E-01	J	4.00E-01	J	mg/kg	MA-SO-211	1/8	0.41 - 120	4.00E-01	NA	7.0E+01	ca	NA		No	BSL
	91-20-3	Naphthalene	5.60E-02	J	5.60E-02	J	mg/kg	MA-SO-213	1/8	0.44 - 10000	5.60E-02	NA	5.6E+00	nc	2.30E+02	NJDEP	No	BSL
	85-01-8	Phenanthrene	7.00E-02	J	3.10E+00	J	mg/kg	MA-SO-210	7/8	0.41 - 10000	3.10E+00	NA	2.3E+02	nc	NA		No	BSL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	4.90E-02	J	1.10E+00	J	mg/kg	MA-SO-212	3/8	1.8 - 10000	1.10E+00	NA	3.5E+01	ca*	4.90E+01	NJDEP	No	BSL
	129-00-0	Pyrene	4.90E-02	J	3.10E+00	J	mg/kg	MA-SO-210	7/8	0.41 - 10000	3.10E+00	NA	2.3E+02	nc	1.70E+03	NJDEP	No	BSL
	67-64-1	Acetone	2.00E-03	J	6.00E-03	J	mg/kg	MA-SO-210	4/8	0.012 - 14	6.00E-03	NA	1.6E+02	nc	1.00E+03	NJDEP	No	BSL
	75-15-0	Carbon disulfide	1.60E-02	J	1.60E-02	J	mg/kg	MA-SO-211	1/8	0.012 - 14	1.60E-02	NA	3.6E+01	nc	NA		No	BSL
	156-59-2	Dichloroethylene-1,2 cis	1.00E-03	J	2.00E-03	J	mg/kg	MA-SO-213	2/8	0.012 - 1200	2.00E-03	NA	4.3E+00	nc	7.90E+01	NJDEP	No	BSL
	108-88-3	Toluene	1.00E-03	J	5.00E-03	J	mg/kg	MA-SO-210	7/8	0.012 - 1200	5.00E-03	NA	6.6E+01	sat	1.00E+03	NJDEP	No	BSL
	75-69-4	Trichlorofluoromethane	1.00E-03	J	3.00E-03	J	mg/kg	MA-SO-210	3/8	0.012 - 14	3.00E-03	NA	3.9E+01	nc	NA		No	BSL
	1330-20-7	Xylenes, total	2.00E-03	J	1.00E+00	J	mg/kg	MA-SO-212, MA-SO-213	2/8	0.012 - 1200	1.00E+00	NA	2.7E+01	nc	4.10E+02	NJDEP	No	BSL

300905

TABLE 2.6

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.
Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Benzo(g,h,I)perylene.
Value from 2000 PRG Table used since Methylnaphthalene-2 withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Phenanthrene.
(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Definitions: COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)
NA = Not Available

300906

TABLE 2.7

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Row Homes and	7429-90-5	Aluminum	1.90E+03		1.23E+04		mg/Kg	MA-SO-203	15/15	40 - 40	1.23E+04	NA	7.6E+03	nc	NA		Yes	ASL
Industrial Area	7440-36-0	Antimony	1.00E+00	B	3.50E+00	BJ	mg/Kg	MA-SB-85	9/15	0.72 - 12	3.50E+00	NA	3.1E+00	nc	1.40E+01	NJDEP	Yes	ASL
Subsurface Soil	7440-38-2	Arsenic	1.50E+00	B	3.65E+02		mg/Kg	MA-SO-207	15/15	3 - 3	3.65E+02	NA	3.9E-01	ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	2.24E+01	B	3.97E+04		mg/Kg	MA-SO-203	15/15	40 - 40	3.97E+04	NA	5.4E+02	nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	1.80E-01	B	8.90E-01	B	mg/Kg	MA-SO-203	15/15	0.24 - 0.24	8.90E-01	NA	1.5E+01	nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	2.70E-01	B	4.60E+00	J	mg/Kg	MA-SO-401	9/15	0.08 - 1	4.60E+00	NA	3.7E+00	nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	3.09E+02	B	4.58E+04		mg/Kg	MA-SO-204	15/15	1000 - 1000	4.58E+04	NA	NA		NA		No	NUT
	7440-47-3	Chromium	6.60E+00		4.13E+02		mg/Kg	MA-SO-202	15/15	2 - 2	4.13E+02	NA	2.2E+01	ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	1.20E+00	B	6.60E+00	B	mg/Kg	MA-SO-404	15/15	10 - 10	6.60E+00	NA	1.4E+02	ca**	NA		No	BSL
	7440-50-8	Copper	5.10E+00		4.10E+02		mg/Kg	MA-SO-203	15/15	5 - 5	4.10E+02	NA	3.1E+02	nc	6.00E+02	NJDEP	Yes	ASL
	7439-89-6	Iron	4.44E+03		3.90E+04		mg/Kg	MA-SO-203	15/15	20 - 20	3.90E+04	NA	2.3E+03	nc	NA		Yes	ASL
	7439-92-1	Lead	2.66E+01		1.14E+03		mg/Kg	MA-SO-203	15/15	2 - 2	1.14E+03	NA	4.0E+02	nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	3.99E+02	B	1.18E+04		mg/Kg	MA-SO-204	15/15	1000 - 1000	1.18E+04	NA	NA		NA		No	NUT
	7439-96-5	Manganese	3.02E+01	J	2.87E+02	J	mg/Kg	MA-SB-85	15/15	3 - 3	2.87E+02	NA	1.8E+02	nc	NA		Yes	ASL
	7439-97-6	Mercury	7.70E-02	BJ	5.70E+00	J	mg/Kg	MA-SO-202	14/15	0.051 - 0.1	5.70E+00	NA	6.1E-01	nc	1.40E+01	NJDEP	Yes	ASL
	7440-02-0	Nickel	3.00E+00	B	3.00E+01		mg/Kg	MA-SO-203	15/15	8 - 8	3.00E+01	NA	1.6E+02	nc	2.50E+02	NJDEP	No	BSL
	7440-09-7	Potassium	2.23E+02	B	7.60E+02	B	mg/Kg	MA-SO-204	15/15	1000 - 1000	7.60E+02	NA	NA		NA		No	NUT
	7782-49-2	Selenium	9.90E-01	BJ	1.90E+00		mg/Kg	MA-SO-203	9/15	0.91 - 3.3	1.90E+00	NA	3.9E+01	nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	2.40E-01	B	1.70E+00	B	mg/Kg	MA-SO-202	2/15	0.2 - 2	1.70E+00	NA	3.9E+01	nc	1.10E+02	NJDEP	No	BSL
	7440-23-5	Sodium	5.46E+01	B	2.32E+03	J	mg/Kg	MA-SO-401	15/15	61.6 - 61.6	2.32E+03	NA	NA		NA		No	NUT
	7440-28-0	Thallium	1.50E+00	B	1.50E+00	B	mg/Kg	MA-SO-207	1/13	1 - 5	1.50E+00	NA	5.2E-01	nc	2.00E+00	NJDEP	Yes	ASL
	7440-62-2	Vanadium	6.90E+00	B	4.70E+01		mg/Kg	MA-SO-203	15/15	10 - 10	4.70E+01	NA	5.5E+01	nc	3.70E+02	NJDEP	No	BSL
	7440-66-6	Zinc	3.34E+01		1.74E+03		mg/Kg	MA-SO-401	15/15	12 - 12	1.74E+03	NA	2.3E+03	nc	1.50E+03	NJDEP	No	BSL
	309-00-2	Aldrin	2.30E-02	JN	7.30E-02	JN	mg/kg	MA-SO-204	3/15	0.0018 - 1.7	7.30E-02	NA	2.9E-02	ca*	4.00E-02	NJDEP	Yes	ASL
	319-85-7	BHC, beta	1.50E-02	NJ	1.50E-02	NJ	mg/kg	MA-SO-204	1/14	0.0018 - 0.042	1.50E-02	NA	3.2E-01	ca	NA		No	BSL
	5103-71-9	Chlordane - alpha	1.00E-03	J	7.50E+00	J	mg/kg	MA-SO-203	3/13	0.0018 - 1.7	7.50E+00	NA	1.1E-01	ca	NA		Yes	ASL
	12789-03-6	Chlordane - gamma (technical mixture)	9.60E-04	J	9.90E+00		mg/kg	MA-SO-203	6/15	0.0018 - 1.7	9.90E+00	NA	1.6E+00	ca*	NA		Yes	ASL
	72-54-8	DDD-4,4'	6.10E-03	NJ	7.10E-03	J	mg/kg	MA-SB-85	2/14	0.0034 - 0.081	7.10E-03	NA	2.4E+00	ca	3.00E+00	NJDEP	No	BSL
	72-55-9	DDE-4,4'	2.60E-02		6.10E-01	JN	mg/kg	MA-SO-203	4/15	0.0034 - 3.3	6.10E-01	NA	1.7E+00	ca	2.00E+00	NJDEP	No	BSL
	50-29-3	DDT-4,4'	3.50E-03	J	2.30E-01	J	mg/kg	MA-SO-203	8/15	0.0035 - 3.3	2.30E-01	NA	1.7E+00	ca*	2.00E+00	NJDEP	No	BSL
	60-57-1	Dieldrin	4.00E-03	JN	4.40E-01		mg/kg	MA-SO-203	4/15	0.0034 - 3.3	4.40E-01	NA	3.0E-02	ca	4.20E-02	NJDEP	Yes	ASL
	33213-65-9	Endosulfan II (beta)	5.30E-03	NJ	8.40E-03	NJ	mg/kg	MA-SB-85	2/15	0.0035 - 0.081	8.40E-03	NA	3.7E+01	nc	NA		No	BSL
	1031-07-8	Endosulfan Sulfate	4.10E-03	J	7.70E-02	J	mg/kg	MA-SO-203	2/15	0.0034 - 0.045	7.70E-02	NA	3.7E+01	nc	NA		No	BSL
	72-20-8	Endrin	2.90E-03	J	1.30E-02	J	mg/kg	MA-SO-403	5/14	0.0035 - 0.081	1.30E-02	NA	1.8E+00	nc	1.70E+01	NJDEP	No	BSL
	7421-93-4	Endrin Aldehyde	7.70E-02	JN	7.70E-02	JN	mg/kg	MA-SO-203	1/11	0.0034 - 0.081	7.70E-02	NA	1.8E+00	nc	NA		No	BSL
	53494-70-5	Endrin ketone	4.20E-03	NJ	1.00E-02	NJ	mg/kg	MA-SO-202	3/15	0.0035 - 0.038	1.00E-02	NA	1.8E+00	nc	NA		No	BSL
	76-44-8	Heptachlor	1.30E-03	J	9.70E-03	J	mg/kg	MA-SO-204	5/15	0.0018 - 1.7	9.70E-03	NA	1.1E-01	ca	1.50E-01	NJDEP	No	BSL
	1024-57-3	Heptachlor Epoxide	1.40E-03	J	9.00E-01	JN	mg/kg	MA-SO-203	4/15	0.0018 - 1.7	9.00E-01	NA	5.3E-02	ca*	NA		Yes	ASL
	11097-69-1	Pcb-Aroclor 1254	2.10E+00		3.20E+00	J	mg/kg	MA-SO-204	2/15	0.034 - 33	3.20E+00	NA	1.1E-01	ca**	NA		Yes	ASL
	11096-82-5	Pcb-Aroclor 1260	1.30E+00		1.30E+00		mg/kg	MA-SO-203	1/15	0.034 - 33	1.30E+00	NA	2.2E-01	ca	NA		Yes	ASL
	83-32-9	Acenaphthene	1.60E-02	J	6.70E+00	J	mg/kg	MA-SO-404	7/16	0.35 - 120	6.70E+00	NA	3.7E+02	nc	3.40E+03	NJDEP	No	BSL
	208-96-8	Acenaphthylene	6.10E-02	J	1.50E+00	J	mg/kg	MA-SO-403	2/16	0.35 - 120	1.50E+00	NA	2.3E+02	nc	NA		No	BSL
	98-86-2	Acetophenone	1.50E-02	J	5.20E-02	J	mg/kg	MA-SO-203	2/16	0.35 - 330	5.20E-02	NA	4.9E-02	nc	NA		Yes	ASL
	120-12-7	Anthracene	1.00E-02	J	1.50E+01		mg/kg	MA-SO-404	10/16	0.37 - 39	1.50E+01	NA	2.2E+03	nc	1.00E+04	NJDEP	No	BSL
	100-52-7	Benzaldehyde	1.20E-02	J	1.20E-02	J	mg/kg	MA-SO-203	1/16	0.35 - 120	1.20E-02	NA	6.1E+02	nc	NA		No	BSL
	56-55-3	Benzo(a)anthracene	5.20E-02	J	2.40E+01		mg/kg	MA-SO-404	15/16	0.38 - 330	2.40E+01	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	7.50E-02	J	1.80E+01		mg/kg	MA-SO-404	14/16	0.37 - 330	1.80E+01	NA	6.2E-02	ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	8.10E-02	J	1.60E+01		mg/kg	MA-SO-404	13/16	0.37 - 330	1.60E+01	NA	6.2E-01	ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,I)perylene	5.60E-02	J	5.50E+00	J	mg/kg	MA-SB-85	11/16	0.35 - 39	5.50E+00	NA	2.3E+02	nc	NA		No	BSL
	207-08-9	Benzo(k)fluoranthene	3.30E-02	J	1.90E+01		mg/kg	MA-SB-85	15/16	0.38 - 330	1.90E+01	NA	6.2E+00	ca	9.00E-01	NJDEP	Yes	ASL
	92-52-4	Biphenyl	8.60E-02	J	8.60E-02	J	mg/kg	MA-SO-203	1/16	0.35 - 120	8.60E-02	NA	3.0E+02	sat	NA		No	BSL
	85-68-7	Butylbenzyl phthalate	3.80E-01	J	3.80E-01	J	mg/kg	MA-SO-203	1/16	0.35 - 120	3.80E-01	NA	1.2E+03	nc	1.10E+03	NJDEP	No	BSL
	86-74-8	Carbazole	2.10E-02	J	7.20E+00	J	mg/kg	MA-SO-404	8/16	0.35 - 10000	7.20E+00	NA	2.4E+01	ca	NA		No	BSL
	218-01-9	Chrysene	4.00E-02	J	2.30E+01		mg/kg	MA-SO-404	16/16	10000 - 10000	2.30E+01	NA	6.2E+01	ca	9.00E+00	NJDEP	No	BSL
	95-48-7	Cresol-o	2.20E-02	J	1.00E-01	J	mg/kg	MA-SO-203	2/16	0.35 - 120	1.00E-01	NA	3.1E+02	nc	2.80E+03	NJDEP	No	BSL

300907

TABLE 2.7

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	106-44-5	Cresol-p	5.90E-02 J	5.90E-02 J	mg/kg	MA-SO-203	1/16	0.35 - 120	5.90E-02	NA	3.1E+01 nc	2.80E+03	NJDEP	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	1.30E-02 J	2.40E+00 J	mg/kg	MA-SB-85	6/16	0.35 - 330	2.40E+00	NA	6.2E-02 ca	6.60E-01	NJDEP	Yes	ASL
	132-64-9	Dibenzofuran	8.00E-03 J	5.30E+00 J	mg/kg	MA-SO-404	7/16	0.35 - 10000	5.30E+00	NA	2.9E+01 nc	NA		No	BSL
	108-60-1	Ether, bis-chloroisopropyl	3.20E-02 J	3.20E-02 J	mg/kg	MA-SO-203	1/16	0.35 - 120	3.20E-02	NA	2.9E+00 ca	2.30E+03	NJDEP	No	BSL
	206-44-0	*Fluoranthene*	5.00E-02 J	5.70E+01	mg/kg	MA-SO-404	16/16	10000 - 10000	5.70E+01	NA	2.3E+02 nc	2.30E+03	NJDEP	No	BSL
	86-73-7	Fluorene	4.10E-02 J	8.00E+00 J	mg/kg	MA-SO-404	6/16	0.35 - 39	8.00E+00	NA	2.7E+02 nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	2.80E-02 J	6.40E+00 J	mg/kg	MA-SB-85	10/16	0.37 - 330	6.40E+00	NA	6.2E-01 ca	9.00E-01	NJDEP	Yes	ASL
	78-59-1	Isophorone	1.60E-02 J	1.60E-02 J	mg/kg	MA-SO-203	1/16	0.35 - 120	1.60E-02	NA	5.1E+02 ca*	1.10E+03	NJDEP	No	BSL
	91-57-6	Methylnaphthalene-2	2.20E-02 J	2.20E+00 J	mg/kg	MA-SO-404	3/16	0.35 - 120	2.20E+00	NA	7.0E+01 nc	NA		No	BSL
	91-20-3	Naphthalene	1.00E-01 J	5.90E+00 J	mg/kg	MA-SO-402	5/16	0.35 - 330	5.90E+00	NA	5.6E+00 nc	2.30E+02	NJDEP	Yes	ASL
	85-01-8	Phenanthrene	8.90E-02 J	7.20E+01	mg/kg	MA-SO-404	15/16	0.38 - 10000	7.20E+01	NA	2.3E+02 nc	NA		No	BSL
	108-95-2	*Phenol*	6.00E-02 J	6.00E-02 J	mg/kg	MA-SO-203	1/16	0.35 - 120	6.00E-02	NA	3.7E+03 nc	1.00E+04	NJDEP	No	BSL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	4.30E-02 J	2.70E-01 J	mg/kg	MA-SO-207	3/16	0.35 - 10000	2.70E-01	NA	3.5E+01 ca*	4.90E+01	NJDEP	No	BSL
	84-74-2	Phthalate, di-n-butyl	3.90E-02 J	7.30E-02 J	mg/kg	MA-SO-207	2/16	0.35 - 120	7.30E-02	NA	6.1E+02 nc	5.70E+03	NJDEP	No	BSL
	84-66-2	Phthalate, diethyl	5.30E-02 J	5.30E-02 J	mg/kg	MA-SO-203	1/16	0.35 - 120	5.30E-02	NA	4.9E+03 nc	1.00E+04	NJDEP	No	BSL
	131-11-3	Phthalate, dimethyl	1.10E-02 J	1.10E-02 J	mg/kg	MA-SO-203	1/16	0.35 - 120	1.10E-02	NA	1.0E+05 max	1.00E+04	NJDEP	No	BSL
	129-00-0	Pyrene	5.40E-02 J	4.80E+01	mg/kg	MA-SO-404	16/16	10000 - 10000	4.80E+01	NA	2.3E+02 nc	1.70E+03	NJDEP	No	BSL
	67-64-1	Acetone	2.00E-03 J	3.80E-02	mg/kg	MA-SO-207	11/16	0.011 - 14	3.80E-02	NA	1.6E+02 nc	1.00E+03	NJDEP	No	BSL
	75-15-0	Carbon disulfide	2.00E-03 J	2.00E-03 J	mg/kg	MA-SO-207, MA-SO-401	2/16	0.01 - 14	2.00E-03	NA	3.6E+01 nc	NA		No	BSL
	67-66-3	Chloroform	2.00E-03 J	9.00E-03 J	mg/kg	MA-SO-203	3/16	0.01 - 1200	9.00E-03	NA	3.6E-01 ca/nc	1.90E+01	NJDEP	No	BSL
	75-34-3	Dichloroethane-1,1	4.00E-03 J	4.00E-03 J	mg/kg	MA-SO-203	1/16	0.01 - 2.2	4.00E-03	NA	5.1E+01 nc	5.70E+02	NJDEP	No	BSL
	156-59-2	Dichloroethylene-1,2 cis	1.00E-03 J	1.00E-03 J	mg/kg	MA-SO-204	1/16	0.01 - 1200	1.00E-03	NA	4.3E+00 nc	7.90E+01	NJDEP	No	BSL
	78-93-3	Methyl ethyl ketone (2-butanone)	3.00E-03 J	3.00E-03 J	mg/kg	MA-SO-207	1/16	0.01 - 14	3.00E-03	NA	7.3E+02 nc	1.00E+03	NJDEP	No	BSL
	127-18-4	Tetrachloroethylene	3.00E-03 J	1.10E-02 J	mg/kg	MA-SO-203	2/16	0.01 - 1200	1.10E-02	NA	1.5E+00 ca*	4.00E+00	NJDEP	No	BSL
	108-88-3	Toluene	2.00E-03 J	2.00E-03 J	mg/kg	MA-SB-85, MA-SO-202, MA-SO-204, MA-SO-206, MA-SO-402, MA-SO-403, MA-SO-404	9/16	0.01 - 1200	2.00E-03	NA	6.6E+01 sat	1.00E+03	NJDEP	No	BSL
	71-55-6	Trichloroethane-1,1,1	1.00E-02 J	1.00E-02 J	mg/kg	MA-SO-203	1/16	0.01 - 14	1.00E-02	NA	2.0E+02 sat	2.10E+02	NJDEP	No	BSL
	79-01-6	Trichloroethylene	1.00E-03 J	1.30E-02	mg/kg	MA-SO-403	8/16	0.01 - 2.2	1.30E-02	NA	5.3E-02 ca	2.30E+01	NJDEP	No	BSL
	75-69-4	Trichlorofluoromethane	1.00E-03 J	3.00E-03 J		MA-SO-404	8/16	0.01 - 14	3.00E-03		3.9E+01 nc	NA		No	BSL
	1330-20-7	Xylenes, total	1.00E-03 J	2.00E-03 J	mg/kg	MA-SB-85, MA-SO-204, MA-SO-402, MA-SO-404	8/16	0.01 - 1200	2.00E-03	NA	2.7E+01 nc	4.10E+02	NJDEP	No	BSL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.
Endrin PRG used as surrogate for Endosulfan Sulfate.
Endrin PRG used as surrogate for Endrin Aldehyde.
Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Acenaphthylene.
Value from 2000 PRG Table used since Acetophenone withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Benzo(g,h,I)perylene.
Value from 2000 PRG Table used since Methylnaphthalene-2 withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Phenanthrene.
Endosulfan PRG used as surrogate for Endosulfan II (beta).
(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
SSL = U.S. EPA Region 9 SSL, Migration to Groundwater, DAF 20
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)
NA = Not Available

300908

TABLE 2.8

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
South Jersey Port property Subsurface Soil	7429-90-5	Aluminum	1.36E+03 J	9.00E+03	mg/Kg	MA-SB-68	30/30	40 - 40	9.00E+03	NA	7.6E+03 nc	NA		Yes	ASL
	7440-36-0	Antimony	8.10E-01 BJ	7.20E+00 BJ	mg/Kg	MA-SB-72	14/30	0.76 - 12	7.20E+00	NA	3.1E+00 nc	1.40E+01	NJDEP	Yes	ASL
	7440-38-2	Arsenic	3.30E+00	2.36E+02	mg/Kg	MA-SO-303	30/30	3 - 3	2.36E+02	NA	3.9E-01 ca*	2.00E+01	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	6.24E+01	1.56E+04	mg/Kg	MA-SB-66	30/30	40 - 40	1.56E+04	NA	5.4E+02 nc	7.00E+02	NJDEP	Yes	ASL
	7440-41-7	Beryllium	1.30E-01 B	6.20E-01 B	mg/Kg	MA-SB-68	28/30	0.2 - 0.24	6.20E-01	NA	1.5E+01 nc	2.00E+00	NJDEP	No	BSL
	7440-43-9	Cadmium	1.60E-01 B	2.91E+02	mg/Kg	MA-SB-75	28/30	0.09 - 1	2.91E+02	NA	3.7E+00 nc	3.90E+01	NJDEP	Yes	ASL
	7440-70-2	Calcium	6.12E+02 B	3.55E+04	mg/Kg	MA-SB-29	30/30	1000 - 1000	3.55E+04	NA	NA	NA		No	NUT
	7440-47-3	Chromium	6.10E+00 J	1.89E+02 J	mg/Kg	MA-SB-75	30/30	2 - 2	1.89E+02	NA	2.2E+01 ca**	2.40E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	7.40E-01 BJ	8.30E+00 B	mg/Kg	MA-SO-301	30/30	10 - 10	8.30E+00	NA	1.4E+02 ca**	NA		No	BSL
	7440-50-8	Copper	1.14E+01	3.58E+02	mg/Kg	MA-SO-302	30/30	5 - 5	3.58E+02	NA	3.1E+02 nc	6.00E+02	NJDEP	Yes	ASL
	7439-89-6	Iron	6.22E+03	7.14E+04	mg/Kg	MA-SB-68	30/30	20 - 20	7.14E+04	NA	2.3E+03 nc	NA		Yes	ASL
	7439-92-1	Lead	3.46E+01	2.34E+03	mg/Kg	MA-SB-69	30/30	2 - 2	2.34E+03	NA	4.0E+01 nc	4.00E+02	NJDEP	Yes	ASL
	7439-95-4	Magnesium	5.29E+02 B	1.30E+04	mg/Kg	MA-SB-29	30/30	1000 - 1000	1.30E+04	NA	NA	NA		No	NUT
	7439-96-5	Manganese	3.06E+01 J	4.92E+02 J	mg/Kg	MA-SB-72	30/30	3 - 3	4.92E+02	NA	1.8E+02 nc	NA		Yes	ASL
	7439-97-6	Mercury	1.20E-01	1.80E+00	mg/Kg	MA-SB-69	27/28	0.1 - 0.16	1.80E+00	NA	6.1E-01 nc	1.40E+01	NJDEP	Yes	ASL
	7440-02-0	Nickel	5.00E+00 B	3.39E+01	mg/Kg	MA-SB-68	12/12	8 - 8	3.39E+01	NA	1.6E+02 nc	2.50E+02	NJDEP	No	BSL
	7440-09-7	Potassium	2.83E+02 BJ	1.02E+03 B	mg/Kg	MA-SB-72	30/30	1000 - 1000	1.02E+03	NA	NA	NA		No	NUT
	7782-49-2	Selenium	1.00E+00 B	4.00E+00	mg/Kg	MA-SB-68	16/30	0.98 - 3.3	4.00E+00	NA	3.9E+01 nc	6.30E+01	NJDEP	No	BSL
	7440-22-4	Silver	2.20E-01 J	2.00E+00 J	mg/Kg	MA-SB-29	9/30	0.21 - 2	2.00E+00	NA	3.9E+01 nc	1.10E+02	NJDEP	No	BSL
	7440-23-5	Sodium	1.47E+02 BJ	1.16E+04 J	mg/Kg	MA-SB-75	30/30	61.6 - 61.6	1.16E+04	NA	NA	NA		No	NUT
	7440-62-2	Vanadium	6.20E+00 BJ	3.36E+01	mg/Kg	MA-SO-302	30/30	10 - 10	3.36E+01	NA	5.5E+01 nc	3.70E+02	NJDEP	No	BSL
	7440-66-6	Zinc	5.41E+01	9.50E+03	mg/Kg	MA-SB-75	12/12	12 - 12	9.50E+03	NA	2.3E+03 nc	1.50E+03	NJDEP	Yes	ASL
	5103-71-9	Chlordane - alpha	1.40E-03 J	2.00E-03 J	mg/kg	MA-SB-69	2/30	0.0018 - 1.7	2.00E-03	NA	1.1E-01 ca	NA		No	BSL
	12789-03-6	Chlordane - gamma (technical mixture)	4.80E-03 J	4.80E-03 J	mg/kg	MA-SB-29	1/27	0.0018 - 1.7	4.80E-03	NA	1.6E+00 ca*	NA		No	BSL
	72-54-8	DDD-4,4'	5.00E-03 J	5.00E-03 J	mg/kg	MA-SB-66	1/30	0.0036 - 0.081	5.00E-03	NA	2.4E+00 ca	3.00E+00	NJDEP	No	BSL
	72-55-9	DDE-4,4'	4.90E-03 J	6.10E-03 J	mg/kg	MA-SB-62	2/29	0.0036 - 3.3	6.10E-03	NA	1.7E+00 ca	2.00E+00	NJDEP	No	BSL
	50-29-3	DDT-4,4'	3.80E-03 J	6.80E-03 J	mg/kg	MA-SB-66	4/30	0.0036 - 3.3	6.80E-03	NA	1.7E+00 ca*	2.00E+00	NJDEP	No	BSL
	959-98-8	Endosulfan I (alpha)	2.30E-03 J	2.30E-03 J	mg/kg	MA-SB-69	1/30	0.0018 - 0.042	2.30E-03	NA	3.7E+01 nc	NA		No	BSL
	33213-65-9	Endosulfan II (beta)	6.20E-03 NJ	6.20E-03 NJ	mg/kg	MA-SB-72	1/30	0.0036 - 0.081	6.20E-03	NA	3.7E+01 nc	NA		No	BSL
	72-20-8	Endrin	4.90E-02 J	4.90E-02 J	mg/kg	MA-SO-301	1/30	0.0036 - 0.081	4.90E-02	NA	1.8E+00 nc	1.70E+01	NJDEP	No	BSL
	53494-70-5	Endrin ketone	4.00E-03 J	9.30E-02 NJ	mg/kg	MA-SB-75	5/30	0.0036 - 0.038	9.30E-02	NA	1.8E+00 nc	NA		No	BSL
	76-44-8	Heptachlor	4.40E-03 J	4.40E-03 J	mg/kg	MA-SO-301	1/30	0.0018 - 1.7	4.40E-03	NA	1.1E-01 ca	1.50E-01	NJDEP	No	BSL
	83-32-9	Acenaphthene	4.70E-02 J	3.80E+01 J	mg/kg	MA-SB-75	7/30	0.37 - 120	3.80E+01	NA	3.7E+02 nc	3.40E+03	NJDEP	No	BSL
	208-96-8	Acenaphthylene	4.30E-02 J	3.80E+01 J	mg/kg	MA-SB-75	5/30	0.37 - 120	3.80E+01	NA	2.3E+02 nc	NA		No	BSL
	120-12-7	Anthracene	5.10E-02 J	8.30E+01 J	mg/kg	MA-SB-75	14/30	0.37 - 39	8.30E+01	NA	2.2E+03 nc	1.00E+04	NJDEP	No	BSL
	56-55-3	Benzo(a)anthracene	4.40E-02 J	1.50E+02 J	mg/kg	MA-SB-75	25/30	3.7 - 10000	1.50E+02	NA	6.2E-01 ca	9.00E-01	NJDEP	Yes	ASL
	50-32-8	Benzo(a)pyrene	1.10E-01 J	1.50E+02 J	mg/kg	MA-SB-75	24/30	0.37 - 10000	1.50E+02	NA	6.2E-02 ca	6.60E-01	NJDEP	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	4.70E-02 J	1.50E+02 J	mg/kg	MA-SB-75	23/30	3.7 - 10000	1.50E+02	NA	6.2E-01 ca	9.00E-01	NJDEP	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	6.40E-02 J	5.80E+01 J	mg/kg	MA-SB-75	19/30	0.37 - 39	5.80E+01	NA	2.3E+02 nc	NA		No	BSL
	207-08-9	Benzo(k)fluoranthene	4.80E-02 J	1.40E+02 J	mg/kg	MA-SB-75	24/30	3.7 - 10000	1.40E+02	NA	6.2E+00 ca	9.00E-01	NJDEP	Yes	ASL
	92-52-4	Biphenyl	1.10E+01 J	1.10E+01 J	mg/kg	MA-SB-75	1/30	0.36 - 120	1.10E+01	NA	3.0E+02 sat	NA		No	BSL
	105-60-2	Caprolactam	7.40E-02 J	7.40E-02 J	mg/kg	MA-SB-77	1/30	0.36 - 120	7.40E-02	NA	3.1E+03 nc	NA		No	BSL
	86-74-8	Carbazole	4.20E-02 J	6.80E+01 J	mg/kg	MA-SB-75	9/30	0.37 - 10000	6.80E+01	NA	2.4E+01 ca	NA		Yes	ASL
	218-01-9	Chrysene	6.30E-02 J	1.80E+02 J	mg/kg	MA-SB-75	26/30	3.7 - 10000	1.80E+02	NA	6.2E+01 ca	9.00E+00	NJDEP	Yes	ASL
	53-70-3	Dibenzo(a,h)anthracene	4.20E-02 J	2.20E+01 J	mg/kg	MA-SB-75	10/30	0.37 - 330	2.20E+01	NA	6.2E-02 ca	6.60E-01	NJDEP	Yes	ASL
	132-64-9	Dibenzofuran	7.80E-02 J	7.10E+01 J	mg/kg	MA-SB-75	5/30	0.37 - 10000	7.10E+01	NA	2.9E+01 nc	NA		Yes	ASL
	206-44-0	Fluoranthene	9.50E-02 J	4.20E+02 J	mg/kg	MA-SB-75	27/30	11 - 10000	4.20E+02	NA	2.3E+02 nc	2.30E+03	NJDEP	Yes	ASL
	86-73-7	Fluorene	9.60E-02 J	8.40E+01 J	mg/kg	MA-SB-75	7/30	0.37 - 39	8.40E+01	NA	2.7E+02 nc	2.30E+03	NJDEP	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	6.90E-02 J	6.80E+01 J	mg/kg	MA-SB-75	19/30	0.37 - 10000	6.80E+01	NA	6.2E-01 ca	9.00E-01	NJDEP	Yes	ASL
	91-57-6	Methylnaphthalene-2	6.90E-02 J	3.50E+01 J	mg/kg	MA-SB-75	4/30	0.37 - 120	3.50E+01	NA	7.0E+01 nc	NA		No	BSL
	91-20-3	Naphthalene	9.10E-02 J	7.60E+01 J	mg/kg	MA-SB-75	6/30	0.37 - 330	7.60E+01	NA	5.6E+00 nc	2.30E+02	NJDEP	Yes	ASL
	85-01-8	Phenanthrene	5.20E-02 J	4.80E+02 J	mg/kg	MA-SB-75	25/30	1.9 - 10000	4.80E+02	NA	2.3E+02 nc	NA		Yes	ASL
	108-95-2	Phenol	1.40E-01 J	1.40E-01 J	mg/kg	MA-SB-77	1/30	0.36 - 120	1.40E-01	NA	3.7E+03 nc	1.00E+04	NJDEP	No	BSL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	4.60E-02 J	2.40E-01 J	mg/kg	MA-SB-62	6/30	0.37 - 10000	2.40E-01	NA	3.5E+01 ca*	4.90E+01	NJDEP	No	BSL

300909

TABLE 2.8

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	84-74-2	Phthalate, di-n-butyl	4.00E-02 J	4.00E-02 J	mg/kg	MA-SB-71	1/30	0.36 - 120	4.00E-02	NA	6.1E+02 nc	5.70E+03	NJDEP	No	BSL
	129-00-0	Pyrene	7.70E-02 J	3.50E+02 J	mg/kg	MA-SB-75	27/30	11 - 10000	3.50E+02	NA	2.3E+02 nc	1.70E+03	NJDEP	Yes	ASL
	67-64-1	Acetone	4.00E-03 J	5.00E-01 J	mg/kg	MA-SO-301	15/30	0.01 - 14	5.00E-01	NA	1.6E+02 nc	1.00E+03	NJDEP	No	BSL
	71-43-2	Benzene	3.00E-03 J	3.00E-03 J	mg/kg	MA-SB-75	1/30	0.01 - 10	3.00E-03	NA	6.0E-01 ca*	3.00E+00	NJDEP	Yes	ASL, TOX
	75-15-0	Carbon disulfide	1.50E-02 J	2.10E-02 J	mg/kg	MA-SO-301	3/30	0.01 - 14	2.10E-02	NA	3.6E+01 nc	NA		No	BSL
	108-87-2	Methyl cyclohexane	2.00E-03 J	2.00E-03 J	mg/kg	MA-SB-75	1/30	0.01 - 2.2	2.00E-03	NA	2.6E+02 nc	NA		No	BSL
	78-93-3	Methyl ethyl ketone (2-butanone)	8.00E-03 J	2.10E-01 J	mg/kg	MA-SO-301	3/30	0.01 - 14	2.10E-01	NA	7.3E+02 nc	1.00E+03	NJDEP	No	BSL
	108-88-3	Toluene	2.00E-03 J	2.00E-03 J	mg/kg	MA-SB-68	1/30	0.01 - 1200	2.00E-03	NA	6.6E+01 sat	1.00E+03	NJDEP	No	BSL
	75-69-4	Trichlorofluoromethane	1.00E-03 J	1.00E-03 J	mg/kg	MA-SB-66, MA-SB-68	2/30	0.01 - 14	1.00E-03	NA	3.9E+01 nc	NA		No	BSL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
Heptachlor PRG used as surrogate for Chlordane - alpha.
Endosulfan PRG used as surrogate for Endosulfan I (alpha).
Endosulfan PRG used as surrogate for Endosulfan II (beta).
Endrin PRG used as surrogate for Endrin ketone.
Pyrene PRG used as surrogate for Acenaphthylene.
Pyrene PRG used as surrogate for Benzo(g,h,I)perylene.
Value from 2000 PRG Table used since Methylnaphthalene-2 withdrawn from 2002 PRG Table.
Pyrene PRG used as surrogate for Phenanthrene.
(4) New Jersey Department of Environmental Protection Soil Cleanup Criteria, May 12, 1999. Residential Soil.
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
B (metals) = Estimated
ca = Carcinogen
ca** = 0.1 x nc < ca
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation (see Section 4.5 of Region IX PRG guidance)
NA = Not Available

300910

TABLE 2.9

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Upper PRM Aquifer	7429-90-5	Aluminum	7.28E+01	B	3.33E+04		ug/L	MA-MW-20S	26/29	30 - 57.7	3.33E+04	NA	3.6E+03	nc	2.00E+02	NJDEP	Yes	ASL
	7440-36-0	Antimony	1.70E+00	B	1.87E+01	BJ	ug/L	MA-MW-01S	11/29	1.6 - 14	1.87E+01	NA	1.5E+00	nc	2.00E+01	NJDEP	Yes	ASL
	7440-38-2	Arsenic	1.60E+00	B	7.13E+03	J	ug/L	MA-MW-01S	25/28	1 - 4.2	7.13E+03	NA	4.5E-02	ca	8.00E+00	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	5.10E+01	B	3.65E+04		ug/L	MA-MW-13S	29/29	10 - 10	3.65E+04	NA	2.6E+02	nc	2.00E+03	NJDEP	Yes	ASL
	7440-41-7	Beryllium	2.30E-01	B	1.28E+01		ug/L	MA-MW-15M	11/29	0.2 - 5	1.28E+01	NA	7.3E+00	nc	2.00E+01	NJDEP	Yes	ASL
	7440-43-9	Cadmium	2.10E-01	B	4.57E+01		ug/L	MA-MW-10S	13/29	0.2 - 4	4.57E+01	NA	1.8E+00	nc	4.00E+00	NJDEP	Yes	ASL
	7440-70-2	Calcium	8.80E+01		9.53E+05		ug/L	MA-MW-13S	29/29	5000 - 5000	9.53E+05	NA	NA		NA		No	NUT
	7440-47-3	Chromium	1.10E+00	B	8.40E+01		ug/L	MA-MW-20S	29/29	2 - 2	8.40E+01	NA	1.1E+01	nc	1.00E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	4.40E-01	B	6.80E+01		ug/L	MA-MW-15M	28/29	0.4 - 0.5	6.80E+01	NA	7.3E+01	nc	1.00E+02	NJDEP	No	BSL
	7440-50-8	Copper	2.20E+00	B	2.26E+02		ug/L	MA-MW-19R	28/29	2 - 10	2.26E+02	NA	1.5E+02	nc	1.00E+03	NJDEP	Yes	ASL
	7439-89-6	Iron	2.74E+02		2.50E+05		ug/L	MA-MW-15M	29/29	100 - 100	2.50E+05	NA	1.1E+03	nc	3.00E+02	NJDEP	Yes	ASL
	7439-92-1	Lead	7.20E-01	B	1.92E+02		ug/L	MA-MW-15S	23/29	0.7 - 7	1.92E+02	NA	1.5E+01	AL	1.00E+01	NJDEP	Yes	ASL
	7439-95-4	Magnesium	7.70E+01		2.66E+05		ug/L	MA-MW-05S	29/29	5000 - 5000	2.66E+05	NA	NA		NA		No	NUT
	7439-96-5	Manganese	6.70E+00	B	4.49E+03		ug/L	MA-MW-19R	29/29	0.5 - 0.5	4.49E+03	NA	8.8E+01	nc	5.00E+01	NJDEP	Yes	ASL
	7439-97-6	Mercury	1.10E-01	B	8.00E-01		ug/L	MA-MW-13S	7/29	0.05 - 0.1	8.00E-01	NA	3.6E-01	nc	2.00E+00	NJDEP	Yes	ASL
	7440-02-0	Nickel	2.30E+00	B	8.57E+01		ug/L	MA-MW-15M	29/29	1 - 1	8.57E+01	NA	7.3E+01	nc	1.00E+02	NJDEP	Yes	ASL
	7440-09-7	Potassium	1.60E+01		1.19E+05	J	ug/L	MA-MW-13S	29/29	5000 - 5000	1.19E+05	NA	NA		NA		No	NUT
	7782-49-2	Selenium	2.90E+00	BJ	1.88E+01	J	ug/L	MA-MW-20S	14/29	2.8 - 7	1.88E+01	NA	1.8E+01	nc	5.00E+01	NJDEP	Yes	ASL
	7440-23-5	Sodium	6.70E+01		3.01E+06		ug/L	MA-MW-19R	29/29	5000 - 5000	3.01E+06	NA	NA		5.00E+04	NJDEP	No	NUT
	7440-28-0	Thallium	2.70E+00	B	1.28E+01		ug/L	MA-MW-15M	4/29	1 - 20	1.28E+01	NA	2.4E-01	nc	1.00E+01	NJDEP	Yes	ASL
	7440-62-2	Vanadium	5.00E-01	B	1.85E+02		ug/L	MA-MW-15M	27/29	0.4 - 10	1.85E+02	NA	2.6E+01	nc			Yes	ASL
	7440-66-6	Zinc	5.40E+00	B	2.10E+03		ug/L	MA-MW-17S	27/29	0.7 - 1	2.10E+03	NA	1.1E+03	nc	5.00E+03	NJDEP	Yes	ASL
	7429-90-5	Aluminum, Dissolved	8.28E+01	B	1.90E+03		ug/L	MA-MW-20M	9/55	57.7 - 200	1.90E+03	NA	3.6E+03	nc	2.00E+02		No	TOT
	7440-36-0	Antimony, Dissolved	1.60E+00	B	2.37E+01	B	ug/L	MA-MW-13S	11/55	1.6 - 14	2.37E+01	NA	1.5E+00	nc	2.00E+01	NJDEP	No	TOT
	7440-38-2	Arsenic, Dissolved	1.50E+00	B	4.70E+03		ug/L	MA-MW-01S	32/54	1.3 - 8	4.70E+03	NA	4.5E-02	ca	8.00E+00	NJDEP	No	TOT
	7440-39-3	Barium, Dissolved	3.80E+01		5.74E+03		ug/L	MA-MW-18S	55/55	10 - 10	5.74E+03	NA	2.6E+02	nc	2.00E+03	NJDEP	No	TOT
	7440-41-7	Beryllium, Dissolved	2.20E-01	B	5.00E+00	B	ug/L	MA-MW-20R	7/55	0.2 - 5	5.00E+00	NA	7.3E+00	nc	2.00E+01	MCL	No	TOT
	7440-43-9	Cadmium, Dissolved	5.70E-01	B	1.40E+01		ug/L	MA-MW-17S	9/55	0.2 - 4	1.40E+01	NA	1.8E+00	nc	4.00E+00	NJDEP	No	TOT
	7440-70-2	Calcium, Dissolved	2.90E+01		9.76E+05		ug/L	MA-MW-13S	55/55	5000 - 5000	9.76E+05	NA	NA		NA		No	TOT
	7440-47-3	Chromium, Dissolved	1.30E+00	B	1.94E+01		ug/L	MA-MW-05S	21/55	0.6 - 6	1.94E+01	NA	1.1E+01	nc	1.00E+02	NJDEP	No	TOT
	7440-48-4	Cobalt, Dissolved	8.10E-01	B	9.80E+01		ug/L	MA-MW-20R	33/55	0.4 - 8	9.80E+01	NA	7.3E+01	nc	1.00E+02	NJDEP	No	TOT
	7440-50-8	Copper, Dissolved	9.90E-01	B	2.01E+02		ug/L	MA-MW-19R	19/55	0.6 - 10	2.01E+02	NA	1.5E+02	nc	1.00E+03	NJDEP	No	TOT
	7439-89-6	Iron, Dissolved	2.55E+01	B	1.40E+05		ug/L	MA-MW-20R	49/55	8.7 - 200	1.40E+05	NA	1.1E+03	nc	3.00E+02	NJDEP	No	TOT
	7439-95-4	Magnesium, Dissolved	1.10E+01		2.70E+05		ug/L	MA-MW-05S	55/55	5000 - 5000	2.70E+05	NA	NA		NA		No	TOT
	7439-96-5	Manganese, Dissolved	6.70E+00	B	5.20E+03		ug/L	MA-MW-19R	55/55	0.5 - 0.5	5.20E+03	NA	8.8E+01	nc	5.00E+01	NJDEP	No	TOT
	7439-97-6	Mercury, Dissolved	3.70E-01		3.70E-01		ug/L	MA-MW-13S	1/55	0.05 - 0.1	3.70E-01	NA	3.6E-01	nc	2.00E+00	NJDEP	No	TOT
	7440-02-0	Nickel, Dissolved	1.30E+00	B	8.20E+01		ug/L	MA-MW-20R	41/55	5 - 5	8.20E+01	NA	7.3E+01	nc	1.00E+02	NJDEP	No	TOT
	7440-09-7	Potassium, Dissolved	4.50E+00		1.76E+05	J	ug/L	MA-MW-13S	55/55	5000 - 5000	1.76E+05	NA	NA		NA		No	TOT
	7782-49-2	Selenium, Dissolved	3.70E+00	B	4.00E+01		ug/L	MA-MW-15S	31/55	2.9 - 7	4.00E+01	NA	1.8E+01	nc	5.00E+01	NJDEP	No	TOT
	7440-22-4	Silver, Dissolved	1.00E+00	B	1.00E+00	B	ug/L	MA-MW-19R	1/55	0.7 - 6	1.00E+00	NA	1.8E+01	nc	3.00E+01	NJDEP	No	TOT
	7440-23-5	Sodium, Dissolved	4.90E+00		3.06E+06		ug/L	MA-MW-19R	55/55	5000 - 5000	3.06E+06	NA	NA		5.00E+04	NJDEP	No	TOT
	7440-28-0	Thallium, Dissolved	2.60E+00	B	1.29E+01		ug/L	MA-MW-19R	10/55	2.6 - 20	1.29E+01	NA	2.4E-01	nc	1.00E+01	NJDEP	No	TOT
	7440-62-2	Vanadium, Dissolved	7.30E-01	B	3.95E+01	B	ug/L	MA-MW-13S	17/55	0.4 - 10	3.95E+01	NA	2.6E+01	nc	NA		No	TOT
	7440-66-6	Zinc, Dissolved	3.90E+00	B	2.90E+03		ug/L	MA-MW-17S	41/55	0.7 - 8	2.90E+03	NA	1.1E+03	nc	5.00E+03	NJDEP	No	TOT
	319-86-8	BHC, delta	1.40E-02	J	1.40E-02	J	ug/L	MA-MW-15S	1/52	0.01 - 0.01	1.40E-02	NA	5.2E-02	ca	1.00E+02	NJDEP	No	BSL
	58-89-9	BHC, gamma (Lindane)	3.00E-02	NJ	3.00E-02	NJ	ug/L	MA-MW-15S	1/52	0.01 - 0.01	3.00E-02	NA	5.2E-02	ca	2.00E-01	NJDEP	No	BSL
	5103-71-9	Chlordane - alpha	2.60E-02	NJ	1.50E-01		ug/L	MA-MW-14S	3/55	0.01 - 0.01	1.50E-01	NA	1.5E-02	ca	NA		Yes	ASL
	12789-03-6	Chlordane - gamma (technical mixture)	6.20E-02		9.10E-02	J	ug/L	MA-MW-14S	2/55	0.01 - 0.01	9.10E-02	NA	1.9E-01	ca*	NA		No	BSL
	72-55-9	DDE-4,4'	2.80E-02	NJ	3.90E-02	J	ug/L	MA-MW-12S	2/55	0.02 - 0.02	3.90E-02	NA	2.0E-01	ca	1.00E-01	NJDEP	No	BSL
	50-29-3	DDT-4,4'	2.20E-02	NJ	2.20E-02	NJ	ug/L	MA-MW-12S	1/54	0.02 - 0.02	2.20E-02	NA	2.0E-01	ca*	1.00E-01	NJDEP	No	BSL
	60-57-1	Dieldrin	3.20E-02	NJ	9.90E-02	J	ug/L	MA-MW-12S	4/55	0.02 - 0.02	9.90E-02	NA	4.2E-03	ca	3.00E-02	NJDEP	Yes	ASL
	1024-57-3	Heptachlor Epoxide	5.50E-02	J	5.50E-02	J	ug/L	MA-MW-13S	1/55	0.01 - 0.01	5.50E-02	NA	7.4E-03	ca*	2.00E-01	NJDEP	Yes	ASL
	83-32-9	Acenaphthene	1.80E+00	J	1.80E+00	J	ug/L	MA-MW-05S	1/54	5 - 300	1.80E+00	NA	3.7E+01	nc	4.00E+02	NJDEP	No	BSL
	85-68-7	Butylbenzyl phthalate	1.30E+00	J	1.30E+00	J	ug/L	MA-MW-14S	1/54	5 - 300	1.30E+00	NA	7.3E+02	nc	1.00E+02	NJDEP	No	BSL
	105-60-2	Caprolactam	2.10E+00	J	2.10E+00	J	ug/L	MA-MW-04S	1/54	5 - 300	2.10E+00	NA	1.8E+03	nc	NA		No	BSL
	95-48-7	Cresol-o	1.40E+00	J	4.90E+02		ug/L	MA-MW-13S	3/54	5 - 10	4.90E+02	NA	1.8E+02	nc	NA		Yes	ASL
	106-44-5	Cresol-p	1.30E+00	J	1.40E+03		ug/L	MA-MW-13S	4/54	5 - 10	1.40E+03	NA	1.8E+01	nc	NA		Yes	ASL
	105-67-9	Dimethylphenol-2,4	1.20E+00	J	1.70E+00	J	ug/L	MA-MW-15S	2/54	5 - 300	1.70E+00	NA	7.3E+01	nc	1.00E+02	NJDEP	No	BSL
	111-44-4	Ether, bis(2-chloroethyl)	1.20E+00	J	1.50E+01		ug/L	MA-MW-09S	7/54	5 - 300	1.50E+01	NA	9.8E-03	ca	1.00E+01	NJDEP	Yes	ASL
	206-44-0	Fluoranthene	3.30E+00	J	3.30E+00	J	ug/L	MA-MW-05S	1/54	5 - 300	3.30E+00	NA	1.5E+02	nc	3.00E+02	NJDEP	No	BSL
	86-73-7	Fluorene	1.10E+00	J	1.70E+00	J	ug/L	MA-MW-05S	2/54	5 - 300	1.70E+00	NA	2.4E+01	nc	3.00E+02	NJDEP	No	BSL
	78-59-1	Isophorone	1.10E+00	J	3.20E+00	J	ug/L	MA-MW-09S	2/54	5 - 300	3.20E+00	NA	7.1E+01	ca	1.00E+02	NJDEP	No	BSL
	91-57-6	Methylnaphthalene-2	1.20E+00	J	4.00E+00	J	ug/L	MA-MW-05S	4/54	5 - 300	4.00E+00	NA	NA		1.00E+02	NJDEP	No	NTX
	91-20-3	Naphthalene	1.60E+00	J	2.60E+03		ug/L	MA-MW-13S	7/54	5 - 10	2.60E+03	NA	6.2E-01	nc	3.00E+02	NJDEP	Yes	ASL
	86-30-6	Nitrosodiphenylamine-n	1.70E+00	J	7.00E+01	J	ug/L	MA-MW-13S	7/54	5 - 10	7.00E+01	NA	1.4E+01	ca	2.00E+01	NJDEP	Yes	ASL
	85-01-8	Phenanthrene	2.20E+00	J	1.00E+01		ug/L	MA-MW-05S	2/54	5 - 300	1.00E+01	NA	1.8E+01	nc	1.00E+02	NJDEP	No	BSL
	108-95-2	Phenol	1.10E+00	J	7.20E+03		ug/L	MA-MW-13S	5/54	5 - 10	7.20E+03	NA	2.2E+03	nc	4.00E+03	NJDEP	Yes	ASL
	117-81-7	Phthalate, bis(2-ethylhexyl) (DEHP)	1.20E+00	J	2.60E+00	J	ug/L	MA-MW-09S	6/54	5 - 300	2.60E+00	NA	4.8E+00	ca	3.00E+01	NJDEP	No	BSL
	84-74-2	Phthalate, di-n-butyl	1.10E+00	J	1.30E+00	J	ug/L	MA-MW-14S	3/54	5 - 300	1.30E+00	NA	3.6E+02	nc	9.00E+02	NJDEP	No	BSL
	84-66-2	Phthalate, diethyl	2.50E+00	J	2.50E+00	J	ug/L	MA-MW-16S	1/54	5 - 300	2.50E+00	NA	2.9E+03	nc	5.00E+03	NJDEP	No	BSL
	129-00-0	Pyrene	3.30E+00	J	3.30E+00	J	ug/L	MA-MW-05S	1/54	5 - 300	3.30E+00	NA	1.8E+01	nc	2.00E+02	NJDEP	No	BSL
	67-64-1	Acetone	1.60E+01	J	4.40E+01	J	ug/L	MA-MW-13S	3/45	0.5 - 100	4.40E+01	NA	6.1E+01	nc	7.00E+02	NJDEP	No	BSL

300911

TABLE 2.9

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)		Maximum Concentration (Qualifier)		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)		Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	71-43-2	Benzene	1.60E-01	J	1.50E+02	J	ug/L	MA-MW-05S	30/50	0.5 - 10	1.50E+02	NA	3.4E-01	ca*	1.00E+00	NJDEP	Yes	ASL, TOX
	75-25-2	Bromoform	2.70E-01	J	9.30E-01	J	ug/L	MA-MW-21S	5/51	0.5 - 10	9.30E-01	NA	8.5E+00	ca*	4.00E+00	NJDEP	No	BSL
	75-15-0	Carbon disulfide	2.30E-01	J	1.90E+01	J	ug/L	MA-MW-13S	6/49	0.5 - 10	1.90E+01	NA	1.0E+02	nc	8.00E+02	NJDEP	No	BSL
	108-90-7	Chlorobenzene	1.50E-01	J	2.30E+00	J	ug/L	MA-MW-05S	18/45	0.5 - 10	2.30E+00	NA	1.1E+01	nc	5.00E+01	NJDEP	No	BSL
	75-00-3	Chloroethane	3.30E-01	J	5.30E+00	J	ug/L	MA-MW-16S	5/51	0.5 - 10	5.30E+00	NA	4.6E+00	ca	1.00E+02	NJDEP	Yes	ASL
	67-66-3	Chloroform	2.10E-01	J	2.10E-01	J	ug/L	MA-MW-20S	1/50	0.5 - 10	2.10E-01	NA	6.2E-01	ca/nc	6.00E+00	NJDEP	No	BSL
	110-82-7	Cyclohexane	1.90E-01	J	5.30E+01	J	ug/L	MA-MW-05S	16/49	0.5 - 0.5	5.30E+01	NA	3.5E+03	nc	1.00E+02	NJDEP	No	BSL
	95-50-1	Dichlorobenzene-1,2	1.70E-01	J	1.40E+01	J	ug/L	MA-MW-13S	17/45	0.5 - 10	1.40E+01	NA	3.7E+01	nc	6.00E+02	NJDEP	No	BSL
	541-73-1	Dichlorobenzene-1,3	3.40E-01	J	6.60E-01		ug/L	MA-MW-12S	2/43	0.5 - 10	6.60E-01	NA	5.5E-01	nc	6.00E+02	NJDEP	Yes	ASL
	106-46-7	Dichlorobenzene-1,4	1.60E-01	J	1.80E+00	J	ug/L	MA-MW-12S	8/44	0.5 - 10	1.80E+00	NA	5.0E-01	ca	7.50E+01	NJDEP	Yes	ASL
	75-34-3	Dichloroethane-1,1	1.50E-01	J	1.20E+02	J	ug/L	MA-MW-16S	30/52	0.5 - 10	1.20E+02	NA	8.1E+01	nc	5.00E+01	NJDEP	Yes	ASL
	107-06-2	Dichloroethane-1,2	2.10E-01	J	3.50E+00		ug/L	MA-MW-16S	8/50	0.5 - 10	3.50E+00	NA	1.2E-01	ca*	2.00E+00	NJDEP	Yes	ASL
	156-60-5	Dichloroethene-1,2 trans	1.60E-01	J	2.10E+01		ug/L	MA-MW-14S	11/51	0.5 - 10	2.10E+01	NA	1.2E+01	nc	1.00E+02	NJDEP	Yes	ASL
	75-35-4	Dichloroethylene-1,1	1.70E-01	J	6.00E-01		ug/L	MA-MW-15M	6/50	0.5 - 10	6.00E-01	NA	3.4E+01	nc	2.00E+00	NJDEP	No	BSL
	156-59-2	Dichloroethylene-1,2 cis	2.50E-01	J	3.80E+02		ug/L	MA-MW-14S	43/55	0.5 - 10	3.80E+02	NA	6.1E+00	nc	7.00E+01	NJDEP	Yes	ASL
	78-87-5	Dichloropropane-1,2	2.50E-01	J	1.70E+00		ug/L	MA-MW-11M	5/51	0.5 - 10	1.70E+00	NA	1.6E-01	ca*	1.00E+00	NJDEP	Yes	ASL
	10061-01-5	Dichloropropene-1,3 cis	2.10E-01	J	2.10E-01	J	ug/L	MA-MW-18S	1/50	0.5 - 10	2.10E-01	NA	4.0E-01	ca	NA		No	BSL
	100-41-4	Ethylbenzene	1.60E-01	J	4.50E+01	J	ug/L	MA-MW-13S	15/47	0.5 - 10	4.50E+01	NA	2.9E+00	ca	7.00E+02	NJDEP	Yes	ASL
	591-78-6	Hexanone-2	2.40E-01	J	2.40E-01	J	ug/L	MA-MW-01S	1/43	0.5 - 100	2.40E-01	NA	1.0E+00	nc	1.00E+02	NJDEP	No	BSL
	98-82-8	Isopropylbenzene	2.60E-01	J	1.30E+01	J	ug/L	MA-MW-05S, MA-MW-12S	9/46	0.5 - 0.5	1.30E+01	NA	6.6E+01	nc	8.00E+02	NJDEP	No	BSL
	79-20-9	Methyl acetate	2.90E-01	J	2.90E-01	J	ug/L	MA-MW-10S	1/34	0.5 - 10	2.90E-01	NA	6.1E+02	nc	7.00E+03	NJDEP	No	BSL
	108-87-2	Methyl cyclohexane	5.90E-01	J	2.00E+02	J	ug/L	MA-MW-05S	11/48	0.5 - 0.5	2.00E+02	NA	5.2E+02	nc	NA		No	BSL
	78-93-3	Methyl ethyl ketone (2-butanone)	1.00E+00	J	1.80E+02	J	ug/L	MA-MW-13S	5/45	0.5 - 100	1.80E+02	NA	1.9E+02	nc	3.00E+02	NJDEP	No	BSL
	108-10-1	Methyl isobutyl ketone (4-methyl-2-pentanone)	2.20E-01	J	2.40E+02	J	ug/L	MA-MW-13S	3/45	5 - 100	2.40E+02	NA	1.6E+01	nc	4.00E+02	NJDEP	Yes	ASL
	1634-04-4	Methyl tertiary butyl ether (MTBE)	3.20E-01	J	6.50E+01	J	ug/L	MA-MW-01M	43/52	0.5 - 10	6.50E+01	NA	1.3E+01	ca	7.00E+01	NJDEP	Yes	ASL
	100-42-5	Styrene	1.90E-01	J	1.90E-01	J	ug/L	MA-MW-17M	1/43	0.5 - 10	1.90E-01	NA	1.6E+02	nc	1.00E+02	NJDEP	No	BSL
	127-18-4	Tetrachloroethylene	1.50E-01	J	1.50E+00		ug/L	MA-MW-09S	8/52	0.5 - 10	1.50E+00	NA	6.6E-01	ca	1.00E+00	NJDEP	Yes	ASL
	108-88-3	Toluene	1.70E-01	J	1.90E+01		ug/L	MA-MW-17M	17/48	0.5 - 10	1.90E+01	NA	7.2E+01	nc	1.00E+03	NJDEP	No	BSL
	87-61-6	Trichlorobenzene-1,2,3	2.90E-01	J	3.30E+00	J	ug/L	MA-MW-13S	4/45	0.5 - 10	3.30E+00	NA	1.9E+01	nc	NA		No	BSL
	120-82-1	Trichlorobenzene-1,2,4	1.90E+00		1.10E+01	J	ug/L	MA-MW-13S	5/45	0.5 - 10	1.10E+01	NA	1.9E+01	nc	9.00E+00	NJDEP	No	BSL
	71-55-6	Trichloroethane-1,1,1	2.50E-01	J	8.70E+01	J	ug/L	MA-MW-16S	8/51	0.5 - 10	8.70E+01	NA	3.2E+02	nc	3.00E+01	NJDEP	No	BSL
	79-00-5	Trichloroethane-1,1,2	2.50E-01	J	4.30E-01	J	ug/L	MA-MW-13M	2/50	0.5 - 10	4.30E-01	NA	2.0E-01	ca	3.00E+00	NJDEP	Yes	ASL
	79-01-6	Trichloroethylene	1.50E-01	J	1.10E+01		ug/L	MA-MW-14S	26/52	0.5 - 10	1.10E+01	NA	2.8E-02	ca	1.00E+00	NJDEP	Yes	ASL
	75-01-4	Vinyl chloride	5.50E-01		5.80E+01	J	ug/L	MA-MW-12S	25/51	0.5 - 10	5.80E+01	NA	2.0E-02	ca	5.00E+00	NJDEP	Yes	ASL, TOX
	1330-20-7	Xylenes, total	5.00E-01		9.00E+01	J	ug/L	MA-MW-05S	12/47	0.5 - 10	9.00E+01	NA	2.1E+01	nc	1.00E+03	NJDEP	Yes	ASL

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
HCH (gamma) Lindane used as surrogate for BHC, delta.
Heptachlor used as surrogate for Chlordane - alpha.
Provisional PRG2000 for Methylnaphthalene-2.
Pyrene used as surrogate for Phenanthrene.
1,3-Dichloropropene used as surrogate for Dichloropropene-1,3 cis.
Provisional PRG2000 for Hexanone-2.
1,2,4-Trichlorobenzene used as surrogate for Trichlorobenzene-1,2,3.
(4) New Jersey Department of Environmental Protection Groundwater Quality Standards, (N.J.A.C. 7:9-6), January 7, 1993
Table 1 - Specific Ground Water Quality Criteria -IIA and Interim Specific & Generic Ground Water Quality Criteria
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
AL = Action Level
B (metals) = Estimated
ca = Carcinogen
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation
NA = Not Available

300912

TABLE 2.10

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
Middle PRM Aquifer	7429-90-5	Aluminum	1.37E+02 B	3.67E+03	ug/L	MA-MW-18D	4/4	30 - 30	3.67E+03	NA	3.65E+03 nc	2.00E+02	NJDEP	Yes	ASL
	7440-36-0	Antimony	2.50E+00 B	2.90E+00 B	ug/L	MA-MW-20D	2/4	1.6 - 2	2.90E+00	NA	1.46E+00 nc	2.00E+01	NJDEP	Yes	ASL
	7440-38-2	Arsenic	2.40E+00 BJ	3.50E+00 B	ug/L	MA-MW-18D	2/4	1 - 1.3	3.50E+00	NA	4.48E-02 ca	8.00E+00	NJDEP	Yes	ASL, TOX
	7440-39-3	Barium	3.83E+01 B	2.94E+02	ug/L	MA-MW-20D	4/4	10 - 10	2.94E+02	NA	2.55E+02 nc	2.00E+03	NJDEP	Yes	ASL
	7440-41-7	Beryllium	6.60E-01 B	1.50E+00 B	ug/L	MA-MW-20D	2/4	0.2 - 5	1.50E+00	NA	7.30E+00 nc	2.00E+01	NJDEP	No	BSL
	7440-43-9	Cadmium	2.70E+00 B	2.70E+00 B	ug/L	MA-MW-09D	1/4	0.2 - 1	2.70E+00	NA	1.82E+00 nc	4.00E+00	NJDEP	Yes	ASL
	7440-70-2	Calcium	6.25E+03	7.93E+04	ug/L	MA-MW-20D	4/4	5000 - 5000	7.93E+04	NA	NA	NA		No	NUT
	7440-47-3	Chromium	1.40E+00 B	1.06E+01	ug/L	MA-MW-18D	4/4	2 - 2	1.06E+01	NA	1.09E+01 nc	1.00E+02	NJDEP	Yes	ASL, TOX
	7440-48-4	Cobalt	1.18E+01 B	7.52E+01 J	ug/L	MA-MW-20D	4/4	0.5 - 0.5	7.52E+01	NA	7.30E+01 nc	1.00E+02		Yes	ASL
	7440-50-8	Copper	7.80E+00 B	2.44E+02	ug/L	MA-MW-20D	4/4	2 - 2	2.44E+02	NA	1.46E+02 nc	1.00E+03	NJDEP	Yes	ASL
	7439-89-6	Iron	3.66E+03	1.61E+05	ug/L	MA-MW-20D	4/4	100 - 100	1.61E+05	NA	1.09E+03 nc	3.00E+02	NJDEP	Yes	ASL
	7439-92-1	Lead	2.60E+00 B	1.66E+01 J	ug/L	MA-MW-18D	3/4	0.7 - 1	1.66E+01	NA	1.50E+01 AL	1.00E+01	NJDEP	Yes	ASL
	7439-95-4	Magnesium	1.78E+03 B	3.30E+04	ug/L	MA-MW-20D	4/4	5000 - 5000	3.30E+04	NA	NA	NA		No	NUT
	7439-96-5	Manganese	2.14E+02	3.44E+03	ug/L	MA-MW-20D	4/4	0.5 - 0.5	3.44E+03	NA	8.76E+01 nc	5.00E+01	NJDEP	Yes	ASL
	7439-97-6	Mercury	2.70E-01 J	2.70E-01 J	ug/L	MA-MW-09D	1/4	0.1 - 0.1	2.70E-01	NA	3.65E-01 nc	2.00E+00	NJDEP	No	BSL
	7440-02-0	Nickel	5.60E+00 B	5.19E+01 J	ug/L	MA-MW-20D	4/4	1 - 1	5.19E+01	NA	7.30E+01 nc	1.00E+02	NJDEP	No	BSL
	7440-09-7	Potassium	1.99E+03 B	2.19E+04 J	ug/L	MA-MW-20D	4/4	5000 - 5000	2.19E+04	NA	NA	NA		No	NUT
	7440-23-5	Sodium	1.54E+04	6.90E+05	ug/L	MA-MW-20D	4/4	5000 - 5000	6.90E+05	NA	NA	5.00E+04	NJDEP	No	NUT
	7440-28-0	Thallium	2.80E+00 B	1.25E+01 J	ug/L	MA-MW-20D	2/4	1 - 2.6	1.25E+01	NA	2.41E-01 nc	1.00E+01	NJDEP	Yes	ASL
	7440-62-2	Vanadium	6.10E-01 B	1.80E+01 B	ug/L	MA-MW-18D	4/4	10 - 10	1.80E+01	NA	2.55E+01 nc	NA		No	BSL
	7440-66-6	Zinc	3.08E+01	3.35E+02	ug/L	MA-MW-09D	4/4	1 - 1	3.35E+02	NA	1.09E+03 nc	5.00E+03	NJDEP	No	BSL
	7429-90-5	Aluminum, Dissolved	1.62E+02 B	9.70E+02	ug/L	MA-MW-20D	2/8	57.7 - 200	9.70E+02	NA	3.65E+03 nc	2.00E+02	NJDEP	No	TOT
	7440-36-0	Antimony, Dissolved	3.40E+00 B	3.40E+00 B	ug/L	MA-MW-20D	1/8	1.6 - 14	3.40E+00	NA	1.46E+00 nc	2.00E+01	NJDEP	No	TOT
	7440-39-3	Barium, Dissolved	2.80E+01	3.00E+02	ug/L	MA-MW-20D	8/8	10 - 10	3.00E+02	NA	2.55E+02 nc	2.00E+03	NJDEP	No	TOT
	7440-41-7	Beryllium, Dissolved	2.70E-01 B	7.20E+00	ug/L	MA-MW-20D	3/8	0.2 - 5	7.20E+00	NA	7.30E+00 nc	2.00E+01	NJDEP	No	TOT
	7440-43-9	Cadmium, Dissolved	9.50E-01 B	9.50E-01 B	ug/L	MA-MW-09D	1/8	0.2 - 4	9.50E-01	NA	1.82E+00 nc	4.00E+00	NJDEP	No	TOT
	7440-70-2	Calcium, Dissolved	5.80E+00	7.50E+04	ug/L	MA-MW-20D	8/8	5000 - 5000	7.50E+04	NA	NA	NA		No	TOT
	7440-47-3	Chromium, Dissolved	6.40E-01 B	8.80E-01 B	ug/L	MA-MW-18D	2/8	0.6 - 6	8.80E-01	NA	1.09E+01 nc	1.00E+02	NJDEP	No	TOT
	7440-48-4	Cobalt, Dissolved	7.90E+00 B	1.10E+02	ug/L	MA-MW-20D	7/8	8 - 8	1.10E+02	NA	7.30E+01 nc	1.00E+02		No	TOT
	7440-50-8	Copper, Dissolved	1.70E+00 B	3.70E+00 B	ug/L	MA-MW-20D	3/8	0.6 - 10	3.70E+00	NA	1.46E+02 nc	1.00E+03	NJDEP	No	TOT
	7439-89-6	Iron, Dissolved	2.50E+02	1.80E+05	ug/L	MA-MW-20D	8/8	200 - 200	1.80E+05	NA	1.09E+03 nc	3.00E+02	NJDEP	No	TOT
	7439-95-4	Magnesium, Dissolved	1.50E+00	3.18E+04	ug/L	MA-MW-20D	8/8	5000 - 5000	3.18E+04	NA	NA	NA		No	TOT
	7439-96-5	Manganese, Dissolved	1.90E+02	4.00E+03	ug/L	MA-MW-20D	8/8	0.5 - 0.5	4.00E+03	NA	8.76E+01 nc	5.00E+01	NJDEP	No	TOT
	7440-02-0	Nickel, Dissolved	2.60E+00 B	9.70E+01	ug/L	MA-MW-20D	6/8	5 - 5	9.70E+01	NA	7.30E+01 nc	1.00E+02	NJDEP	No	TOT
	7440-09-7	Potassium, Dissolved	2.50E+00	2.01E+04 J	ug/L	MA-MW-20D	8/8	5000 - 5000	2.01E+04	NA	NA	NA		No	TOT
	7782-49-2	Selenium, Dissolved	3.90E+00 B	1.40E+01	ug/L	MA-MW-09D	3/8	2.9 - 7	1.40E+01	NA	1.82E+01 nc	5.00E+01	NJDEP	No	TOT
	7440-23-5	Sodium, Dissolved	1.60E+01	6.90E+05	ug/L	MA-MW-20D	8/8	5000 - 5000	6.90E+05	NA	NA	5.00E+04	NJDEP	No	TOT
	7440-28-0	Thallium, Dissolved	4.70E+00 B	1.50E+01 J	ug/L	MA-MW-20D	2/8	2.6 - 20	1.50E+01	NA	2.41E-01 nc	1.00E+01	NJDEP	No	TOT
	7440-62-2	Vanadium, Dissolved	1.20E+00 B	1.20E+00 B	ug/L	MA-MW-18D	1/8	0.4 - 10	1.20E+00	NA	2.55E+01 nc	NA		No	TOT
	7440-66-6	Zinc, Dissolved	3.30E+00 B	2.93E+02	ug/L	MA-MW-09D	7/8	8 - 8	2.93E+02	NA	1.09E+03 nc	5.00E+03	NJDEP	No	TOT
	71-43-2	Benzene	1.70E-01 J	3.30E-01 J	ug/L	MA-MW-20D	3/8	0.5 - 0.5	3.30E-01	NA	3.36E-01 ca*	1.00E+00	NJDEP	Yes	ASL, TOX
	75-25-2	Bromoform	2.40E-01 J	2.40E-01 J	ug/L	MA-MW-09D	1/8	0.5 - 10	2.40E-01	NA	8.51E+00 ca*	4.00E+00	NJDEP	No	BSL
	108-90-7	Chlorobenzene	3.70E-01 J	3.70E-01 J	ug/L	MA-MW-09D	1/8	0.5 - 10	3.70E-01	NA	1.06E+01 nc	5.00E+01	NJDEP	No	BSL
	74-87-3	Chloromethane	6.00E-01	6.00E-01	ug/L	MA-MW-14D	1/8	0.5 - 10	6.00E-01	NA	1.51E+00 ca	3.00E+01	NJDEP	No	BSL
	110-82-7	Cyclohexane	2.90E-01 J	2.90E-01 J	ug/L	MA-MW-20D	1/8	0.5 - 0.5	2.90E-01	NA	3.47E+03 nc	1.00E+02	NJDEP	No	BSL
	95-50-1	Dichlorobenzene-1,2	5.10E-01	5.10E-01	ug/L	MA-MW-09D	1/8	0.5 - 10	5.10E-01	NA	3.70E+01 nc	6.00E+02	NJDEP	No	BSL
	106-46-7	Dichlorobenzene-1,4	2.40E-01 J	2.40E-01 J	ug/L	MA-MW-09D	1/8	0.5 - 10	2.40E-01	NA	5.02E-01 ca	7.50E+01	NJDEP	No	BSL
	75-34-3	Dichloroethane-1,1	6.80E-01	2.60E+00	ug/L	MA-MW-20D	4/8	0.5 - 10	2.60E+00	NA	8.11E+01 nc	5.00E+01	NJDEP	No	BSL
	107-06-2	Dichloroethane-1,2	2.30E-01 J	8.70E-01	ug/L	MA-MW-20D	3/8	0.5 - 0.5	8.70E-01	NA	1.23E-01 ca*	2.00E+00	NJDEP	Yes	ASL
	156-60-5	Dichloroethene-1,2 trans	1.90E-01 J	1.90E-01 J	ug/L	MA-MW-09D	1/8	0.5 - 10	1.90E-01	NA	1.22E+01 nc	1.00E+02	NJDEP	No	BSL
	156-59-2	Dichloroethylene-1,2 cis	5.60E-01	3.20E+01	ug/L	MA-MW-09D	6/8	0.5 - 0.5	3.20E+01	NA	6.08E+00 nc	7.00E+01	NJDEP	Yes	ASL
	78-87-5	Dichloropropane-1,2	7.40E-01 J	7.40E-01 J	ug/L	MA-MW-09D	1/8	0.5 - 0.5	7.40E-01	NA	1.65E-01 ca*	1.00E+00	NJDEP	Yes	ASL
	10061-01-5	Dichloropropene-1,3 cis	1.80E-01 J	1.80E-01 J	ug/L	MA-MW-09D	1/8	0.5 - 10	1.80E-01	NA	3.95E-01 ca	NA		No	BSL
	100-41-4	Ethylbenzene	9.40E-01	9.40E-01	ug/L	MA-MW-18D	1/8	0.5 - 10	9.40E-01	NA	2.91E+00 ca	7.00E+02	NJDEP	No	BSL

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TABLE 2.10

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration (Qualifier)	Maximum Concentration (Qualifier)	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (N/C) (3)	Potential ARAR/TBC Value (4)	Potential ARAR/TBC Source	COPC Flag (Y/N)	Rationale for Selection or Deletion (5)
	78-93-3	Methyl ethyl ketone (2-butanone)	2.20E+00 J	2.20E+00 J	ug/L	MA-MW-09D	1/8	5 - 100	2.20E+00	NA	1.90E+02 nc	3.00E+02	NJDEP	No	BSL
	1634-04-4	Methyl tertiary butyl ether (MTBE)	5.90E-01 J	9.20E+00	ug/L	MA-MW-09D	7/8	0.5 - 10	9.20E+00	NA	1.33E+01 ca	7.00E+01	NJDEP	No	BSL
	75-09-2	Methylene chloride	1.80E-01 J	1.80E-01 J	ug/L	MA-MW-20D	1/8	0.5 - 10	1.80E-01	NA	4.28E+00 ca	3.00E+00	NJDEP	No	BSL
	127-18-4	Tetrachloroethylene	2.10E-01 J	1.00E+00	ug/L	MA-MW-09D	3/8	0.5 - 0.5	1.00E+00	NA	6.59E-01 ca	1.00E+00	NJDEP	Yes	ASL
	108-88-3	Toluene	2.70E-01 J	3.10E-01 J	ug/L	MA-MW-18D	2/8	0.5 - 10	3.10E-01	NA	7.23E+01 nc	1.00E+03	NJDEP	No	BSL
	79-01-6	Trichloroethylene	9.40E-01	1.50E+00	ug/L	MA-MW-20D	4/8	0.5 - 10	1.50E+00	NA	2.80E-02 ca	1.00E+00	NJDEP	Yes	ASL
	75-01-4	Vinyl chloride	1.00E+00	9.00E+00	ug/L	MA-MW-20D	3/8	0.5 - 0.5	9.00E+00	NA	1.98E-02 ca	5.00E+00	NJDEP	Yes	ASL, TOX

(1) Maximum concentration used for screening.
(2) No background data available.
(3) Preliminary Remediation Goal Table, October, 2002, U.S. EPA Region 9. Residential Soil. Cancer benchmark=1E-06, HQ=0.1.
Chromium VI PRG used as surrogate for Chromium.
Methyl mercury PRG used as surrogate for Mercury.
1,3-Dichloropropene used as surrogate for Dichloropropene-1,3 cis.

(4) New Jersey Department of Environmental Protection Groundwater Quality Standards, (N.J.A.C. 7:9-6), January 7, 1993
Table 1 - Specific Ground Water Quality Criteria -IIA and Interim Specific & Generic Ground Water Quality Criteria
(5) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Class A Carcinogen (TOX)
Deletion Reason: Essential Nutrient (NUT)
Below Screening Level (BSL)
Total Metals used in HHRA (TOT)

Definitions:
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
AL = Action Level
B (metals) = Estimated
ca = Carcinogen
J = Estimated Value
N = Lab QC spike is outside of QC limits
nc = Noncarcinogen
sat = Soil Saturation
NA = Not Available

300914

TABLE 3.1
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Martin Aaraon Property Surface Soil	Aluminum	mg/Kg	5.48E+03	6.03E+03 (T)	1.33E+04	6.03E+03	mg/Kg	95% UCL-T	(4)
	Antimony	mg/Kg	2.23E+00	4.71E+00 (NP)	7.60E+00 BJ	4.71E+00	mg/Kg	97.5% Cheb-m	(3)
	Arsenic	mg/Kg	1.09E+02	2.86E+02 (T)	7.66E+02	2.86E+02	mg/Kg	95% Cheb	(1)
	Barium	mg/Kg	6.03E+03	7.59E+04 (T)	3.79E+04	3.79E+04	mg/Kg	Max	(5)
	Cadmium	mg/Kg	8.15E+00	2.04E+01 (T)	1.10E+02	2.04E+01	mg/Kg	95% Cheb	(1)
	Chromium	mg/Kg	1.38E+02	2.97E+02 (T)	1.08E+03	2.97E+02	mg/Kg	95% Cheb	(1)
	Copper	mg/Kg	2.04E+02	5.75E+02 (T)	1.40E+03	5.75E+02	mg/Kg	95% Cheb	(1)
	Iron	mg/Kg	2.88E+04	5.24E+04 (NP)	1.03E+05	5.24E+04	mg/Kg	95% Cheb-m	(3)
	Lead	mg/Kg	5.52E+02	1.43E+03 (NP)	3.31E+03	1.43E+03	mg/Kg	97.5% Cheb-m	(3)
	Manganese	mg/Kg	2.82E+02	5.14E+02 (T)	7.44E+02 J	5.14E+02	mg/Kg	95% UCL-T	(1)
	Mercury	mg/Kg	6.60E-01	9.11E-01 (N)	3.10E+00	9.11E-01	mg/Kg	95% UCL-N	(2)
	Nickel	mg/Kg	4.48E+01	7.58E+01 (T)	5.76E+02	7.58E+01	mg/Kg	95% Cheb	(1)
	Silver	mg/Kg	2.83E+00	1.49E+01 (NP)	4.57E+01	1.49E+01	mg/Kg	97.5% Cheb-m	(3)
	Zinc	mg/Kg	7.85E+02	2.34E+03 (T)	6.64E+03	2.34E+03	mg/Kg	95% Cheb	(1)
	Aldrin	mg/kg	6.53E-02	4.17E-01 (NP)	1.30E+00	4.17E-01	mg/kg	97.5% Cheb-m	(3)
	Chlordane - alpha	mg/kg	5.00E-01	4.00E+00 (NP)	8.10E+00 JN	4.00E+00	mg/kg	99% Cheb-m	(3)
	Chlordane - gamma (technical mixture)	mg/kg	5.60E-01	4.42E+00 (T)	8.90E+00	4.42E+00	mg/kg	99% Cheb-m	(1)
	DDE-4,4'	mg/kg	8.31E-01	7.56E+00 (T)	1.50E+01 J	7.56E+00	mg/kg	99% Cheb-m	(1)
	DDT-4,4'	mg/kg	1.94E-01	1.58E+00 (NP)	2.60E+00	1.58E+00	mg/kg	99% Cheb-m	(3)
	Dieldrin	mg/kg	6.40E-02	8.36E+03 (NP)	1.30E+00	1.30E+00	mg/kg	Max	(5)
	Heptachlor	mg/kg	1.96E-02	9.50E-02 (NP)	2.60E-01 J	9.50E-02	mg/kg	97.5% Cheb-m	(3)
	Pcb-Aroclor 1248	mg/kg	7.63E-02	2.30E-01 (NP)	8.40E-01 J	2.30E-01	mg/kg	99% Cheb-m	(3)
	Pcb-Aroclor 1254	mg/kg	1.52E+00	1.07E+01 (NP)	1.90E+01	1.07E+01	mg/kg	97.5% Cheb-m	(3)
	Pcb-Aroclor 1260	mg/kg	3.59E-01	2.22E+00 (NP)	7.20E+00 J	2.22E+00	mg/kg	97.5% Cheb-m	(3)
	Acetophenone	mg/kg	1.21E+00	3.20E+00 (NP)	2.90E+00 J	2.90E+00	mg/kg	Max	(5)
	Benzo(a)anthracene	mg/kg	8.81E+00	6.59E+01 (T)	1.20E+02 J	6.59E+01	mg/kg	99% Cheb	(1)
	Benzo(a)pyrene	mg/kg	8.30E+00	6.23E+01 (T)	1.10E+02 J	6.23E+01	mg/kg	99% Cheb	(1)
	Benzo(b)fluoranthene	mg/kg	9.29E+00	7.00E+01 (T)	1.10E+02 J	7.00E+01	mg/kg	99% Cheb	(1)
	Benzo(k)fluoranthene	mg/kg	5.20E+00	3.47E+01 (T)	7.10E+01 J	3.47E+01	mg/kg	99% Cheb	(1)
	Chrysene	mg/kg	9.03E+00	6.44E+01 (T)	1.20E+02 J	6.44E+01	mg/kg	99% Cheb	(1)
	Dibenzo(a,h)anthracene	mg/kg	1.66E+00	4.26E+00 (T)	1.90E+01 J	4.26E+00	mg/kg	95% Cheb	(1)
	Fluoranthene	mg/kg	1.94E+01	1.48E+02 (T)	2.90E+02 J	1.48E+02	mg/kg	99% Cheb	(1)
	Indeno(1,2,3-cd)pyrene	mg/kg	4.82E+00	1.67E+01 (NP)	5.90E+01 J	1.67E+01	mg/kg	95% Cheb	(1)
	Naphthalene	mg/kg	3.23E+00	7.24E+00 (T)	3.40E+01	7.24E+00	mg/kg	95% Cheb	(1)
	Phthalate, bis(2-ethylhexyl) (DEHP)	mg/kg	5.64E+00	1.50E+01 (T)	5.90E+01	1.50E+01	mg/kg	95% Cheb	(1)

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TABLE 3.1
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
	Benzene	mg/kg	4.99E-01	3.87E+00 (NP)	4.50E+00	3.87E+00	mg/kg	99% Cheb-m	(3)
	Chloroform	mg/kg	3.83E-01	2.22E+00 (NP)	1.40E+00	1.40E+00	mg/kg	Max	(5)
	Dichloroethylene-1,2 cis	mg/kg	1.18E+00	1.11E+01 (NP)	2.40E+01	1.11E+01	mg/kg	99% Cheb-m	(3)
	Tetrachloroethylene	mg/kg	1.30E+00	1.21E+01 (NP)	2.60E+01	1.21E+01	mg/kg	99% Cheb-m	(3)
	Toluene	mg/kg	7.24E+00	7.34E+01 (NP)	1.60E+02	7.34E+01	mg/kg	99% Cheb-m	(3)
	Trichloroethylene	mg/kg	2.87E+00	3.24E+00 (NP)	6.00E+01	3.24E+00	mg/kg	99% Cheb-m	(3)
	Vinyl chloride	mg/kg	3.40E-01	2.16E+00 (NP)	3.20E-01 J	3.20E-01	mg/kg	Max	(5)
	Xylenes, total	mg/kg	4.00E+00	2.93E+01 (NP)	4.80E+01	2.93E+01	mg/kg	99% Cheb-m	(3)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used.
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T); 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilks W Test indicates data are normally distributed.
(3) Shapiro-Wilks W Test indicates data neither log-normally or normally distributed. Use non-parametric EPC.
(4) Shapiro-Wilks W Test indicates data fit both log-normal and normal distribution. Select distribution with higher W Test result.
(5) 95% UCL (or mean) exceeds maximum detected concentration. Therefore, maximum concentration used for EPC.

N = Normal
T = Transformed
NP = Non-parametric
B (metals) = Estimated

300916

TABLE 3.2
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Junkyard Surface Soil	Antimony	mg/Kg	2.58E+00	NC	4.10E+00 BJ	4.10E+00	mg/Kg	Max	(1)
	Arsenic	mg/Kg	2.11E+01	NC	2.77E+01 J	2.77E+01	mg/Kg	Max	(1)
	Barium	mg/Kg	1.47E+04	NC	1.60E+04	1.60E+04	mg/Kg	Max	(1)
	Cadmium	mg/Kg	1.14E+01	NC	1.83E+01	1.83E+01	mg/Kg	Max	(1)
	Chromium	mg/Kg	1.51E+01	NC	1.62E+01	1.62E+01	mg/Kg	Max	(1)
	Iron	mg/Kg	2.51E+04	NC	3.28E+04	3.28E+04	mg/Kg	Max	(1)
	Lead	mg/Kg	1.43E+03	NC	2.14E+03	2.14E+03	mg/Kg	Max	(1)
	Manganese	mg/Kg	1.76E+02	NC	2.19E+02 J	2.19E+02	mg/Kg	Max	(1)
	Mercury	mg/Kg	1.40E+00	NC	2.40E+00	2.40E+00	mg/Kg	Max	(1)
	Benzo(a)anthracene	mg/kg	8.73E-01	NC	1.60E+00 J	1.60E+00	mg/kg	Max	(1)
	Benzo(a)pyrene	mg/kg	1.55E+00	NC	1.50E+00 J	1.50E+00	mg/kg	Max	(1)
	Benzo(b)fluoranthene	mg/kg	1.57E+00	NC	1.50E+00 J	1.50E+00	mg/kg	Max	(1)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used.
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T); 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Less than 10 samples available, therefore, used maximum detected concentration as exposure point concentration.

B (metals) = Estimated

300917

TABLE 3.3
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)		Exposure Point Concentration			
							Value	Units	Statistic	Rationale
Row Homes and Industrial Area Surface Soil	Antimony	mg/Kg	1.64E+00	NC	3.40E+00	BJ	3.40E+00	mg/Kg	Max	(1)
	Arsenic	mg/Kg	1.41E+02	NC	3.39E+02		3.39E+02	mg/Kg	Max	(1)
	Barium	mg/Kg	8.47E+03	NC	2.26E+04		2.26E+04	mg/Kg	Max	(1)
	Cadmium	mg/Kg	2.08E+00	NC	4.60E+00	J	4.60E+00	mg/Kg	Max	(1)
	Chromium	mg/Kg	1.92E+02	NC	4.13E+02		4.13E+02	mg/Kg	Max	(1)
	Iron	mg/Kg	1.52E+04	NC	2.77E+04		2.77E+04	mg/Kg	Max	(1)
	Lead	mg/Kg	4.49E+02	NC	6.61E+02		6.61E+02	mg/Kg	Max	(1)
	Manganese	mg/Kg	1.45E+02	NC	2.11E+02	J	2.11E+02	mg/Kg	Max	(1)
	Mercury	mg/Kg	1.58E+00	NC	5.70E+00	J	5.70E+00	mg/Kg	Max	(1)
	Aldrin	mg/kg	1.29E-02	NC	7.30E-02	JN	7.30E-02	mg/kg	Max	(1)
	Dieldrin	mg/kg	2.15E-02	NC	1.20E-01	JN	1.20E-01	mg/kg	Max	(1)
	Pcb-Aroclor 1254	mg/kg	5.48E-01	NC	3.20E+00	J	3.20E+00	mg/kg	Max	(1)
	Benzo(a)anthracene	mg/kg	8.40E+00	NC	2.40E+01		2.40E+01	mg/kg	Max	(1)
	Benzo(a)pyrene	mg/kg	6.51E+00	NC	1.80E+01		1.80E+01	mg/kg	Max	(1)
	Benzo(b)fluoranthene	mg/kg	5.62E+00	NC	1.60E+01		1.60E+01	mg/kg	Max	(1)
	Benzo(k)fluoranthene	mg/kg	7.24E+00	NC	1.80E+01		1.80E+01	mg/kg	Max	(1)
	Dibenzo(a,h)anthracene	mg/kg	2.96E+00	NC	2.00E+00	J	2.00E+00	mg/kg	Max	(1)
	Indeno(1,2,3-cd)pyrene	mg/kg	3.13E+00	NC	5.70E+00	J	5.70E+00	mg/kg	Max	(1)
	Naphthalene	mg/kg	2.62E+00	NC	5.90E+00	J	5.90E+00	mg/kg	Max	(1)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used.
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T); 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Less than 10 samples available, therefore, used maximum detected concentration as exposure point concentration.

B (metals) = Estimated

TABLE 3.4
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
South Jersey	Aluminum	mg/Kg	5.09E+03	5.84E+03 (T)	9.00E+03	5.84E+03	mg/Kg	95% UCL-T	(1)
Port property	Arsenic	mg/Kg	1.80E+01	3.23.E+01 (T)	4.64E+01	3.23E+01	mg/Kg	95% UCL-T	(4)
Surface Soil	Barium	mg/Kg	1.41E+03	4.21E+03 (T)	5.07E+03	4.21E+03	mg/Kg	95% Cheb	(1)
	Cadmium	mg/Kg	1.46E+00	4.09E+00 (T)	5.10E+00	4.09E+00	mg/Kg	95% Cheb	(1)
	Chromium	mg/Kg	3.53E+01	9.02.E+01 (NP)	1.89E+02 J	9.02E+01	mg/Kg	95% Cheb-m	(3)
	Copper	mg/Kg	8.66E+01	1.56E+02 (T)	3.58E+02	1.56E+02	mg/Kg	95% UCL-T	(1)
	Iron	mg/Kg	1.64E+04	1.91.E+04 (T)	2.76E+04	1.91E+04	mg/Kg	95% UCL-T	(4)
	Lead	mg/Kg	4.99E+02	6.61.E+02 (N)	1.11E+03	6.61E+02	mg/Kg	95% UCL-N	(4)
	Manganese	mg/Kg	1.75E+02	2.93E+02 (NP)	4.88E+02 J	2.93E+02	mg/Kg	95% Cheb-m	(3)
	Mercury	mg/Kg	6.13E-01	8.54E-01 (T)	1.50E+00	8.54E-01	mg/Kg	95% UCL-T	(2)
	Benzo(a)anthracene	mg/Kg	9.72E+00	8.54E-01 (T)	1.30E+02 J	8.54E-01	mg/Kg	95% UCL-T	(1)
	Benzo(a)pyrene	mg/Kg	7.98E+00	3.77E+01 (T)	9.70E+01 J	3.77E+01	mg/Kg	99% Cheb	(1)
	Benzo(b)fluoranthene	mg/Kg	7.93E+00	3.44E+01 (T)	9.70E+01 J	3.44E+01	mg/Kg	99% Cheb	(1)
	Benzo(k)fluoranthene	mg/Kg	8.54E+00	3.55E+01 (T)	1.10E+02 J	3.55E+01	mg/Kg	99% Cheb	(1)
	Carbazole	mg/Kg	4.64E+00	2.30E+01 (T)	4.30E+01 J	2.30E+01	mg/Kg	99% Cheb	(1)
	Chrysene	mg/Kg	9.85E+00	4.10E+01 (T)	1.30E+02 J	4.10E+01	mg/Kg	99% Cheb	(1)
	Dibenzo(a,h)anthracene	mg/Kg	6.82E+00	3.06E+01 (T)	8.00E-01 J	8.00E-01	mg/kg	Max	(5)
	Fluoranthene	mg/Kg	2.07E+01	8.02.E+01 (T)	3.30E+02 J	8.02E+01	mg/kg	99% Cheb	(1)
	Indeno(1,2,3-cd)pyrene	mg/kg	4.49E+00	2.15E+01 (T)	4.00E+01 J	2.15E+01	mg/kg	99% Cheb	(1)
	Phenanthrene	mg/kg	2.01E+01	6.58E+01 (T)	3.40E+02 J	6.58E+01	mg/kg	99% Cheb	(1)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used.
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T); 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilks W Test indicates data are normally distributed.
(3) Shapiro-Wilks W Test indicates data neither log-normally or normally distributed. Use non-parametric EPC.
(4) Shapiro-Wilks W Test indicates data fit both log-normal and normal distribution. Select distribution with higher W Test result.
(5) 95% UCL (or mean) exceeds maximum detected concentration. Therefore, maximum concentration used for EPC.

N = Normal
T = Transformed
NP = Non-parametric
B (metals) = Estimated
J = Estimated Value
N = Lab QC spike is outside of QC limits

300919

TABLE 3.5
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of *Potential Concern*	Units	Arithmetic *Mean*	95% UCL *(Distribution)*	Maximum Concentration *(Qualifier)*	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Martin Aaraon	Aluminum	mg/Kg	5.42E+03	6.10E+03 (T)	2.55E+04 J	6.10E+03	mg/Kg	95% UCL-T	(1)
Property	Antimony	mg/Kg	3.98E+00	1.01.E+01 (NP)	4.10E+01 J	1.01E+01	mg/Kg	97.5% Cheb-m	(3)
Subsurface Soil	Arsenic	mg/Kg	6.94E+02	7.34.E+02 (T)	2.33E+04	7.34E+02	mg/Kg	95% UCL-T	(1)
	Barium	mg/Kg	5.94E+03	2.16E+04 (T)	3.79E+04	2.16E+04	mg/Kg	95% UCL-T	(1)
	Cadmium	mg/Kg	6.44E+00	1.90E+01 (NP)	1.10E+02	1.90E+01	mg/Kg	97.5% Cheb-m	(3)
	Chromium	mg/Kg	5.53E+02	2.70E+03 (NP)	2.13E+04 J	2.70E+03	mg/Kg	97.5% Cheb-m	(3)
	Copper	mg/Kg	2.01E+02	5.14.E+02 (NP)	2.59E+03	5.14E+02	mg/Kg	97.5% Cheb-m	(3)
	Iron	mg/Kg	2.27E+04	2.67E+04 (T)	1.03E+05	2.67E+04	mg/Kg	95% UCL-T	(1)
	Lead	mg/Kg	2.73E+03	1.40E+04 (NP)	1.12E+05	1.40E+04	mg/Kg	97.5% Cheb-m	(3)
	Manganese	mg/Kg	2.31E+02	3.24.E+02 (NP)	7.44E+02 J	3.24E+02	mg/Kg	95% Cheb-m	(3)
	Mercury	mg/Kg	4.69E+00	2.79E+01 (NP)	2.24E+02 J	2.79E+01	mg/Kg	97.5% Cheb-m	(3)
	Nickel	mg/Kg	2.86E+01	6.96.E+01 (NP)	5.76E+02	6.96E+01	mg/Kg	95% Cheb-m	(3)
	Silver	mg/Kg	1.25E+00	5.98E+00 (NP)	4.57E+01	5.98E+00	mg/Kg	97.5% Cheb-m	(3)
	Thallium	mg/Kg	8.73E-01	1.45E+00 (NP)	6.40E+00	1.45E+00	mg/Kg	95% Cheb-m	(3)
	Vanadium	mg/Kg	2.16E+01	2.38.E+01 (T)	9.08E+01 J	2.38E+01	mg/Kg	95% UCL-T	(1)
	Zinc	mg/Kg	1.26E+03	1.93E+03 (T)	2.39E+04	1.93E+03	mg/Kg	95% UCL-T	(1)
	Aldrin	mg/kg	3.23E-02	1.72E-01 (NP)	1.30E+00	1.72E-01	mg/kg	97.5% Cheb-m	(3)
	Chlordane - alpha	mg/kg	2.21E-01	1.59E+00 (NP)	8.10E+00 JN	1.59E+00	mg/kg	99% Cheb-m	(3)
	Chlordane - gamma (technical mixture)	mg/kg	2.87E-01	1.90E+00 (NP)	8.90E+00	1.90E+00	mg/kg	99% Cheb-m	(3)
	DDE-4,4'	mg/kg	6.90E-01	4.86E+00 (NP)	1.90E+01	4.86E+00	mg/kg	99% Cheb-m	(3)
	DDT-4,4'	mg/kg	7.59E-02	3.91E-01 (NP)	2.60E+00	3.91E-01	mg/kg	97.5% Cheb-m	(3)
	Dieldrin	mg/kg	4.72E-02	1.79E-01 (NP)	1.30E+00	1.79E-01	mg/kg	97.5% Cheb-m	(3)
	Heptachlor	mg/kg	8.44E-03	3.79E-02 (NP)	2.60E-01 J	3.79E-02	mg/kg	97.5% Cheb-m	(3)
	Pcb-Aroclor 1248	mg/kg	4.74E-02	9.23E-02 (NP)	8.40E-01 J	9.23E-02	mg/kg	95% Cheb-m	(3)
	Pcb-Aroclor 1254	mg/kg	1.76E+00	1.08E+01 (NP)	4.80E+01	1.08E+01	mg/kg	99% Cheb-m	(3)
	Pcb-Aroclor 1260	mg/kg	3.39E-01	2.32E-01 (NP)	7.20E+00 J	2.32E-01	mg/kg	97.5% Cheb-m	(3)
	Acetophenone	mg/kg	1.23E+00	3.17.E+00 (NP)	2.90E+00 J	2.90E+00	mg/kg	Max	(5)
	Benzo(a)anthracene	mg/kg	5.67E+00	1.95.E+01 (T)	1.20E+02 J	1.95E+01	mg/kg	95% Cheb	(1)
	Benzo(a)pyrene	mg/kg	5.35E+00	1.80E+01 (T)	1.10E+02 J	1.80E+01	mg/kg	95% Cheb	(1)
	Benzo(b)fluoranthene	mg/kg	6.29E+00	2.16E+01 (T)	1.10E+02 J	2.16E+01	mg/kg	95% Cheb	(1)
	Benzo(k)fluoranthene	mg/kg	3.33E+00	8.00E+00 (T)	7.10E+01 J	8.00E+00	mg/kg	95% UCL-T	(1)
	Chrysene	mg/kg	5.91E+00	1.84E+01 (T)	1.20E+02 J	1.84E+01	mg/kg	95% UCL-T	(1)
	Dibenzo(a,h)anthracene	mg/kg	1.43E+00	4.06E+00 (NP)	1.90E+01 J	4.06E+00	mg/kg	97.5% Cheb-m	(3)
	Fluoranthene	mg/kg	1.17E+01	3.76E+01 (T)	2.90E+02 J	3.76E+01	mg/kg	95% Cheb	(1)

300920

TABLE 3.5
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
	Indeno(1,2,3-cd)pyrene	mg/kg	3.36E+00	9.76E+00 (T)	5.90E+01 J	9.76E+00	mg/kg	97.5% Cheb-m	(3)
	Naphthalene	mg/kg	6.58E+00	3.24E+01 (NP)	1.20E+02 J	3.24E+01	mg/kg	99% Cheb-m	(3)
	Phthalate, bis(2-ethylhexyl) (DEHP)	mg/kg	8.72E+00	2.57E+01 (NP)	9.40E+01 J	2.57E+01	mg/kg	97.5% Cheb-m	(3)
	Benzene	mg/kg	7.81E-01	5.89E+00 (NP)	3.10E+01	5.89E+00	mg/kg	99% Cheb-m	(3)
	Bromomethane	mg/kg	2.54E-01	1.03E+00 (NP)	5.20E-01 J	5.20E-01	mg/kg	Max	(5)
	Chloroform	mg/kg	4.83E-01	2.23E+00 (NP)	1.60E+01	2.23E+00	mg/kg	97.5% Cheb-m	(3)
	Dichloroethylene-1,2 cis	mg/kg	9.54E-01	5.62E+00 (NP)	2.40E+01	5.62E+00	mg/kg	99% Cheb-m	(3)
	Ethylbenzene	mg/kg	1.10E+00	6.36E+00 (NP)	2.90E+01	6.36E+00	mg/kg	99% Cheb-m	(3)
	Tetrachloroethylene	mg/kg	3.29E+00	2.28E+01 (NP)	1.10E+02	2.28E+01	mg/kg	99% Cheb-m	(3)
	Toluene	mg/kg	3.70E+00	3.04E+01 (NP)	1.60E+02	3.04E+01	mg/kg	99% Cheb-m	(3)
	Trichloroethylene	mg/kg	1.19E+01	1.13E+02 (NP)	6.30E+02	1.13E+02	mg/kg	99% Cheb-m	(3)
	Vinyl chloride	mg/kg	2.66E-01	1.05E+00 (NP)	4.80E-01 J	4.80E-01	mg/kg	Max	(5)
	Xylenes, total	mg/kg	6.59E+00	4.45E+01 (NP)	2.20E+02	4.45E+01	mg/kg	99% Cheb-m	(3)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T) 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilks W Test indicates data are normally distributed.
(3) Shapiro-Wilks W Test indicates data neither log-normally or normally distributed. Use non-parametric EPC.
(4) Shapiro-Wilks W Test indicates data fit both log-normal and normal distribution. Select distribution with higher W Test result.
(5) 95% UCL (or mean) exceeds maximum detected concentration. Therefore, maximum concentration used for EPC

N = Normal
T = Transformed
NP = Non-parametric
B (metals) = Estimated
J = Estimated Value
N = Lab QC spike is outside of QC limits

300921

TABLE 3.6
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Junkyard Subsurface Soil	Aluminum	mg/Kg	4.93E+03	NC	9.13E+03	9.13E+03	mg/Kg	Max	(1)
	Antimony	mg/Kg	1.07E+00	NC	4.10E+00 BJ	4.10E+00	mg/Kg	Max	(1)
	Arsenic	mg/Kg	2.25E+02	NC	1.24E+03 J	1.24E+03	mg/Kg	Max	(1)
	Barium	mg/Kg	1.29E+04	NC	1.85E+04	1.85E+04	mg/Kg	Max	(1)
	Cadmium	mg/Kg	9.40E+00	NC	2.48E+01	2.48E+01	mg/Kg	Max	(1)
	Chromium	mg/Kg	1.27E+01	NC	1.83E+01	1.83E+01	mg/Kg	Max	(1)
	Iron	mg/Kg	2.96E+04	NC	6.09E+04	6.09E+04	mg/Kg	Max	(1)
	Lead	mg/Kg	4.97E+02	NC	2.14E+03	2.14E+03	mg/Kg	Max	(1)
	Manganese	mg/Kg	1.45E+02	NC	2.65E+02 J	2.65E+02	mg/Kg	Max	(1)
	Mercury	mg/Kg	8.42E-01	NC	2.40E+00	2.40E+00	mg/Kg	Max	(1)
	Benzo(a)anthracene	mg/kg	7.19E-01	NC	1.80E+00 J	1.80E+00	mg/kg	Max	(1)
	Benzo(a)pyrene	mg/kg	9.02E-01	NC	1.60E+00 J	1.60E+00	mg/kg	Max	(1)
	Benzo(b)fluoranthene	mg/kg	9.68E-01	NC	1.90E+00 J	1.90E+00	mg/kg	Max	(1)
	Dibenzo(a,h)anthracene	mg/kg	8.26E-01	NC	3.60E-01 J	3.60E-01	mg/kg	Max	(1)
	Indeno(1,2,3-cd)pyrene	mg/kg	7.46E-01	NC	1.00E+00 J	1.00E+00	mg/kg	Max	(1)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used.
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T); 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Less than 10 samples available, therefore, used maximum detected concentration as exposure point concentration.

B (metals) = Estimated
J = Estimated Value
NC = Not calculated.

TABLE 3.7
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Row Homes and	Aluminum	mg/Kg	4.32E+03	5.71E+03 (T)	1.23E+04	5.71E+03	mg/Kg	95% UCL-T	(1)
Industrial Area	Antimony	mg/Kg	1.32E+00	2.32E+00 (T)	3.50E+00 BJ	2.32E+00	mg/Kg	95% UCL-T	(1)
Subsurface Soil	Arsenic	mg/Kg	8.93E+01	6.74E+02 (T)	3.65E+02	3.65E+02	mg/Kg	Max	(5)
	Barium	mg/Kg	6.73E+03	3.53E+04 (T)	3.97E+04	3.53E+04	mg/Kg	99% Cheb	(1)
	Cadmium	mg/Kg	1.03E+00	3.00E+00 (NP)	4.60E+00 J	3.00E+00	mg/Kg	97.5% Cheb-m	(3)
	Chromium	mg/Kg	9.71E+01	2.79E+02 (T)	4.13E+02	2.79E+02	mg/Kg	95% Cheb	(1)
	Copper	mg/Kg	9.22E+01	2.62E+02 (T)	4.10E+02	2.62E+02	mg/Kg	95% Cheb	(1)
	Iron	mg/Kg	1.46E+04	2.05E+04 (T)	3.90E+04	2.05E+04	mg/Kg	95% UCL-T	(1)
	Lead	mg/Kg	3.37E+02	8.54E+02 (NP)	1.14E+03	8.54E+02	mg/Kg	97.5% Cheb-m	(3)
	Manganese	mg/Kg	1.20E+02	1.74E+02 (T)	2.87E+02 J	1.74E+02	mg/Kg	95% UCL-T	(4)
	Mercury	mg/Kg	7.43E-01	1.80E+00 (T)	5.70E+00 J	1.80E+00	mg/Kg	95% Cheb	(1)
	Thallium	mg/Kg	6.48E-01	9.60E-01 (NP)	1.50E+00 B	9.60E-01	mg/Kg	95% Cheb-m	(3)
	Aldrin	mg/kg	9.82E-03	4.326E-02 (NP)	7.30E-02 JN	4.33E-02	mg/kg	97.5% Cheb-m	(3)
	Chlordane - alpha	mg/kg	5.79E-01	6.32E+00 (NP)	7.50E+00 J	6.32E+00	mg/kg	99% Cheb-m	(3)
	Chlordane - gamma (technical mixture)	mg/kg	6.66E-01	7.23E+00 (NP)	9.90E+00	7.23E+00	mg/kg	99% Cheb-m	(3)
	Dieldrin	mg/kg	4.21E-02	2.27E-01 (NP)	4.40E-01	2.27E-01	mg/kg	97.5% Cheb-m	(3)
	Heptachlor Epoxide	mg/kg	6.11E-02	4.35E-01 (NP)	9.00E-01 JN	4.35E-01	mg/kg	97.5% Cheb-m	(3)
	Pcb-Aroclor 1254	mg/kg	3.80E-01	1.90E+00 (NP)	3.20E+00 J	1.90E+00	mg/kg	97.5% Cheb-m	(3)
	Pcb-Aroclor 1260	mg/kg	1.14E-01	6.47E-01 (NP)	1.30E+00	6.47E-01	mg/kg	97.5% Cheb-m	(3)
	Acetophenone	mg/kg	2.02E+00	1.96E+01 (T)	5.20E-02 J	5.20E-02	mg/kg	Max	(5)
	Benzo(a)anthracene	mg/kg	4.73E+00	4.24E+01 (T)	2.40E+01	2.40E+01	mg/kg	Max	(5)
	Benzo(a)pyrene	mg/kg	3.75E+00	2.68E+01 (T)	1.80E+01	1.80E+01	mg/kg	Max	(5)
	Benzo(b)fluoranthene	mg/kg	3.34E+00	2.27E+01 (T)	1.60E+01	1.60E+01	mg/kg	Max	(5)
	Benzo(k)fluoranthene	mg/kg	4.09E+00	3.88E+01 (T)	1.90E+01	1.90E+01	mg/kg	Max	(5)
	Dibenzo(a,h)anthracene	mg/kg	1.51E+00	1.14E+01 (T)	2.40E+00 J	2.40E+00	mg/kg	Max	(5)
	Indeno(1,2,3-cd)pyrene	mg/kg	1.83E+00	1.30E+01 (T)	6.40E+00 J	6.40E+00	mg/kg	Max	(5)
	Naphthalene	mg/kg	1.58E+00	4.43E+00 (NP)	5.90E+00 J	4.43E+00	mg/kg	97.5% Cheb-m	(3)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was use
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendation based on distribution and standard deviation in users guide
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T)
95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m)
97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m

(1) Shapiro-Wilk W Test indicates data are log-normally distributed
(2) Shapiro-Wilks W Test indicates data are normally distributed
(3) Shapiro-Wilks W Test indicates data fit both log-normal and normal distribution. Select distribution with higher W Test resu
(4) 95% UCL (or mean) exceeds maximum detected concentration. Therefore, maximum concentration used for EPC

N = Normal
T = Transformed
NP = Non-parametric
B (metals) = Estimated
J = Estimated Value
N = Lab QC spike is outside of QC limits

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TABLE 3.8
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
South Jersey Port property Subsurface Soil	Aluminum	mg/Kg	4.65E+03	5.10E+03 (N)	9.00E+03	5.10E+03	mg/Kg	95% UCL-N	(2)
	Antimony	mg/Kg	1.39E+00	2.65E+00 (NP)	7.20E+00 BJ	2.65E+00	mg/Kg	95% Cheb-m	(3)
	Arsenic	mg/Kg	3.21E+01	9.57E+01 (NP)	2.36E+02	9.57E+01	mg/Kg	97.5% Cheb-m	(3)
	Barium	mg/Kg	2.04E+03	5.56E+03 (T)	1.56E+04	5.56E+03	mg/Kg	95% Cheb	(1)
	Cadmium	mg/Kg	1.08E+01	7.12E+01 (NP)	2.91E+02	7.12E+01	mg/Kg	97.5% Cheb-m	(3)
	Chromium	mg/Kg	2.84E+01	3.59E+01 (T)	1.89E+02 J	3.59E+01	mg/Kg	95% UCL-T	(1)
	Copper	mg/Kg	8.64E+01	1.30E+02 (T)	3.58E+02	1.30E+02	mg/Kg	95% UCL-T	(1)
	Iron	mg/Kg	1.74E+04	2.03E+04 (T)	7.14E+04	2.03E+04	mg/Kg	95% UCL-T	(1)
	Lead	mg/Kg	5.53E+02	9.50E+02 (T)	2.34E+03	9.50E+02	mg/Kg	95% UCL-T	(1)
	Manganese	mg/Kg	1.75E+02	2.26E+02 (T)	4.92E+02 J	2.26E+02	mg/Kg	95% UCL-T	(1)
	Mercury	mg/Kg	6.33E-01	8.90E-01 (T)	1.80E+00	8.90E-01	mg/Kg	95% UCL-T	(1)
	Zinc	mg/Kg	1.17E+03	2.51E+03 (T)	9.50E+03	2.51E+03	mg/Kg	95% Cheb	(1)
	Benzo(a)anthracene	mg/Kg	1.06E+01	2.24E+01 (T)	1.50E+02 J	2.24E+01	mg/kg	95% Cheb	(1)
	Benzo(a)pyrene	mg/kg	9.62E+00	1.79E+01 (T)	1.50E+02 J	1.79E+01	mg/kg	95% Cheb	(1)
	Benzo(b)fluoranthene	mg/kg	9.78E+00	2.11E+01 (T)	1.50E+02 J	2.11E+01	mg/kg	95% Cheb	(1)
	Benzo(k)fluoranthene	mg/kg	9.55E+00	1.87E+01 (T)	1.40E+02 J	1.87E+01	mg/kg	95% Cheb	(1)
	Carbazole	mg/kg	5.51E+00	1.46E+01 (T)	6.80E+01 J	1.46E+01	mg/kg	95% Cheb	(1)
	Chrysene	mg/kg	1.15E+01	2.01E+01 (T)	1.80E+02 J	2.01E+01	mg/kg	95% Cheb	(1)
	Dibenzo(a,h)anthracene	mg/kg	4.90E+00	1.37E+01 (T)	2.20E+01 J	1.37E+01	mg/kg	95% Cheb	(1)
	Dibenzofuran	mg/kg	6.19E+00	1.42E+01 (T)	7.10E+01 J	1.42E+01	mg/kg	95% Cheb	(1)
	Fluoranthene	mg/kg	2.51E+01	3.62E+01 (T)	4.20E+02 J	3.62E+01	mg/kg	95% Cheb	(1)
	Indeno(1,2,3-cd)pyrene	mg/kg	5.39E+00	1.34E+01 (T)	6.80E+01 J	1.34E+01	mg/kg	95% Cheb	(1)
	Naphthalene	mg/kg	6.89E+00	1.48E+01 (T)	7.60E+01 J	1.48E+01	mg/kg	95% Cheb	(1)
	Phenanthrene	mg/kg	2.66E+01	3.82E+01 (T)	4.80E+02 J	3.82E+01	mg/kg	95% Cheb	(1)
	Pyrene	mg/kg	1.99E+01	3.14E+01 (T)	3.50E+02 J	3.14E+01	mg/kg	95% Cheb	(1)
	Benzene	mg/kg	7.51E-03	1.17E-02 (NP)	3.00E-03 J	3.00E-03	mg/kg	Max	(4)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used.
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T); 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilks W Test indicates data are normally distributed.
(3) Shapiro-Wilks W Test indicates data fit both log-normal and normal distribution. Select distribution with higher W Test result.
(4) 95% UCL (or mean) exceeds maximum detected concentration. Therefore, maximum concentration used for EPC.

N = Normal
T = Transformed
NP = Non-parametric
B (metals) = Estimated
J = Estimated Value
N = Lab QC spike is outside of QC limits

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TABLE 3.9
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Upper PRM Aquifer	Aluminum	ug/L	3.15E+03	1.03E+04 (T)	3.33E+04	1.03E+04	ug/L	95% Cheb	(1)
	Antimony	ug/L	2.46E+00	5.4E+00 (NP)	1.87E+01 BJ	5.41E+00	ug/L	95% Cheb-m	(3)
	Arsenic	ug/L	4.81E+02	3.62E+03 (T)	7.13E+03 J	3.62E+03	ug/L	99% Cheb	(1)
	Barium	ug/L	1.78E+03	9.65E+03 (NP)	3.65E+04	9.65E+03	ug/L	97.5% Cheb-m	(3)
	Beryllium	ug/L	1.04E+00	3.9E+00 (NP)	1.28E+01	3.87E+00	ug/L	97.5% Cheb-m	(3)
	Cadmium	ug/L	3.10E+00	1.32.E+01 (NP)	4.57E+01	1.32E+01	ug/L	97.5% Cheb-m	(3)
	Chromium	ug/L	1.93E+01	4.45E+01 (T)	8.40E+01	4.45E+01	ug/L	95% UCL-T	(1)
	Copper	ug/L	2.93E+01	5.22.E+01 (T)	2.26E+02	5.22E+01	ug/L	95% UCL-T	(1)
	Iron	ug/L	3.22E+04	1.18E+05 (T)	2.50E+05	1.18E+05	ug/L	95% Cheb	(1)
	Lead	ug/L	1.33E+01	2.85E+01 (T)	1.92E+02	2.85E+01	ug/L	95% Cheb	(1)
	Manganese	ug/L	8.50E+02	1.98E+03 (NP)	4.49E+03	1.98E+03	ug/L	97.5% Cheb-m	(3)
	Mercury	ug/L	9.33E-02	2.08E-01 (NP)	8.00E-01	2.08E-01	ug/L	95% Cheb-m	(3)
	Nickel	ug/L	1.85E+01	2.95.E+01 (T)	8.57E+01	2.95E+01	ug/L	95% UCL-T	(1)
	Selenium	ug/L	3.80E+00	7.01E+00 (NP)	1.88E+01 J	7.01E+00	ug/L	95% Cheb-m	(3)
	Thallium	ug/L	2.66E+00	5.41E+00 (NP)	1.28E+01	5.41E+00	ug/L	95% Cheb-m	(3)
	Vanadium	ug/L	2.00E+01	5.82E+01 (T)	1.85E+02	5.82E+01	ug/L	95% Cheb	(1)
	Zinc	ug/L	3.12E+02	1.17E+03 (NP)	2.10E+03	1.17E+03	ug/L	99% Cheb-m	(3)
	Chlordane - alpha	ug/L	9.42E-03	2.24E-02 (NP)	1.50E-01	2.24E-02	ug/L	95% Cheb-m	(3)
	Dieldrin	ug/L	1.34E-02	2.16E-02 (NP)	9.90E-02 J	2.16E-02	ug/L	95% Cheb-m	(3)
	Heptachlor Epoxide	ug/L	5.91E-03	9.87E-03 (NP)	5.50E-02 J	9.87E-03	ug/L	95% Cheb-m	(3)
	Cresol-o	ug/L	1.15E+01	5.09E+01 (NP)	4.90E+02	5.09E+01	ug/L	95% Cheb-m	(3)
	Cresol-p	ug/L	2.84E+01	1.41E+02 (NP)	1.40E+03	1.41E+02	ug/L	95% Cheb-m	(3)
	Ether, bis(2-chloroethyl)	ug/L	5.51E+00	1.74E+01 (NP)	1.50E+01	1.50E+01	ug/L	Max	(5)
	Naphthalene	ug/L	5.90E+01	3.60E+02 (NP)	2.60E+03	3.60E+02	ug/L	97.5% Cheb-m	(3)
	Nitrosodiphenylamine-n	ug/L	4.72E+00	1.09E+01 (NP)	7.00E+01 J	1.09E+01	ug/L	95% Cheb-m	(3)
	Phenol	ug/L	1.36E+02	9.68E+02 (NP)	7.20E+03	9.68E+02	ug/L	97.5% Cheb-m	(3)
	Benzene	ug/L	9.20E+00	3.39E+01 (NP)	1.50E+02 J	3.39E+01	ug/L	97.5% Cheb-m	(3)
	Chloroethane	ug/L	6.10E-01	1.32E+00 (NP)	5.30E+00 J	1.32E+00	ug/L	95% Cheb-m	(3)
	Dichlorobenzene-1,3	ug/L	3.72E-01	8.54E-01 (NP)	6.60E-01	6.60E-01	ug/L	Max	(5)
	Dichlorobenzene-1,4	ug/L	4.17E-01	9.21E-01 (NP)	1.80E+00 J	9.21E-01	ug/L	95% Cheb-m	(3)
	Dichloroethane-1,1	ug/L	4.51E+00	1.95E+01 (NP)	1.20E+02 J	1.95E+01	ug/L	97.5% Cheb-m	(3)
	Dichloroethane-1,2	ug/L	4.46E-01	9.51E-01 (NP)	3.50E+00	9.51E-01	ug/L	95% Cheb-m	(3)
	Dichloroethene-1,2 trans	ug/L	1.51E+00	4.97E+00 (NP)	2.10E+01	4.97E+00	ug/L	97.5% Cheb-m	(3)
	Dichloroethylene-1,2 cis	ug/L	2.56E+01	1.19E+02 (NP)	3.80E+02	1.19E+02	ug/L	99% Cheb-m	(3)
	Dichloropropane-1,2	ug/L	4.24E-01	8.64E-01 (NP)	1.70E+00	8.64E-01	ug/L	95% Cheb-m	(3)
	Ethylbenzene	ug/L	3.24E+00	1.18E+01 (NP)	4.50E+01 J	1.18E+01	ug/L	97.5% Cheb-m	(3)
	Methyl isobutyl ketone (4-methyl-2-pentanone)	ug/L	8.89E+00	3.22E+01 (NP)	2.40E+02 J	3.22E+01	ug/L	95% Cheb-m	(3)
	Methyl tertiary butyl ether (MTBE)	ug/L	9.11E+00	2.33E+01 (T)	6.50E+01 J	2.33E+01	ug/L	95% UCL-T	(1)
	Tetrachloroethylene	ug/L	3.92E-01	8.05E-01 (NP)	1.50E+00	8.05E-01	ug/L	95% Cheb-m	(3)

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TABLE 3.9
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
	Trichloroethane-1,1,2	ug/L	3.47E-01	7.61E-01 (NP)	4.30E-01 J	4.30E-01	ug/L	Max	(5)
	Trichloroethylene	ug/L	1.14E+00	2.89E+00 (NP)	1.10E+01	2.89E+00	ug/L	97.5% Cheb-m	(3)
	Vinyl chloride	ug/L	4.72E+00	1.41E+01 (NP)	5.80E+01 J	1.41E+01	ug/L	97.5% Cheb-m	(3)
	Xylenes, total	ug/L	4.68E+00	1.88E+01 (NP)	9.00E+01 J	1.88E+01	ug/L	97.5% Cheb-m	(3)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was usec
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendation based on distribution and standard deviation in users guide
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T) 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilks W Test indicates data are normally distributed.
(3) Shapiro-Wilks W Test indicates data neither log-normally or normally distributed. Use non-parametric EPC
(4) Shapiro-Wilks W Test indicates data fit both log-normal and normal distribution. Select distribution with higher W Test result
(5) 95% UCL (or mean) exceeds maximum detected concentration. Therefore, maximum concentration used for EPC

N = Normal
T = Transformed
NP = Non-parametric
B (metals) = Estimated
J = Estimated Value
N = Lab QC spike is outside of QC limits

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TABLE 3.10
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE/CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Middle PRM Aquifer	Aluminum	ug/L	1.19E+03	NC	3.67E+03	3.67E+03	ug/L	Max	(1)
	Antimony	ug/L	1.75E+00	NC	2.90E+00 B	2.90E+00	ug/L	Max	(1)
	Arsenic	ug/L	1.80E+00	NC	3.50E+00 B	3.50E+00	ug/L	Max	(1)
	Barium	ug/L	1.25E+02	NC	2.94E+02	2.94E+02	ug/L	Max	(1)
	Cadmium	ug/L	7.50E-01	NC	2.70E+00 B	2.70E+00	ug/L	Max	(1)
	Chromium	ug/L	4.55E+00	NC	1.06E+01	1.06E+01	ug/L	Max	(1)
	Cobalt	ug/L	3.68E+01	NC	7.52E+01 J	7.52E+01	ug/L	Max	(1)
	Copper	ug/L	7.09E+01	NC	2.44E+02	2.44E+02	ug/L	Max	(1)
	Iron	ug/L	4.58E+04	NC	1.61E+05	1.61E+05	ug/L	Max	(1)
	Lead	ug/L	6.76E+00	NC	1.66E+01 J	1.66E+01	ug/L	Max	(1)
	Manganese	ug/L	1.47E+03	NC	3.44E+03	3.44E+03	ug/L	Max	(1)
	Thallium	ug/L	4.48E+00	NC	1.25E+01 J	1.25E+01	ug/L	Max	(1)
	Benzene	ug/L	2.30E-01	NC	3.30E-01 J	3.30E-01	ug/L	Max	(1)
	Dichloroethane-1,2	ug/L	3.99E-01	NC	8.70E-01	8.70E-01	ug/L	Max	(1)
	Dichloroethylene-1,2 cis	ug/L	9.06E+00	NC	3.20E+01	3.20E+01	ug/L	Max	(1)
	Dichloropropane-1,2	ug/L	3.11E-01	NC	7.40E-01 J	7.40E-01	ug/L	Max	(1)
	Tetrachloroethylene	ug/L	4.05E-01	NC	1.00E+00	1.00E+00	ug/L	Max	(1)
	Trichloroethylene	ug/L	7.18E-01	NC	1.50E+00	1.50E+00	ug/L	Max	(1)
	Vinyl chloride	ug/L	2.41E+00	NC	9.00E+00	9.00E+00	ug/L	Max	(1)

For non-detects, 1/2 sample quantitation limit was used as a proxy concentration; for duplicate sample results, the average of the two samples was used.
ProUCL, Version 2.1 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME/CTE EPC, following recommendations based on distribution and standard deviation in users guide.
Statistics: Maximum Detected Value (Max); 95% UCL of Normal Data (95% UCL-N); 95% UCL of Log-transformed Data, H-Statistic (95% UCL-T); 95% Chebyshev (MVUE) UCL (95% Cheb); 99% Chebyshev (MVUE) UCL (99% Cheb); 95% Chebyshev (mean,std) UCL (95% Cheb-m); 97.5% Chebyshev (mean,std) UCL (97.5% Cheb-m); 99% Chebyshev (mean,std) UCL (99% Cheb-m).

(1) Less than 10 samples available, therefore, used maximum detected concentration as exposure point concentration.

B (metals) = Estimated
J = Estimated Value
NC = Not Calculated

300927

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Worker	Adult	Martin Aaron property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	
	Trespasser/Visitor	Adolescents	Martin Aaron property Surface Soil and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1991	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	169	days/year	(1)	
				ED	Exposure Duration	9	years	(2)	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	51	kg	EPA, 1997, (3)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
Dermal	Industrial Worker	Adult	Martin Aaron property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2001b, (4)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	

300928

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (continued)	Trespasser/Visitor	Adolescents	Martin Aaron property Surface Soil and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	4,600	cm^2	EPA, 1997, (5)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b, (6)	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	169	days/year	(1)	
				ED	Exposure Duration	9	years	(2)	
				BW	Body Weight	51	kg	EPA, 1997,(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	

Notes:

(1) Professional judgement assuming 4 days per week for the 39 spring, summer, and fall weeks and 1 days/week for the 13 winter weeks.

(2) Professional Judgement assuming adolescents from 9 to 18 years of age.

(3) Body weight is average value for the 9 year old and 18 year old male and female body weight.

(4) SA includes head, hands, and forearms.

(5) SA is 25% of total surface area for 12-15 year old male. 95th percentile for total surface area is 1.85 m^2.

(6) SSAF for children.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA, 2001b: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

300929

TABLE 4.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Worker	Adult	Emissions from Martin Aaron property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 2001	
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	
	Trespasser/Visitor	Adolescents	Emissions from Martin Aaron property Surface Soil and South Jersey Port Surface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	2	hr/day	(2)	
				EF	Exposure Frequency	169	days/year	(3)	
				ED	Exposure Duration	9	years	(4)	
				BW	Body Weight	51	kg	EPA, 1997,(5)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	

Notes:

(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

(2) Professional judgement assuming trespasser would spend a maximum of 2 hours at the site.

(3) Professional judgement assuming 4 days per week for the 39 spring, summer, and fall weeks and 1 days/week for the 13 winter weeks.

(4) Professional Judgement assuming adolescents from 9 to 18 years of age.

(5) Body weight is average value for the 9 year old and 18 year old male body weight.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1996: Soil Screening Guidance: User's Guide. OSWER. EPA/540/R-96/018.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

300930

TABLE 4.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Junkyard Surface Soil and Row Homes/Industrial Area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1991	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Junkyard Surface Soil and Row Homes/Industrial Area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 1991	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
Dermal	Resident	Adult	Junkyard Surface Soil and Row Homes/Industrial Area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2001, (1)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm^2-day	EPA, 2001	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	

300931

TABLE 4.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Resident	Child	Junkyard Surface Soil and Row Homes/Industrial Area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2001, (2)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	

Notes:
(1) SA includes head, hands, forearms, and lower legs.
(2) SA includes head, hands, forearms, lower legs, and feet.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

300932

TABLE 4.4.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Emissions from Junkyard Surface Soil and Row Homes/Industrial area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	350	days/year	EPA,1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Emissions from Junkyard Surface Soil and Row Homes/Industrial area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.42	m^3/hour	EPA, 1997	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	

Notes:
(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

300933

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-W	Ingestion Rate of Water	2	liters/day	EPA, 1997	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				CF1	Conversion Factor 1	0.001	mg/µg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Water	1	liters/day	EPA, 1997	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.001	mg/µg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Water	1	liters/day	EPA, 1991	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				CF1	Conversion Factor 1	0.001	mg/µg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	

300934

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Resident	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	0.25	hr/event	EPA, 2001	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	18,000	cm^2	EPA, 2001	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	350	days/year	EPA, 2001	
				ED	Exposure Duration	24	years	EPA, 2001	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x .
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				CF2	Conversion Factor 2	0.001	l/cm^3	- -	
	Resident	Child	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	0.45	hr/event		t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	6,600	cm^2	EPA, 2001	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	350	days/year	EPA, 2001	
				ED	Exposure Duration	6	years	EPA, 2001	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	15	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	2190	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				CF2	Conversion Factor 2	0.001	l/cm^3	- -	

300935

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Industrial Worker	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	0.25	hr/event	EPA, 2001	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	18,000	cm^2	EPA, 2001	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	--	
				CF2	Conversion Factor 2	0.001	l/cm^3	--	

300936

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Construction Worker	Adult	Upper PRM Aquifer - Water Vapors at Excavation Pit	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	8	hr/event	EPA, 2001 (1)	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	5,170	cm^2	EPA, 2001 (2)	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	42	days/year	(3)	
				ED	Exposure Duration	1	years	EPA, 2001	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	--	
				CF2	Conversion Factor 2	0.001	l/cm^3	--	

Notes:
(1) Professional Judgement assumed amount of time per day that a worker would have contact with ponded water in an excavation.
(2) SA includes head, hands, forearms, feet and lower legs.
(3) Professional Judgement exposure to groundwater in excavation for maximum of 2 months (42 days).

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

300937

TABLE 4.6.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Upper and Middle PRM Aquifer - Water Vapors at Showerhead	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME,	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3		CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	1	m^3/hr	EPA, 1997	
				ET	Exposure Time	0.58	hr/day	(1)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	350	days/year	EPA, 1991	as modified by Schaum et al.
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Upper and Middle PRM Aquifer - Water Vapors at Showerhead	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME,	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3		CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	1	m^3/hr	EPA, 1997	
				ET	Exposure Time	1	hr/day	(1)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	350	days/year	EPA, 1991	as modified by Schaum et al.
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Upper and Middle PRM Aquifer - Water Vapors at Showerhead	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME,	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3		CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	1	m^3/hr	EPA, 1997	
				ET	Exposure Time	0.58	hr/day	(1)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	250	days/year	EPA, 1991	as modified by Schaum et al.
				ED	Exposure Duration	25	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	

300938

TABLE 4.6.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation (cont.)	Construction Worker	Adult	Upper PRM Aquifer - Water Vapors at Excavation Pit	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME,	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3	-	CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	2.1	m^3/hr	EPA, 1997 (2)	
				ET	Exposure Time	8	hr/day	(3)	CA calculated based on Excavation Emission Model
				EF	Exposure Frequency	42	days/year	(4)	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) EPA Region 2 and the Andelman model as modified by Schaum et. al.

(2) Short-term exposure for adults, light activities.

(3) Professional Judgement based on construction and excavation activities that would occur 8 hrs per day for the RME and 1/2 of a day for the CT.

(4) Professional Judgement exposure to groundwater in excavation for maximum of 2 months (42 days).

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

300939

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil [5], Row Homes and Industrial Area Surface Soil [5], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1991	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Martin Aaron property Surface Soil, Junkyard Surface Soil [5], Row Homes and Industrial Area Surface Soil [5], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 1991	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Martin Aaron property Surface Soil [4], Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	EPA, 1989	

300940

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion (cont.)	Construction Worker	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	330	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	180	days/year	EPA, 2001a	
				ED	Exposure Duration	1	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	
Dermal	Resident	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil [5], Row Homes and Industrial Area Surface Soil [5], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2001b, (1)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Martin Aaron property Surface Soil, Junkyard Surface Soil [5], Row Homes and Industrial Area Surface Soil [5], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2001b, (2)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	

300941

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Industrial Worker	Adult	Martin Aaron property Surface Soil [4], Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	
	Construction Worker	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	180	days/year	EPA, 2001a	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) SA includes head, hands, forearms, and lower legs.

(2) SA includes head, hands, forearms, lower legs, and feet.

(3) SA includes head, hands, and forearms.

(4) Martin Aaron property surface soil for industrial worker was evaluated under current and future scenario.

(5) Junkyard surface soil and Row Homes and industrial Area surface soil for residents were evaluated under current and future scenario.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA, 2001b: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

300942

TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Emissions from Martin Aaron property Surface Soil, Junyard Surface Soil [5] and Row Homes and Industrial Area Surface Soil [5], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	350	days/year	EPA,1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Emissions from Martin Aaron property Surface Soil, Junyard Surface Soil [5] and Row Homes and Industrial Area Surface Soil [5], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.42	m^3/hour	EPA, 1997	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
Inhalation (cont.)	Industrial Worker	Adult	Emissions from Martin Aaron property Surface Soil [4], Junyard Surface Soil and Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 1991	
				EF	Exposure Frequency	250	days/year	EPA, 2001	
				ED	Exposure Duration	25	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	
	Construction Worker	Adult	Emissions from Martin Aaron property Surface Soil,	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	CDI (mg/kg-day) =

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TABLE 4.8.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
			Junyard Surface Soil and Row Homes and	CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
			Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CA_{PE}	Chemical Concentration in Air due to Particluar Emission	calculated	mg/m^3	calculated	CA (mg/m^3) = CA_{PE} + CA_{VOL}
				CA_{VOL}	Chemical Concentration in Air due to Volatile Emission	calculated	mg/m^3	calculated	CA_{PE} (mg/m^3) = CS (1/PEF)
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	CA_{VOL} calculated based on Excavation Emission Model
				IN	Inhalation Rate	2.1	$m^3/hour$	EPA, 1997, (2)	
				ET	Exposure Time	8	hr/day	(3)	
				EF	Exposure Frequency	180	days/year	EPA, 2001	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

(2) Inhalation rate based on average adult at a moderate activity level.

(3) Professional Judgement based on construction and excavation activities that would occur 8 hrs per day for the RME and 1/2 of a day for the CT.

(4) Martin Aaron property surface soil for industrial worker was evaluated under current and future scenario.
(5) Junkyard surface soil and Row Homes and industrial Area surface soil for residents were evaluated under current and future scenario.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

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TABLE 4.9.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1991	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 1991	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	EPA, 1989	

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TABLE 4.9.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion (cont.)	Industrial Worker	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	EPA, 1989	
	Construction Worker	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	330	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	180	days/year	EPA, 2001a	
				ED	Exposure Duration	1	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	
Dermal	Resident	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2001b, (1)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	

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TABLE 4.9.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Resident	Child	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2001b, (2)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	

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TABLE 4.9.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Construction Worker	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	180	days/year	EPA, 2001a	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:
(1) SA includes head, hands, forearms, and lower legs.
(2) SA includes head, hands, forearms, lower legs, and feet.
(3) SA includes head, hands, and forearms.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.
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EPA, 2001b: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.10.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Emissions from Martin Aaron property Subsurface Soil, Junyard Subsurface Soil and Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.9.RME	mg/kg	See Table 3.9.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	350	days/year	EPA,1991	
				ED	Exposure Duration	24	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Emissions from Martin Aaron property Subsurface Soil, Junyard Subsurface Soil and Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.9.RME	mg/kg	See Table 3.9.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.42	m^3/hour	EPA, 1997	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	350	days/year	EPA, 1991	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Emissions from Martin Aaron property Subsurface Soil, Junyard Subsurface Soil and Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	20	m^3/day	EPA, 2001	
				EF	Exposure Frequency	250	days/year	EPA,1991	CA (mg/m^3) calculated using Vapor
				ED	Exposure Duration	25	years	EPA, 1991	Intrusion model.
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	

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TABLE 4.10.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation (cont.)	Industrial Worker	Adult	Emissions from Martin Aaron property Subsurface Soil, Junyard Subsurface Soil and Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 1991	
				EF	Exposure Frequency	250	days/year	EPA, 1991	
				ED	Exposure Duration	25	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	EPA, 1989	
	Construction Worker	Adult	Emissions from Martin Aaron property Subsurface Soil, Junyard Subsurface Soil and Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.9.RME	mg/kg	See Table 3.9.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				CA_{PE}	Chemical Concentration in Air due to Particluar Emission	calculated	mg/m^3	calculated	CA (mg/m^3) = CA_{PE} + CA_{VOL}
				CA_{VOL}	Chemical Concentration in Air due to Volatile Emission	calculated	mg/m^3	calculated	CA_{PE} (mg/m^3) = CS (1/PEF)
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	CA_{VOL} calculated based on Excavation Emission Model
				IN	Inhalation Rate	2.1	m^3/hour	EPA, 1997, (2)	
				ET	Exposure Time	8	hr/day	(3)	
				EF	Exposure Frequency	180	days/year	EPA, 2001	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

(2) Inhalation rate based on average adult at a moderate activity level.
(3) Professional Judgement based on construction and excavation activities that would occur 8 hrs per day for the RME and 1/2 of a day for the CT

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

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EPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

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TABLE 4.1.CT

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY

Martin Aaron

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Worker	Adult	Martin Aaron property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	
	Trespasser/Visitor	Adolescents	Martin Aaron property Surface Soil and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	85	days/year	(2)	
				ED	Exposure Duration	9	years	(3)	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	51	kg	EPA, 1997, (4)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
Dermal	Industrial Worker	Adult	Martin Aaron property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,000	cm^2	EPA, 2001b, (5)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	

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TABLE 4.1.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (continued)	Trespasser/Visitor	Adolescents	Martin Aaron property Surface Soil and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,700	cm^2	EPA, 1997, (6)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b, (7)	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	85	days/year	(2)	
				ED	Exposure Duration	9	years	(3)	
				BW	Body Weight	51	kg	EPA, 1997,(4)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	

Notes:

(1) Professional judgement.

(2) Professional judgement assuming 1/2 the RME value for the CTE (2 days per week for the 39 spring, summer, and fall weeks and 0.5 days/week for the 13 winter weeks).

(3) Professional judgement assuming adolescents from 9 to 18 years of age.

(4) Body weight is average value for the 9 year old and 18 year old male and female body weight.

(5) SA includes head, hands, and forearms.

(6) SA is 25% of total surface area for 12-15 year old male. 50th percentile for total surface area is 1.49 m^2.

(7) SSAF for children.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA, 2001b: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.2.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Worker	Adult	Emissions from Martin Aaron property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	10	m^3/day	EPA, 2001	
				EF	Exposure Frequency	219	days/year	(2)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	
	Trespasser/Visitor	Adolescents	Emissions from Martin Aaron property Surface Soil and South Jersey Port Surface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	2	hr/day	(3)	
				EF	Exposure Frequency	26	days/year	(4)	
				ED	Exposure Duration	9	years	(5)	
				BW	Body Weight	51	kg	EPA, 1997, (6)	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	

Notes:

(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

(2) Professional judgement.

(3) Professional judgement assuming trespasser would spend a maximum of 2 hours at the site.

(4) Professional judgement assuming 1.2 of the RME value (1 day per week for 26 weeks per year).

(5) Professional judgement assuming adolescents from 9 to 18 years of age.

(6) Body weight is average value for the 9 year old and 18 year old male body weight.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1996: Soil Screening Guidance: User's Guide. OSWER. EPA/540/R-96/018.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

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TABLE 4.3.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	*Junkyard Surface Soil and* Row Homes/Industrial Area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	9	years	EPA, 1997	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
		Child	Junkyard Surface Soil and Row Homes/Industrial Area *Surface Soil*	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
Dermal	Resident	Adult	Junkyard Surface Soil and Row Homes/Industrial Area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2001, (2)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm^2-day	EPA, 2001	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	9	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	

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TABLE 4.3.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Resident	Child	Junkyard Surface Soil and Row Homes/Industrial Area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2001, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm^2-day	EPA, 2001	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	

Notes:

(1) Professional judgement.

(2) SA includes head, hands, forearms, and lower legs.

(3) SA includes head, hands, forearms, lower legs, and feet.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.4.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Emissions from Junkyard Surface Soil and Row Homes/Industrial area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	234	days/year	(2)	
				ED	Exposure Duration	9	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
		Child	Emissions from Junkyard Surface Soil and Row Homes/Industrial area Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.42	m^3/hour	EPA, 1997	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	234	days/year	(2)	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	

Notes:

(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

(2) Professional judgement.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.5.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-W	Ingestion Rate of Water	1.4	liters/day	EPA, 1997	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	9	years	EPA, 1997	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
		Child	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Water	1	liters/day	EPA, 1997	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Water	1	liters/day	EPA, 1991	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	

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TABLE 4.5.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Resident	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	0.10	hr/event	EPA, 2001	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	18,000	cm^2	EPA, 2001	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	24	years	EPA, 2001	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	8,760	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				CF2	Conversion Factor 2	0.001	l/cm^3	- -	
	Resident	Child	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	0.14	days/year	(2)	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	6,600	cm^2	EPA, 2001	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 2001	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	15	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	2190	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				CF2	Conversion Factor 2	0.001	l/cm^3	- -	

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TABLE 4.5.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Industrial Worker	Adult	Upper and Middle PRM Aquifer - Tap Water	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t^*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	0.10	hr/event	(2)	$t_{event}<t^*$: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	18,000	cm^2	EPA, 2001	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	$t_{event}>t^*$: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	--	
				CF2	Conversion Factor 2	0.001	l/cm^3	--	

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TABLE 4.5.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Construction Worker	Adult	Upper PRM Aquifer - Water Vapors at Excavation Pit	CW	Chemical Concentration in Water	See Table 3.4.RME	µg/l	See Table 3.4.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	chemical specific	dimensionless	EPA, 2001	
				Kp	Permeability Coefficient	chemical specific	cm/hr	EPA, 2001	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	chemical specific	hr/event	EPA, 2001	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	chemical specific	hours	EPA, 2001	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	chemical specific	dimensionless	EPA, 2001	Organics :
				t_{event}	Event Time	4	hr/event	EPA, 2001 (3)	$t_{event}<t^*$: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	5,170	cm^2	EPA, 2001 (4)	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π))
				EV	Event Frequency	1	events/day	EPA, 2001	x CF1 x CF2
				EF	Exposure Frequency	42	days/year	(5)	
				ED	Exposure Duration	1	years	EPA, 2001	$t_{event}>t^*$: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 1991	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	
				CF1	Conversion Factor 1	0.001	mg/µg	--	
				CF2	Conversion Factor 2	0.001	l/cm^3	--	

Notes:
(1) Professional judgement.
(2) EPA Region 2 and the Andelman model as modified by Schaum et. al.
(3) Professional judgement assumed amount of time per day that a worker would have contact with ponded water in an excavation (1/2 the RME of 8 hours).
(4) SA includes head, hands, forearms, feet and lower legs.
(5) Professional judgement exposure to groundwater in excavation for maximum of 2 months (42 days).

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.
EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.6.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Jackson Steel

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Upper and Middle PRM Aquifer - Water Vapors at Showerhead	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME,	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3		CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	1	m^3/hr	EPA, 1997 (1)	
				ET	Exposure Time	0.25	hr/day	(2)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	234	days/year	(3)	as modified by Schaum et al.
				ED	Exposure Duration	9	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
		Child	Upper and Middle PRM Aquifer - Water Vapors at Showerhead	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME,	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3		CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	1	m^3/hr	EPA, 1997 (1)	
				ET	Exposure Time	0.33	hr/day	(2)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	234	days/year	(3)	as modified by Schaum et al.
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Upper and Middle PRM Aquifer - Water Vapors at Showerhead	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME,	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3		CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	1	m^3/hr	EPA, 1997 (1)	
				ET	Exposure Time	0.25	hr/day	(2)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	219	days/year	(3)	as modified by Schaum et al.
				ED	Exposure Duration	6.6	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	

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TABLE 4.6.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Jackson Steel

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation (cont.)	Construction Worker	Adult	Upper PRM Aquifer - Water Vapors at Excavation Pit	CW	Chemical Concentration in Water	See Table 3.5.RME	µg/l	See Table 3.5.RME.	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3		CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	2.1	m^3/hr	EPA, 1997 (1)	
				ET	Exposure Time	4	hr/day	(4)	CA calculated based on Excavation Emission Model
				EF	Exposure Frequency	42	days/year	(5)	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) Short-term exposure for adults, light activities.

(2) EPA Region 2 and the Andelman model as modified by Schaum et. al.

(3) Professional judgement.

(4) Professional judgement based on construction and excavation activities that would occur 8 hrs per day for the RME and 1/2 of a day for the CT.

(5) Professional judgement exposure to groundwater in excavation for maximum of 2 months (42 days).

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.7.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil [7], Row Homes and Industrial Area Surface Soil [7], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	9	years	EPA, 1997	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
		Child	Martin Aaron property Surface Soil, Junkyard Surface Soil [7], Row Homes and Industrial Area Surface Soil [7], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Martin Aaron property Surface Soil [6], Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	EPA, 1989	

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TABLE 4.7.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion (cont.)	Construction Worker	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	330	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	42	days/year	(2)	
				ED	Exposure Duration	1	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	
Dermal	Resident	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil [7], Row Homes and Industrial Area Surface Soil [7], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	*Dermal Absorption Factor Solids*	*chem specific*	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	9	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	

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TABLE 4.7.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Resident	Child	Martin Aaron property Surface Soil, Junkyard Surface Soil [7], Row Homes and Industrial Area Surface Soil [7], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2001b, (4)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Martin Aaron property Surface Soil [6], Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,000	cm^2	EPA, 2001b, (5)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	

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TABLE 4.7.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Construction Worker	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.6.RME	mg/kg	See Table 3.6.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	42	days/year	(2)	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) Professional judgement.

(2) Professional judgement exposure to soil in excavation for maximum of 2 months (42 days).

(3) SA includes head, hands, forearms, and lower legs.

(4) SA includes head, hands, forearms, lower legs, and feet.

(5) SA includes head, hands, and forearms.

(6) Martin Aaron property surface soil for industrial worker was evaluated under current and future scenario.

(7) Junkyard surface soil and Row Homes and industrial Area surface soil for residents were evaluated under current and future scenario.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA, 2001b: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.8.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Emissions from Martin Aaron property Surface Soil, Junyard Surface Soil [7] and Row Homes and Industrial Area Surface Soil [7], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	234	days/year	(2)	
				ED	Exposure Duration	9	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
		Child	Emissions from Martin Aaron property Surface Soil, Junyard Surface Soil [7] and Row Homes and Industrial Area Surface Soil [7], and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.42	m^3/hour	EPA, 1997	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	234	days/year	(2)	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
Inhalation (cont.)	Industrial Worker	Adult	Emissions from Martin Aaron property Surface Soil [6], Junyard Surface Soil and Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 1991	
				EF	Exposure Frequency	219	days/year	(2)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	
	Construction Worker	Adult	Emissions from Martin Aaron property Surface Soil,	CS	Chemical Concentration in Soil	See Table 3.7.RME	mg/kg	See Table 3.7.RME	CDI (mg/kg-day) =

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TABLE 4.8.CT.
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Surface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
			Junyard Surface Soil and Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				CA_{PE}	Chemical Concentration in Air due to Particluar Emission	calculated	mg/m^3	calculated	CA (mg/m^3) = CA_{PE} + CA_{VOL}
				CA_{VOL}	Chemical Concentration in Air due to Volatile Emission	calculated	mg/m^3	calculated	CA_{PE} (mg/m^3) = CS (1/PEF)
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	CA_{VOL} calculated based on Excavation Emission Model
				IN	Inhalation Rate	2.1	$m^3/hour$	EPA, 1997, (3)	
				ET	Exposure Time	4	hr/day	(4)	
				EF	Exposure Frequency	42	days/year	(5)	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

(2) Professional judgement.

(3) Inhalation rate based on average adult at a moderate activity level.

(4) Professional judgement based on construction and excavation activities that would occur 8 hrs per day for the RME and 1/2 of a day for the CT.

(5) Professional judgement exposure to soil in excavation for maximum of 2 months (42 days).

(6) Martin Aaron property surface soil for industrial worker was evaluated under current and future scenario.

(7) Junkyard surface soil and Row Homes and industrial Area surface soil for residents were evaluated under current and future scenario.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

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TABLE 4.9.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	9	years	EPA, 1997	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
		Child	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	50	mg/day	EPA, 1997	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	EPA, 1989	
Ingestion (cont.)	Construction Worker	Adult	Martin Aaron property Subsurface Soil,	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =

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TABLE 4.9.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
			Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	IR-S	Ingestion Rate of Soil	330	mg/day	EPA, 2001a	CS x IR-S x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	42	days/year	(2)	
				ED	Exposure Duration	1	years	EPA, 1991	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	
Dermal	Resident	Adult	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	9	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	

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TABLE 4.9.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Resident	Child	Martin Aaron property Subsurface Soil, Junkyard Subsurface Soil, Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2001b, (3)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	234	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.2.RME	mg/kg	See Table 3.2.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,000	cm^2	EPA, 2001b, (4)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	219	days/year	(1)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	

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TABLE 4.9.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal (cont.)	Construction Worker	Adult	Martin Aaron property Surface Soil, Junkyard Surface Soil, Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.8.RME	mg/kg	See Table 3.8.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2001b, (5)	CS x SA x SSAF x DABS x CF1 x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2001b	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem specific	--	EPA, 2001b	
				CF1	Conversion Factor 1	0.000001	kg/mg	--	
				EF	Exposure Frequency	42	days/year	(2)	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) Professional judgement.

(2) Professional judgement exposure to soil in excavation for maximum of 2 months (42 days).

(3) SA includes head, hands, forearms, and lower legs.

(4) SA includes head, hands, forearms, lower legs, and feet.

(5) SA includes head, hands, and forearms.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

EPA, 2001b: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

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TABLE 4.10.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Emissions from Martin Aaron property Subsurface Soil, Junyard Subsurface Soil and Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.9.RME	mg/kg	See Table 3.9.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.83	m^3/hour	EPA, 1991	
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	234	days/year	(2)	
				ED	Exposure Duration	9	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3,285	days	EPA, 1989	
		Child	Emissions from Martin Aaron property Subsurface Soil, Junyard Subsurface Soil and Row Homes and Industrial Area Subsurface Soil, and South Jersey Port property Subsurface Soil	CS	Chemical Concentration in Soil	See Table 3.9.RME	mg/kg	See Table 3.9.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	0.42	m^3/hour		
				ET	Exposure Time	24	hr/day	EPA, 1991	
				EF	Exposure Frequency	234	days/year	(2)	
				ED	Exposure Duration	6	years	EPA, 1991	
				BW	Body Weight	15	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	EPA, 1989	
	Industrial Worker	Adult	Emissions from Martin Aaron property Surface Soil, Junyard Surface Soil and Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.3.RME	mg/kg	See Table 3.3.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	
				VF	Volatilization Factor for volatile constituents	calc	m^3/kg	EPA, 1996	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 1991	
				EF	Exposure Frequency	219	days/year	(2)	
				ED	Exposure Duration	6.6	years	EPA, 1997	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,409	days	EPA, 1989	

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TABLE 4.10.CT
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY
Martin Aaron

Scenario Timeframe: Future
Medium: Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation (cont.)	Construction Worker	Adult	Emissions from Martin Aaron property Surface Soil, Junyard Surface Soil and Row Homes and Industrial Area Surface Soil, and South Jersey Port property Surface Soil	CS	Chemical Concentration in Soil	See Table 3.9.RME	mg/kg	See Table 3.9.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	calculated	mg/m^3	calculated	CA x IN x ET x EF x ED x 1/BW x 1/AT
				CA_{PE}	Chemical Concentration in Air due to Particluar Emission	calculated	mg/m^3	calculated	CA (mg/m^3) = CA_{PE} + CA_{VOL}
				CA_{VOL}	Chemical Concentration in Air due to Volatile Emission	calculated	mg/m^3	calculated	CA_{PE} (mg/m^3) = CS (1/PEF)
				PEF	Particulate Emission Factor	1.02E+09	m^3/kg	EPA, 1996 (1)	CA_{VOL} calculated based on Excavation Emission Model
				IN	Inhalation Rate	2.1	$m^3/hour$	EPA, 1997, (3)	
				ET	Exposure Time	4	hr/day	(4)	
				EF	Exposure Frequency	42	days/year	(2)	
				ED	Exposure Duration	1	years	EPA, 1991	
				BW	Body Weight	70	kg	EPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	EPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	EPA, 1989	

Notes:

(1) Site specific PEF value using a Q/C factor for a 2 acre site in Philadelphia.

(2) Professional judgement.

(3) Inhalation rate based on average adult at a moderate activity level.

(4) Professional judgement based on construction and excavation activities that would occur 8 hrs per day for the RME and 1/2 of a day for the CT.

Sources:

EPA, 1989: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual, Part A. OERR. EPA/540/1-89/002.

EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2001: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

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Table 4.11
Calculated Body Weight for Adolescent Trespasser/Visitor
Martin Aaron, Camden New Jersey

Weight in Kilograms for Males and Females 6 Months-19 Years of Age--Number Examined, Mean, Standard Deviation, and Selected Percentiles, by Sex and Age: United States, 1976-1980a

	Male Mean (kg)	Female Mean (kg)	Average
9 years	31.1	31.9	31.5
10 years	36.4	36.1	36.3
11 years	40.3	41.8	41.1
12 years	44.2	46.4	45.3
13 years	49.9	50.9	50.4
14 years	57.1	54.8	56.0
15 years	61	55.1	58.1
16 years	67.1	58.1	62.6
17 years	66.7	59.6	63.2
18 years	71.1	59	65.1
Average Weight for Males and Females age 9-18 year old =			51

Note: 1 kg = 2.2046 pounds.
Includes clothing weight, estimated as ranging from 0.09 to 0.28 kilogram. a
Source: National Center for Health Statistics, 1987.

Table 4.12
Particulate Emission Factor
Martin Aaron, NJ

$$PEF\left(m^3/kg\right)=Q/C\times\frac{3{,}600s/h}{0.036\times(1-V)\times(U_m/U_t)^3\times F(x)}$$

Default Paremeters				
V	Default	0.5	(unitless)	Fraction of vegetative cover
Um	Default	4.69	m/s	Mean annual wind spead
Ut	Default	11.32	m/s	Equivalent threshold value of windspeed at 7 meters
F(x)	Default	0.194	(unitless)	Function dependent on Um/Ut

Facility				
PEF	Site specific	1.02E+09	m^3/kg	Particular Emission Factor
Q/C	Site specific	70.14	g/m^2-s per kg/m^3	Inverse of mean concentration at center of 2-acre-square source (Zone VIII, Philadelphia)

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

Martin Aaron

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units	(1)	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Acetophenone	Chronic	1.0E-01	mg/kg-day	1	1.0E-01	mg/kg-day	General	3000/1	IRIS	03/29/2004
Acetophenone	Subchronic	1.0E+00	mg/kg-day	1	1.0E+00	mg/kg-day	N/A	300	HEAST	07/01/1997
Aldrin	Chronic	3.0E-05	mg/kg-day	1	3.0E-05	mg/kg-day	Liver	1000/1	IRIS	03/29/2004
Aldrin	Subchronic	3.0E-05	mg/kg-day	1	3.0E-05	mg/kg-day	Liver	1000	HEAST	07/01/1997
Aluminum	Chronic	1.0E+00	mg/kg-day	1	1.0E+00	mg/kg-day	CNS	100/3	NCEA	07/26/2001
Aluminum	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Antimony	Chronic	4.0E-04	mg/kg-day	0.15	6.0E-05	mg/kg-day	Circulatory	1000/1	IRIS	01/31/2003
Antimony	Subchronic	2.0E-04	mg/kg-day	0.15	3.0E-05	mg/kg-day	Body Weight	300/1	NCEA	07/26/1999
Arsenic	Chronic	3.0E-04	mg/kg-day	0.95	3.0E-04	mg/kg-day	Skin, Circulatory	3/1	IRIS	01/31/2003
Arsenic	Subchronic	5.0E-03	mg/kg-day	0.95	5.0E-03	mg/kg-day	Skin, Circulatory	10	NCEA	08/01/2002
Barium	Chronic	7.0E-02	mg/kg-day	0.07	4.9E-03	mg/kg-day	Kidney, Circulatory	3/1	IRIS	03/29/2004
Barium	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	Chronic	4.0E-03	mg/kg-day	1	4.0E-03	mg/kg-day	Circulatory	300/1	IRIS	03/29/2004
Benzene	Subchronic	3.0E-03	mg/kg-day	1	3.0E-03	mg/kg-day	Circulatory, Immune	3000	NCEA	07/02/1996
Benzo(a)anthracene	Chronic	3.0E-02	mg/kg-day	0.89	3.0E-02	mg/kg-day	Kidney	3000/1	IRIS	03/29/2004
Benzo(a)anthracene	Subchronic	3.0E-01	mg/kg-day	0.89	3.0E-01	mg/kg-day	Kidney	300	HEAST	07/01/1997
Benzo(a)pyrene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Benzo(b)fluoranthene	Chronic	3.0E-02	mg/kg-day	0.89	3.0E-02	mg/kg-day	Kidney	3000/1	IRIS	03/29/2004
Benzo(b)fluoranthene	Subchronic	3.0E-01	mg/kg-day	0.89	3.0E-01	mg/kg-day	Kidney	300	HEAST	07/01/1997
Benzo(k)fluoranthene	Chronic	3.0E-02	mg/kg-day	0.89	3.0E-02	mg/kg-day	Kidney	3000/1	IRIS	03/29/2004
Benzo(k)fluoranthene	Subchronic	3.0E-01	mg/kg-day	0.89	3.0E-01	mg/kg-day	Kidney	300	HEAST	07/01/1997
Beryllium	Chronic	2.0E-03	mg/kg-day	0.007	1.4E-05	mg/kg-day	Gastrointestinal	300/1	IRIS	03/29/2004
Beryllium	Subchronic	5.0E-03	mg/kg-day	0.007	3.5E-05	mg/kg-day	N/A	100	HEAST	07/01/1997
Bromomethane	Chronic	1.4E-03	mg/kg-day	1	1.4E-03	mg/kg-day	Gastrointestinal	1000/1	IRIS	03/29/2004
Bromomethane	Subchronic	5.0E-03	mg/kg-day	1	5.0E-03	mg/kg-day	Gastrointestinal	300	NCEA	08/13/1998
Cadmium (water)	Chronic	5.0E-04	mg/kg-day	0.05	2.5E-05	mg/kg-day	Kidney	10/1	IRIS	03/29/2004
Cadmium (food)	Chronic	1.0E-03	mg/kg-day	0.025	2.5E-05	mg/kg-day	Kidney	10/1	IRIS	03/29/2004
Carbazole	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NCEA	11/01/2001
Chlordane - alpha	Chronic	5.0E-04	mg/kg-day	0.8	5.0E-04	mg/kg-day	Liver	300/1	IRIS	03/29/2004
Chlordane - alpha	Subchronic	6.0E-05	mg/kg-day	0.8	6.0E-05	mg/kg-day	Liver	1000	HEAST	07/01/1997
Chlordane - gamma (technical mixture)	Chronic	5.0E-04	mg/kg-day	0.8	5.0E-04	mg/kg-day	Liver	300/1	IRIS	03/29/2004
Chlordane - gamma (technical mixture)	Subchronic	6.0E-05	mg/kg-day	0.8	6.0E-05	mg/kg-day	Liver	1000	HEAST	07/01/1997
Chloroethane	Chronic	4.0E-01	mg/kg-day	1	4.0E-01	mg/kg-day	Fetotoxicity	3000	NCEA	08/30/1996
Chloroform	Cchronic	1.0E-02	mg/kg-day	1	1.0E-02	mg/kg-day	Liver	100/1	IRIS	03/29/2004
Chloroform	Subchronic	1.0E-02	mg/kg-day	1	1.0E-02	mg/kg-day	Liver	100/1	HEAST	07/01/1997
Chromium	Chronic	3.0E-03	mg/kg-day	0.025	7.5E-05	mg/kg-day	None	300/3	IRIS	03/29/2004
Chromium	Subchronic	2.0E-02	mg/kg-day	0.025	5.0E-04	mg/kg-day	None	100	HEAST	07/01/1997
Chrysene	Chronic	3.0E-02	mg/kg-day	0.89	3.0E-02	mg/kg-day	Kidney	3000/1	IRIS	03/29/2004
Chrysene	Subchronic	3.0E-01	mg/kg-day	0.89	3.0E-01	mg/kg-day	Kidney	300	HEAST	07/01/1997
Cobalt	Chronic	2.0E-02	mg/kg-day	1	2.0E-02	mg/kg-day	Sensitizer	N/A	NCEA	01/15/2002
Cobalt	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper	Chronic	4.0E-02	mg/kg-day	1	4.0E-02	mg/kg-day	Kidney, Gastrointestinal	1000	NCEA	04/29/1997

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TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
Martin Aaron

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units	(1)	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Copper	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cresol-o	Chronic	5.0E-02	mg/kg-day	1	5.0E-02	mg/kg-day	Body Weight, CNS	1000/1	IRIS	03/29/2004
Cresol-o	Subchronic	5.0E-01	mg/kg-day	1	5.0E-01	mg/kg-day	Body Weight, CNS	100	HEAST	07/01/1997
Cresol-p	Chronic/Subchronic	5.0E-03	mg/kg-day	1	5.0E-03	mg/kg-day	CNS, Respiratory, Body Weight	1000	HEAST	07/01/1997
DDE-4,4'	Chronic	3.0E-04	mg/kg-day	1	3.0E-04	mg/kg-day	Reproductive, Fetotoxicity	3000/1	NCEA	05/01/2001
DDE-4,4'	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DDT-4,4'	Chronic	5.0E-04	mg/kg-day	70-90%	5.0E-04	mg/kg-day	Liver	100/1	IRIS	03/29/2004
DDT-4,4'	Subchronic	5.0E-04	mg/kg-day	0.9	5.0E-04	mg/kg-day	Liver	100	HEAST	07/01/1997
Dibenzo(a,h)anthracene	Chronic	3.0E-02	mg/kg-day	0.89	3.0E-02	mg/kg-day	Kidney	3000/1	IRIS	01/31/2003
Dibenzo(a,h)anthracene	Subchronic	3.0E-01	mg/kg-day	0.89	3.0E-01	mg/kg-day	Kidney	300	HEAST	07/01/1997
Dibenzofuran	Chronic	2.0E-03	mg/kg-day	1	2.0E-03	mg/kg-day	Kidney	10000/1	NCEA	09/01/2002
Dibenzofuran	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichlorobenzene-1,3	Chronic	9.0E-04	mg/kg-day	1	9.0E-04	mg/kg-day	Circulatory, Thyroid	10000	NCEA	07/14/1998
Dichlorobenzene-1,3	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichlorobenzene-1,4	Chronic	3.0E-02	mg/kg-day	1	3.0E-02	mg/kg-day	Liver, Developmental	1000/1	NCEA	04/29/1997
Dichlorobenzene-1,4	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichloroethane-1,1	Chronic	1.0E-01	mg/kg-day	1	1.0E-01	mg/kg-day	None	1000	HEAST	07/01/1997
Dichloroethane-1,1	Subchronic	1.0E+00	mg/kg-day	1	1.0E+00	mg/kg-day	None	100	HEAST	07/01/1997
Dichloroethane-1,2	Chronic	2.0E-02	mg/kg-day	1	2.0E-02	mg/kg-day	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3000/1	NCEA	10/01/2002
Dichloroethane-1,2	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichloroethylene-1,2 cis	Chronic	1.0E-02	mg/kg-day	1	1.0E-02	mg/kg-day	Circulatory	300	NCEA	09/24/2002
Dichloroethylene-1,2 cis	Subchronic	1.0E-01	mg/kg-day	1	1.0E-01	mg/kg-day	Circulatory	300	NCEA	09/24/2002
Dichloroethene-1,2 trans	Chronic	2.0E-02	mg/kg-day	1	2.0E-02	mg/kg-day	Circulatory	1000/1	IRIS	03/29/2004
Dichloroethene-1,2 trans	Subchronic	2.0E-01	mg/kg-day	1	2.0E-02	mg/kg-day	Circulatory	100	HEAST	07/01/1997
Dichloropropane-1,2	Chronic	2.0E-02	mg/kg-day	1	2.0E-02	mg/kg-day	Kidney	1000/1	IRIS	03/29/2004
Dichloropropane-1,2	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	HEAST	07/01/1997
Dieldrin	Chronic	5.0E-05	mg/kg-day	1	5.0E-05	mg/kg-day	Liver	100/1	IRIS	03/29/2004
Dieldrin	Subchronic	5.0E-05	mg/kg-day	1	5.0E-05	mg/kg-day	Liver	100	HEAST	07/01/1997
Ether, bis(2-chloroethyl)	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRS	03/29/2004
Ethylbenzene	Chronic	1.0E-01	mg/kg-day	1	1.0E-01	mg/kg-day	Kidney, Liver	1000/1	IRIS	03/29/2004
Ethylbenzene	Subchronic	1.0E-01	mg/kg-day	1	1.0E-01	mg/kg-day	Kidney, Liver	1000	NCEA	10/12/1999
Fluoranthene	Chronic	4.0E-02	mg/kg-day	0.89	3.6E-02	mg/kg-day	Kidney, Liver, Circulatory	3000/1	IRIS	03/29/2004
Fluoranthene	Subchronic	4.0E-01	mg/kg-day	0.89	3.6E-01	mg/kg-day	Kidney, Liver, Circulatory	300	HEAST	07/01/1997
Heptachlor	Chronic	5.0E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Liver	300/1	IRIS	03/29/2004
Heptachlor	Subchronic	5.0E-04	mg/kg-day	1	5.0E-04	mg/kg-day	Liver	300	HEAST	07/01/1997
Heptachlor Epoxide	Chronic	1.3E-05	mg/kg-day	1	1.3E-05	mg/kg-day	Liver	1000/1	IRIS	03/29/2004
Heptachlor Epoxide	Subchronic	1.3E-05	mg/kg-day	1	1.3E-05	mg/kg-day	Liver	1000	HEAST	07/01/1997
Indeno(1,2,3-cd)pyrene	Chronic	5.0E-02	mg/kg-day	0.89	5.0E-02	mg/kg-day	Body Weight	1000/1	IRIS	03/29/2004
Indeno(1,2,3-cd)pyrene	Subchronic	6.0E-01	mg/kg-day	0.89	6.0E-01	mg/kg-day	Body Weight	100	HEAST	07/01/1997
Iron	Chronic	3.0E-01	mg/kg-day	1	3.0E-01	mg/kg-day	Circulatory, Gastrointestinal, Liver	1	NCEA	11/14/2001
Iron	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

Martin Aaron

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units	(1)	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Lead	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Manganese (non-food)	Chronic	2.0E-02	mg/kg-day	0.04	8.0E-04	mg/kg-day	CNS	1	IRIS	03/29/2004
Manganese (food)	Chronic	1.4E-01	mg/kg-day	0.04	5.6E-03	mg/kg-day	CNS	1	IRIS	03/29/2004
Manganese (food)	Subchronic	1.4E-01	mg/kg-day	0.04	5.6E-03	mg/kg-day	CNS	1	HEAST	07/01/1997
Mercury	Chronic	3.0E-04	mg/kg-day	0.07	2.1E-05	mg/kg-day	Immune	1000/1	IRIS	03/29/2004
Mercury	Subchronic	NA	NA	NA	NA	NA	NA	NA	HEAST	07/01/1997
Methyl isobutyl ketone (4-methyl-2-pentanone)	Chronic	8.0E-02	mg/kg-day	1	8.0E-02	mg/kg-day	Kidney, Liver	3000	HEAST	07/01/1997
Methyl isobutyl ketone (4-methyl-2-pentanone)	Subchronic	8.0E-01	mg/kg-day	1	8.0E-01	mg/kg-day	Kidney, Liver	300	HEAST	07/01/1997
Methyl tertiary butyl ether (MTBE)	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Naphthalene	Chronic	2.0E-02	mg/kg-day	0.89	2.0E-02	mg/kg-day	Body Weight	3000/1	IRIS	03/29/2004
Nickel	Chronic	2.0E-02	mg/kg-day	0.04	8.0E-04	mg/kg-day	Body Weight	300/1	IRIS	03/29/2004
Nickel	Subchronic	2.0E-02	mg/kg-day	0.04	8.0E-04	mg/kg-day	Body Weight	300	HEAST	07/01/1997
Nitrosodiphenylamine-n	Chronic	2.0E-02	mg/kg-day	1	2.0E-02	mg/kg-day	Body Weight, Developmental, Reproductive	3000/1	NCEA	03/16/2001
Nitrosodiphenylamine-n	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pcb-Aroclor 1248	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Pcb-Aroclor 1254	Chronic	2.0E-05	mg/kg-day	1	2.0E-05	mg/kg-day	Immune	300/1	IRIS	01/20/2004
Pcb-Aroclor 1254	Subchronic	5.0E-05	mg/kg-day	1	5.0E-05	mg/kg-day	Immune	100	HEAST	07/01/1997
Pcb-araclor 1260	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Phenanthrene	Chronic	3.0E-02	mg/kg-day	0.89	3.0E-02	mg/kg-day	Kidney	3000/1	IRIS	03/29/2004
Phenanthrene	Subchronic	3.0E-01	mg/kg-day	0.89	3.0E-01	mg/kg-day	Kidney	300	HEAST	07/01/1997
Phenol	Chronic	3.0E-01	mg/kg-day	1	3.0E-01	mg/kg-day	Body Weight	300/1	IRIS	03/29/2004
Phenol	Subchronic	6.0E-01	mg/kg-day	1	6.0E-01	mg/kg-day	Body Weight	100	HEAST	07/01/1997
Phthalate, bis(2-ethylhexyl) (DEHP)	Chronic	2.0E-02	mg/kg-day	1	3.8E-03	mg/kg-day	Liver	1000/1	IRIS	03/29/2004
Pyrene	Chronic	3.0E-02	mg/kg-day	0.89	3.0E-02	mg/kg-day	Kidney	3000/1	IRIS	03/29/2004
Pyrene	Subchronic	3.0E-01	mg/kg-day	0.89	3.0E-01	mg/kg-day	Kidney	300	HEAST	07/01/1997
Selenium	Chronic	5.0E-03	mg/kg-day	0.8	5.0E-03	mg/kg-day	Skin	3/1	IRIS	03/29/2004
Selenium	Subchronic	5.0E-03	mg/kg-day	0.8	5.0E-03	mg/kg-day	Skin	3	HEAST	07/01/1997
Silver	Chronic	5.0E-03	mg/kg-day	0.04	2.0E-04	mg/kg-day	Skin	3/1	IRIS	03/29/2004
Silver	Subchronic	5.0E-03	mg/kg-day	0.04	2.0E-04	mg/kg-day	Skin	3	HEAST	07/01/1997
Tetrachloroethylene	Chronic	1.0E-02	mg/kg-day	1	1.0E-02	mg/kg-day	Liver	1000/1	IRIS	03/29/2004
Tetrachloroethylene	Subchronic	1.0E-01	mg/kg-day	1	1.0E-01	mg/kg-day	Liver	100	HEAST	07/01/1997
Thallium	Chronic	9.0E-05	mg/kg-day	1	9.0E-05	mg/kg-day	Circulatory	3000/1	IRIS	03/29/2004
Thallium	Subchronic	9.0E-04	mg/kg-day	1	9.0E-04	mg/kg-day	Liver, Circulatory	300	HEAST	07/01/1997
Toluene	Chronic	2.0E-01	mg/kg-day	1	2.0E-01	mg/kg-day	Liver, Kidney	1000/1	IRIS	03/29/2004
Toluene	Subchronic	2.0E+00	mg/kg-day	1	2.0E+00	mg/kg-day	Liver, Kidney	100	HEAST	07/01/1997
Trichloroethane-1,1,2	Chronic	4.0E-03	mg/kg-day	1	4.0E-03	mg/kg-day	Circulatory	1000/1	IRIS	03/29/2004
Trichloroethane-1,1,2	Subchronic	4.0E-02	mg/kg-day	1	4.0E-02	mg/kg-day	Circulatory	100	HEAST	07/01/1997
Trichloroethylene	Chronic	3.0E-04	mg/kg-day	1	3.0E-04	mg/kg-day	Liver, Kidney, Fetotoxicity	3000	NCEA	01/01/2002
Trichloroethylene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	Chronic	1.0E-03	mg/kg-day	0.026	2.6E-05	mg/kg-day	Kidney	100	NCEA	05/01/2000
Vanadium	Subchronic	7.0E-03	mg/kg-day	0.026	1.8E-04	mg/kg-day	Lifetime	100	HEAST	07/01/1997
Vinyl chloride	Chronic	3.0E-03	mg/kg-day	1	3.0E-03	mg/kg-day	Liver	30/1	IRIS	03/29/2004

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TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

Martin Aaron

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units	(1)	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Vinyl chloride	Subchronic	N/A	N/A	1	N/A	N/A	N/A	N/A	HEAST	07/01/1997
Xylenes, total	Chronic	2.0E-01	mg/kg-day	1	2.0E-01	mg/kg-day	Body Weight	1000/1	IRIS	03/29/2004
Xylenes, total	Subchronic	N/A	N/A	1	N/A	N/A	N/A	N/A	HEAST	07/01/1997
Zinc	Chronic	3.0E-01	mg/kg-day	1	3.0E-01	mg/kg-day	Circulatory	3/1	IRIS	03/29/2004
Zinc	Subchronic	3.0E-01	mg/kg-day	1	3.0E-01	mg/kg-day	Circulatory	3	HEAST	07/01/1997

Footnote Instructions:

(1) Source: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evalution Manual (Part E, Supplemetnal Guidance for Dermal Risk Assessment(Interim). Section 4.2 and Exhibit 4-1.

(2) See Risk Assessment text for the derivation of the "Absorbed RfD for Dermal"

Definitions: HEAST = Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System

NA = Not Available

NCEA = National Center for Environmental Assessment

Benzaldehyde used as surrogate for Acetophenone

Bisphenol A used as surrogate for Indeno(1,2,3-cd pyrene)

Bromodichloromethane used as surrogate for 1,2-Dichloropropane.

Cadmium (water) oral absorption value from IRIS record.

Chromium (VI) used as surrogate for Chromium.

Mercuric Chloride used as surrogate for Mercury.

Chlordane used as surrogate for Chlordane - alpha and gamma.

Pyrene used as surrogate for Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Dibenz(a,h)anthracene, and Phenanthrene.

Thallium acetate used as surrogate for thallium.

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TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

Martin Aaron

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Acetophenone	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Aldrin	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Aluminum	Chronic	5.0E-03	mg/m^3	1.4E-03	mg/kg-day	CNS	300	NCEA	07/26/2001
Aluminum	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Antimony	Chronic	N/A	N/A	N/A	N/A	N/A	N/A	IRS	03/29/2004
Antimony	Subchronic	4.0E-04	mg/m^3	1.1E-04	mg/kg-day	Respiratory	100	NCEA	07/16/1999
Arsenic	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Barium	Chronic	5.0E-04	mg/m^3	1.4E-04	mg/kg-day	Fetotoxicity	1000	HEAST	07/01/1997
Barium	Subchronic	5.0E-03	mg/m^3	1.4E-03	mg/kg-day	Fetotoxicity	100	HEAST	07/01/1997
Benzene	Chronic	3.0E-02	mg/m^3	8.6E-03	mg/kg/day	Circulatory	300/1	IRIS	03/29/2004
Benzene	Subchronic	6.0E-02	mg/m^3	1.7E-02	mg/kg/day	Circulatory	100	NCEA	07/02/1996
Benzo(a)anthracene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Benzo(a)pyrene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Beryllium	Chronic	2.0E-05	mg/m^3	5.7E-06	mg/kg-day	Gastrointestinal	10/1	IRIS	03/29/2004
Bromomethane	Chronic	5.0E-03	mg/m3	1.4E-03	mg/kg-day	Respiratory	100/1	IRIS	03/29/2004
Bromomethane	Subchronic	1.3E-01	mg/m3	3.7E-02	mg/kg-day	Respiratory	30	NCEA	08/13/1998
Cadmium	Chronic	2.0E-04	mg/m^3	5.7E-05	mg/kg-day	Kidney	10	NCEA	06/14/1998
Cadmium	Subchronic	9.0E-04	mg/m^3	2.6E-04	mg/kg-day	Kidney	10	NCEA	06/14/1998
Carbazole	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	NCEA	11/01/2001
Chlordane - alpha	Chronic	7.0E-04	mg/m^3	2.0E-04	mg/kg-day	Liver	1000/1	IRIS	03/29/2004
Chlordane - gamma (technical mixture)	Chronic	7.0E-04	mg/m^3	2.0E-04	mg/kg-day	Liver	1000/1	IRIS	03/29/2004
Chloroethane	Chronic	1.0E+01	mg/m^3	2.9E+00	mg/kg-day	Developmental	300/1	IRIS	03/29/2004
Chloroethane	Subchronic	1.0E+01	mg/m^3	2.9E+00	mg/kg-day	Developmental	300/1	HEAST	07/01/1997
Chloroform	Chronic	5.0E-02	mg/m^3	1.4E-02	mg/kg-day	Liver, Kidney, CNS	100/1	NCEA	01/22/2003
Chloroform	Subchronic	5.0E-02	mg/m^3	1.4E-02	mg/kg-day	Liver, Kidney, CNS	100/1	NCEA	01/22/2003
Chromium	Chronic	8.0E-06	mg/m^3	2.3E-06	mg/kg-day	Respiratory	90/1	IRIS	03/29/2004
Chrysene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Cobalt	Chronic	2.0E-05	mg/m^3	5.7E-06	mg/kg-day	Sensitizer	100	NCEA	01/15/2002
Copper	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Cresol-o	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Cresol-p	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
DDE-4,4'	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004

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TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

Martin Aaron

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
DDT-4,4'	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Dibenzo(a,h)anthracene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Dibenzofuran	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Dichlorobenzene-1,3	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	NCEA	07/14/1998
Dichlorobenzene-1,4	Chronic	8.0E-01	mg/m^3	2.3E-01	mg/kg-day	Liver	100/1	IRIS	03/29/2004
Dichloroethane-1,1	Chronic	5.0E-01	mg/m^3	1.4E-01	mg/kg-day	Kidney	1000	HEAST	07/01/1997
Dichloroethane-1,1	Subchronic	5.0E+00	mg/m^3	1.4E+00	mg/kg-day	Kidney	100	HEAST	07/01/1997
Dichloroethane-1,2	Chronic	5.0E-03	mg/m^3	1.4E-03	mg/kg-day	Gastrointestinal, Liver, Kidney	3000	NCEA	04/05/1993
Dichloroethene-1,2 trans	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Dichloroethylene-1,2 cis	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Dichloropropane-1,2	Chronic	4.0E-03	mg/m^3	1.1E-03	mg/kg-day	Respiratory	300/1	IRIS	03/29/2004
Dichloropropane-1,2	Subchronic	1.3E-02	mg/m^3	3.7E-03	mg/kg-day	Respiratory	100	HEAST	07/01/1997
Dieldrin	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Ether, bis(2-chloroethyl)	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Ethylbenzene	Chronic	1.0E+00	mg/m^3	2.9E-01	mg/kg-day	Developmental	300/1	IRIS	03/29/2004
Ethylbenzene	Subchronic	1.0E+00	mg/m^3	2.9E-01	mg/kg-day	Developmental	300	NCEA	10/12/1999
Fluoranthene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Heptachlor	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Heptachlor Epoxide	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Indeno(1,2,3-cd)pyrene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Iron	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	NCEA	11/14/2001
Lead	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Manganese	Chronic	5.0E-05	mg/m^3	1.4E-05	mg/kg-day	CNS	1000/1	IRIS	03/29/2004
Mercury	Chronic	3.0E-04	mg/m^3	8.6E-05	mg/kg-day	CNS	30/1	IRIS	03/29/2004
Mercury	Subchronic	3.0E-04	mg/m3	8.6E-05	mg/kg-day	CNS	30	HEAST	07/01/1997
Methyl isobutyl ketone (4-methyl-2-pentanone)	Chronic	3.0E+00	mg/m^3	8.6E-01	mg/kg-day	Fetotoxicity	300/1	IRIS	03/29/2004
Methyl tertiary butyl ether (MTBE)	Chronic	3.0E+00	mg/m^3	8.6E-01	mg/kg-day	Liver, Kidney	100/1	IRIS	03/29/2004
Naphthalene	Chronic	3.0E-03	mg/m^3	8.6E-04	mg/kg-day	CNS; Respiratory	3000/1	IRIS	03/29/2004
Nickel	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Nitrosodiphenylamine-n	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Pcb-Aroclor 1248	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Pcb-Aroclor 1254	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Pcb-araclor 1260	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004

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TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

Martin Aaron

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Phenanthrene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Phenol	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Phthalate, bis(2-ethylhexyl) (DEHP)	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Pyrene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Selenium	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Silver	Chronic	1.0E-05	mg/m^3	2.9E-06	mg/kg-day	Skin	1000	NCEA	06/30/1994
Tetrachloroethylene	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Thallium	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Toluene	Chronic	4.0E-01	mg/m^3	1.1E-01	mg/kg-day	CNS	300/1	IRIS	03/29/2004
Trichloroethane-1,1,2	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Trichloroethylene	Chronic	3.5E-02	mg/m^3	1.0E-02	mg/kg-day	CNS, Liver, Endocrine	1000	NCEA	01/01/2002
Trichloroethylene	Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl chloride	Chronic	1.0E-01	mg/m^3	2.9E-02	mg/kg/day	Liver	30/1	IRIS	03/29/2004
Xylenes, total	Chronic	1.0E-01	mg/m^3	2.9E-02	mg/kg-day	CNS	300/1	IRIS	03/29/2004
Zinc	Chronic/Subchronic	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004

(1) See Risk Assessment text for the derivation of the "Extrapolated RfD".

Chromium (VI) used as surrogate for Chromium.

Methyl mercury used as surrogate for Mercury.

Chlordane used as surrogate for Chlordane - alpha and gamma.

Definitions: HEAST = Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System

NA = Not Available

NCEA = National Center for Environmental Assessment

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TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

Martin Aaron

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Acetophenone	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Aldrin	1.7E+01	(mg/kg-day)-1	1	1.7E+01	(mg/kg-day)-1	B2	IRIS	03/29/2004
Aluminum	NA	NA	NA	NA	N/A	D	NCEA	07/26/2001
Antimony	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A
Arsenic	1.5E+00	(mg/kg-day)-1	0.95	1.5E+00	(mg/kg-day)-1	A	IRIS	03/29/2004
Barium	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Benzene	5.5E-02	(mg/kg-day)-1	1	5.5E-02	(mg/kg-day)-1	A	IRIS	03/29/2004
Benzo(a)anthracene	7.3E-01	(mg/kg-day)-1	0.58 - 0.89	7.3E-01	(mg/kg-day)-1	B2	NCEA [IRIS]	07/01/1993
Benzo(a)pyrene	7.3E+00	(mg/kg-day)-1	0.89	7.3E+00	(mg/kg-day)-1	B2	IRIS	01/31/2003
Benzo(b)fluoranthene	7.3E-01	(mg/kg-day)-1	0.58 - 0.89	7.3E-01	(mg/kg-day)-1	B2	NCEA [IRIS]	07/01/1993
Benzo(k)fluoranthene	7.3E-02	(mg/kg-day)-1	0.58 - 0.89	7.3E-02	(mg/kg-day)-1	B2	NCEA [IRIS]	07/01/1993
Beryllium	N/A	N/A	N/A	N/A	N/A	B1	IRIS	03/29/2004
Bromomethane	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Cadmium	N/A	N/A	N/A	N/A	N/A	B1	IRIS	03/29/2004
Carbazole	2.0E-02	(mg/kg-day)-1	1	2.0E-02	(mg/kg-day)-1	B2	HEAST	07/01/1993
Chlordane - alpha	3.5E-01	(mg/kg-day)-1	0.8	3.5E-01	(mg/kg-day)-1	B2	IRIS	03/29/2004
Chlordane - gamma (technical mixture)	3.5E-01	(mg/kg-day)-1	0.8	3.5E-01	(mg/kg-day)-1	B2	IRIS	03/29/2004
Chloroethane	2.9E-03	(mg/kg-day)-1	1	2.9E-03	(mg/kg-day)-1	B2	NCEA	08/30/1996
Chloroform	N/A	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Chromium	N/A	N/A	N/A	N/A	N/A	A	IRIS	01/31/2003
Chrysene	7.3E-03	(mg/kg-day)-1	0.58 - 0.89	7.3E-03	(mg/kg-day)-1	B2	IRIS	01/31/2003
Cobalt	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Cresol-o	N/A	N/A	N/A	N/A	N/A	C	IRIS	03/29/2004
Cresol-p	N/A	N/A	N/A	N/A	N/A	C	IRIS	03/29/2004
DDE-4,4'	3.4E-01	(mg/kg-day)-1	0.9	3.4E-01	(mg/kg-day)-1	B2	IRIS	03/29/2004
DDT-4,4'	3.4E-01	(mg/kg-day)-1	0.9	3.4E-01	(mg/kg-day)-1	B2	IRIS	03/29/2004
Dibenzo(a,h)anthracene	7.3E+00	(mg/kg-day)-1	0.58 - 0.89	7.3E+00	(mg/kg-day)-1	B2	NCEA	07/01/1993
Dibenzofuran	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Dichlorobenzene-1,3	N/A	N/A	N/A	N/A	N/A	D	NCEA	07/14/1998
Dichlorobenzene-1,4	2.4E-02	(mg/kg-day)-1	1	2.4E-02	(mg/kg-day)-1	C	HEAST	07/01/1997
Dichloroethane-1,1	N/A	N/A	1	N/A	N/A	C	NCEA	07/17/1998
Dichloroethane-1,2	9.1E-02	(mg/kg-day)-1	1	9.1E-02	(mg/kg-day)-1	B2	IRIS	03/29/2004

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TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

Martin Aaron

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Dichloroethene-1,2 trans	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Dichloroethylene-1,2 cis	N/A	N/A	1	N/A	N/A	D	IRS	03/29/2004
Dichloropropane-1,2	6.8E-02	(mg/kg-day)-1	1	6.8E-02	(mg/kg-day)-1	B2	HEAST	07/01/1997
Dieldrin	1.6E+01	(mg/kg-day)-1	1	1.6E+01	(mg/kg-day)-1	B2	IRIS	03/29/2004
Ether, bis(2-chloroethyl)	1.1E+00	(mg/kg-day)-1	1	1.1E+00	(mg/kg-day)-1	B2	IRIS	03/29/2004
Ethylbenzene	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Fluoranthene	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Heptachlor	4.5E+00	(mg/kg-day)-1	1	4.5E+00	(mg/kg-day)-1	B2	IRIS	03/29/2004
Heptachlor Epoxide	9.1E+00	(mg/kg-day)-1	1	9.1E+00	(mg/kg-day)-1	B2	IRIS	01/31/2003
Indeno(1,2,3-cd)pyrene	7.3E-01	(mg/kg-day)-1	0.58 - 0.89	7.3E-01	(mg/kg-day)-1	B2	NCEA/IRIS	07/01/1993
Iron	NA	NA	NA	NA	(mg/kg-day)-1	C	NCEA	11/14/2001
Lead	N/A	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Manganese	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Mercury	N/A	N/A	1	N/A	N/A	C/D	IRIS	03/29/2004
Methyl isobutyl ketone (4-methyl-2-pentanone)	N/A	N/A	N/A	N/A	N/A	D	NCEA	07/08/1993
Methyl tertiary butyl ether (MTBE)	N/A	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Naphthalene	N/A	N/A	N/A	N/A	N/A	C	IRIS	03/29/2004
Nickel	N/A	N/A	1	N/A	N/A	N/A	IRIS	03/29/2004
Nitrosodiphenylamine-n	4.9E-03	(mg/kg-day)-1	1	4.9E-03	(mg/kg-day)-1	B2	IRIS	03/29/2004
Pcb-Aroclor 1248	2.0E+00	(mg/kg-day)-1	0.96	2.0E+00	(mg/kg-day)-1	B2	IRIS	03/29/2004
Pcb-Aroclor 1254	2.0E+00	(mg/kg-day)-1	0.96	2.0E+00	(mg/kg-day)-1	B2	IRIS	03/29/2004
Pcb-araclor 1260	2.0E+00	(mg/kg-day)-1	0.96	2.0E+00	(mg/kg-day)-1	B2	IRIS	03/29/2004
Phenanthrene	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Phenol	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Phthalate, bis(2-ethylhexyl) (DEHP)	1.4E-02	(mg/kg-day)-1	1	1.4E-02	(mg/kg-day)-1	B2	IRIS	03/29/2004
Pyrene	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Selenium	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Silver	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Tetrachloroethylene	5.4E-01	(mg/kg-day)-1	1	5.4E-01	(mg/kg-day)-1	C - B2	OSWER	06/12/2003
Thallium	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Toluene	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Trichloroethane-1,1,2	5.7E-02	(mg/kg-day)-1	1	5.7E-02	(mg/kg-day)-1	C	IRIS	03/29/2004
Trichloroethylene	4.0E-01	(mg/kg-day)-1	1	4.0E-01	(mg/kg-day)-1	B2	NCEA	01/01/2002

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TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

Martin Aaron

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl chloride (adult)	1.5E+00	(mg/kg-day)-1	1	1.5E+00	(mg/kg-day)-1	A	IRIS	03/29/2004
Vinyl chloride (child/adult)	7.5E-01	(mg/kg-day)-1	1	7.5E-01	(mg/kg-day)-1	A	IRIS	03/29/2004
Xylenes, total	N/A	N/A	N/A	N/A	N/A	NA	IRIS	03/29/2004
Zinc	N/A	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004

(1) Source: Risk Assessment Guidance for Superfund: Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. Section 4.2 and Exhibit 4-1.

(2) See Risk Assessment text for derivation of the "Absorbed Cancer Slope Factor for Dermal".

Chromium (VII) used as surrogate for Chromium.

Mercuric chloride and Methyl mercury used as surrogate for Mercury.

Chlordane used as surrogate for Chlordane - alpha and gamma.

Definitions: HEAST = Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System

NA = Not Available

NCEA = National Center for Environmental Assessment

OSWER = Office of Solid Waste and Emergency Response

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TABLE 6.2

CANCER TOXICITY DATA – INHALATION

Martin Aaron

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Acetophenone	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Aldrin	4.9E-03	$(\mu g/m^3)^{-1}$	1.7E+01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Aluminum	NA	NA	NA	NA	D	NCEA	07/26/2001
Antimony	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	4.3E-03	$(\mu g/m^3)^{-1}$	1.5E+01	$(mg/kg\text{-}day)^{-1}$	A	IRIS	03/29/2004
Barium	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Benzene	7.8E-06	$(\mu g/m^3)^{-1}$	2.7E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	03/29/2004
Benzo(a)anthracene	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Benzo(a)pyrene	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Benzo(b)fluoranthene	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Benzo(k)fluoranthene	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Beryllium	2.4E-03	$(\mu g/m^3)^{-1}$	8.4E+00	$(mg/kg\text{-}day)^{-1}$	B1	IRIS	03/29/2004
Bromomethane	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Cadmium	1.8E-03	$(\mu g/m^3)^{-1}$	6.3E+00	$(mg/kg\text{-}day)^{-1}$	B1	IRIS	01/31/2003
Carbazole	N/A	N/A	N/A	N/A	N/A	NCEA	11/01/2001
Chlordane - alpha	1.0E-04	$(\mu g/m^3)^{-1}$	3.5E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Chlordane - gamma (technical mixture)	1.0E-04	$(\mu g/m^3)^{-1}$	3.5E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Chloroethane	N/A	N/A	N/A	N/A	B2	NCEA	08/30/1996
Chloroform	2.3E-05	$(\mu g/m^3)^{-1}$	8.1E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Chromium	1.2E-02	$(\mu g/m^3)^{-1}$	4.2E+01	$(mg/kg\text{-}day)^{-1}$	A	IRIS	03/29/2004
Chrysene	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cobalt	2.8E-03	$(\mu g/m^3)^{-1}$	9.8E+00	$(mg/kg\text{-}day)^{-1}$	B1	NCEA	01/15/2002
Copper	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Cresol-o	N/A	N/A	N/A	N/A	C	IRIS	03/29/2004
Cresol-p	N/A	N/A	N/A	N/A	C	IRIS	03/29/2004
DDE-4,4'	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
DDT-4,4'	9.7E-05	$(\mu g/m^3)^{-1}$	3.4E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Dibenzo(a,h)anthracene	N/A	N/A	N/A	N/A	B2	NCEA	07/01/1993
Dibenzofuran	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Dichlorobenzene-1,3	N/A	N/A	N/A	N/A	D	NCEA	07/14/1998

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TABLE 6.2

CANCER TOXICITY DATA – INHALATION

Martin Aaron

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Dichlorobenzene-1,4	N/A	N/A	2.2E-02	$(mg/kg\text{-}day)^{-1}$	B2	NCEA	06/21/1993
Dichloroethane-1,1	N/A	N/A	N/A	N/A	C	NCEA	07/17/1998
Dichloroethane-1,2	2.6E-05	$(\mu g/m^3)^{-1}$	9.1E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Dichloroethene-1,2 trans	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Dichloroethylene-1,2 cis	N/A	N/A	N/A	N/A	D	IRS	03/29/2004
Dichloropropane-1,2	N/A	N/A	N/A	N/A	B2	HEAST	07/01/1997
Dieldrin	4.6E-03	$(\mu g/m^3)^{-1}$	1.6E+01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Ether, bis(2-chloroethyl)	3.3E-04	$(\mu g/m^3)^{-1}$	1.2E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Ethylbenzene	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Fluoranthene	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Heptachlor	1.3E-03	$(\mu g/m^3)^{-1}$	4.6E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Heptachlor Epoxide	2.6E-03	$(\mu g/m^3)^{-1}$	9.1E+00	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Indeno(1,2,3-cd)pyrene	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Iron	NA	NA	NA	NA	C	NCEA	11/14/2001
Lead	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Manganese	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Mercury	N/A	N/A	N/A	N/A	C/D	IRIS	03/29/2004
Methyl isobutyl ketone (4-methyl-2-pentanone)	N/A	N/A	N/A	N/A	D	NCEA	07/08/1993
Methyl tertiary butyl ether (MTBE)	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Naphthalene	N/A	N/A	N/A	N/A	C	IRIS	03/29/2004
Nickel	N/A	N/A	N/A	N/A	N/A	IRIS	03/29/2004
Nitrosodiphenylamine-n	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Pcb-Aroclor 1248	1.0E-04	$(\mu g/m^3)^{-1}$	3.5E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Pcb-Aroclor 1254	1.0E-04	$(\mu g/m^3)^{-1}$	3.5E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Pcb-araclor 1260	1.0E-04	$(\mu g/m^3)^{-1}$	3.5E-01	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/29/2004
Phenanthrene	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Phenol	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Phthalate, bis(2-ethylhexyl) (DEHP)	N/A	N/A	N/A	N/A	B2	IRIS	03/29/2004
Pyrene	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Selenium	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004

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TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

Martin Aaron

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Silver	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Tetrachloroethylene	N/A	N/A	2.1E-02	$(mg/kg\text{-}day)^{-1}$	C - B2	OSWER	06/12/2003
Thallium	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Toluene	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004
Trichloroethane-1,1,2	1.6E-05	$(\mu g/m^3)^{-1}$	5.6E-02	$(mg/kg\text{-}day)^{-1}$	C	IRIS	03/29/2004
Trichloroethylene	NA	NA	4.0E-01	$(mg/kg\text{-}day)^{-1}$	B2	NCEA	01/01/2002
Vanadium	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl chloride (adult)	4.4E-06	1/ug/m3	1.5E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	03/29/2004
Vinyl chloride (child/adult)	8.8E-06	1/ug/m3	3.1E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	03/29/2004
Xylenes, total	N/A	N/A	N/A	N/A	NA	IRIS	03/29/2004
Zinc	N/A	N/A	N/A	N/A	D	IRIS	03/29/2004

Chromium (VII) used as surrogate for Chromium.

Mercuric chloride and Methyl mercury used as surrogate for Mercury.

Chlordane used as surrogate for Chlordane - alpha and gamma.

Definitions: HEAST = Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System

NA = Not Available

NCEA = National Center for Environmental Assessment

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TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion													
				Aluminum	6.0E+03	MG/KG	7.0E-04	mg/kg/day	NA	NA	NA	5.5E-03	mg/kg/day	1.0E+00	mg/kg/day	5.5E-03
				Antimony	4.7E+00	MG/KG	5.5E-07	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	4.0E-04	mg/kg/day	1.1E-02
				Arsenic	2.9E+02	MG/KG	3.3E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.0E-05	2.6E-04	mg/kg/day	3.0E-04	mg/kg/day	8.6E-01
				Barium	3.8E+04	MG/KG	4.4E-03	mg/kg/day	NA	NA	NA	3.4E-02	mg/kg/day	7.0E-02	mg/kg/day	4.9E-01
				Cadmium	2.0E+01	MG/KG	2.4E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	1.0E-03	mg/kg/day	1.9E-02
				Chromium	3.0E+02	MG/KG	3.5E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	3.0E-03	mg/kg/day	9.0E-02
				Copper	5.7E+02	MG/KG	6.7E-05	mg/kg/day	NA	NA	NA	5.2E-04	mg/kg/day	4.0E-02	mg/kg/day	1.3E-02
				Iron	5.2E+04	MG/KG	6.1E-03	mg/kg/day	NA	NA	NA	4.8E-02	mg/kg/day	3.0E-01	mg/kg/day	1.6E-01
				Lead	1.4E+03	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	6.0E-05	mg/kg/day	NA	NA	NA	4.7E-04	mg/kg/day	1.4E-01	mg/kg/day	3.3E-03
				Mercury	9.1E-01	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	8.3E-07	mg/kg/day	3.0E-04	mg/kg/day	2.8E-03
				Nickel	7.6E+01	MG/KG	8.8E-06	mg/kg/day	NA	NA	NA	6.9E-05	mg/kg/day	2.0E-02	mg/kg/day	3.4E-03
				Silver	1.5E+01	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.0E-03	mg/kg/day	2.7E-03
				Zinc	2.3E+03	MG/KG	2.7E-04	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	3.0E-01	mg/kg/day	7.1E-03
				Aldrin	4.2E-01	MG/KG	4.9E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	8.3E-07	3.8E-07	mg/kg/day	3.0E-05	mg/kg/day	1.3E-02
				Chlordane - alpha	4.0E+00	MG/KG	4.7E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.6E-07	3.6E-06	mg/kg/day	5.0E-04	mg/kg/day	7.3E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	5.2E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-07	4.0E-06	mg/kg/day	5.0E-04	mg/kg/day	8.0E-03
				DDE-4,4'	7.6E+00	MG/KG	8.8E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.0E-07	6.9E-06	mg/kg/day	3.0E-04	mg/kg/day	2.3E-02
				DDT-4,4'	1.6E+00	MG/KG	1.8E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	6.3E-08	1.4E-06	mg/kg/day	5.0E-04	mg/kg/day	2.9E-03
				Dieldrin	1.3E+00	MG/KG	1.5E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.4E-06	1.2E-06	mg/kg/day	5.0E-05	mg/kg/day	2.4E-02
				Heptachlor	9.5E-02	MG/KG	1.1E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	5.0E-08	8.6E-08	mg/kg/day	5.0E-04	mg/kg/day	1.7E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	2.7E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.4E-08	2.1E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	1.2E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.5E-06	9.7E-06	mg/kg/day	2.0E-05	mg/kg/day	4.9E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	2.6E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.2E-07	2.0E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	1.0E-01	mg/kg/day	2.6E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	7.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.6E-06	6.0E-05	mg/kg/day	3.0E-02	mg/kg/day	2.0E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	7.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-05	5.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	8.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.0E-06	6.4E-05	mg/kg/day	3.0E-02	mg/kg/day	2.1E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	4.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.0E-07	3.1E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
				Chrysene	6.4E+01	MG/KG	7.5E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.5E-08	5.8E-05	mg/kg/day	3.0E-02	mg/kg/day	1.9E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	5.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.6E-06	3.9E-06	mg/kg/day	3.0E-02	mg/kg/day	1.3E-04
				Fluoranthene	1.5E+02	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	4.0E-02	mg/kg/day	3.4E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	2.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-06	1.5E-05	mg/kg/day	5.0E-02	mg/kg/day	3.0E-04
				Naphthalene	7.2E+00	MG/KG	8.4E-07	mg/kg/day	NA	NA	NA	6.6E-06	mg/kg/day	2.0E-02	mg/kg/day	3.3E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	1.8E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	2.5E-08	1.4E-05	mg/kg/day	2.0E-02	mg/kg/day	6.8E-04
				Benzene	3.9E+00	MG/KG	4.5E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	2.5E-08	3.5E-06	mg/kg/day	4.0E-03	mg/kg/day	8.8E-04
				Chloroform	1.4E+00	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	1.0E-02	mg/kg/day	1.3E-04
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	1.0E-02	mg/kg/day	1.0E-03
				Tetrachloroethylene	1.2E+01	MG/KG	1.4E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	7.6E-07	1.1E-05	mg/kg/day	1.0E-02	mg/kg/day	1.1E-03
				Toluene	7.3E+01	MG/KG	8.6E-06	mg/kg/day	NA	NA	NA	6.7E-05	mg/kg/day	2.0E-01	mg/kg/day	3.3E-04
				Trichloroethylene	3.2E+00	MG/KG	3.8E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.5E-07	2.9E-06	mg/kg/day	3.0E-04	mg/kg/day	9.8E-03
				Vinyl chloride	3.2E-01	MG/KG	3.7E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.6E-08	2.9E-07	mg/kg/day	3.0E-03	mg/kg/day	9.7E-05
				Xylenes, total	2.9E+01	MG/KG	3.4E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	2.0E-01	mg/kg/day	1.3E-04
			Exp. Route Total								1.3E-04					2.3E+00

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TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Dermal	Aluminum	6.0E+03	MG/KG	6.5E-05	mg/kg/day	NA	NA	NA	5.0E-04	mg/kg/day	1.0E+00	mg/kg/day	5.0E-04
				Antimony	4.7E+00	MG/KG	5.1E-08	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	6.0E-05	mg/kg/day	6.6E-03
				Arsenic	2.9E+02	MG/KG	9.2E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.4E-05	7.2E-05	mg/kg/day	3.0E-04	mg/kg/day	2.4E-01
				Barium	3.8E+04	MG/KG	4.1E-04	mg/kg/day	NA	NA	NA	3.2E-03	mg/kg/day	4.9E-03	mg/kg/day	6.5E-01
				Cadmium	2.0E+01	MG/KG	2.2E-08	mg/kg/day	NA	NA	NA	1.7E-07	mg/kg/day	5.0E-05	mg/kg/day	3.4E-03
				Chromium	3.0E+02	MG/KG	3.2E-06	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	7.5E-05	mg/kg/day	3.3E-01
				Copper	5.7E+02	MG/KG	6.2E-06	mg/kg/day	NA	NA	NA	4.8E-05	mg/kg/day	4.0E-02	mg/kg/day	1.2E-03
				Iron	5.2E+04	MG/KG	5.6E-04	mg/kg/day	NA	NA	NA	4.4E-03	mg/kg/day	3.0E-01	mg/kg/day	1.5E-02
				Lead	1.4E+03	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	5.5E-06	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	5.6E-03	mg/kg/day	7.7E-03
				Mercury	9.1E-01	MG/KG	9.8E-09	mg/kg/day	NA	NA	NA	7.6E-08	mg/kg/day	2.1E-05	mg/kg/day	3.6E-03
				Nickel	7.6E+01	MG/KG	8.1E-07	mg/kg/day	NA	NA	NA	6.3E-06	mg/kg/day	8.0E-04	mg/kg/day	7.9E-03
				Silver	1.5E+01	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	2.0E-04	mg/kg/day	6.2E-03
				Zinc	2.3E+03	MG/KG	2.5E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	3.0E-01	mg/kg/day	6.5E-04
				Aldrin	4.2E-01	MG/KG	4.5E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	7.6E-07	3.5E-07	mg/kg/day	3.0E-05	mg/kg/day	1.2E-02
				Chlordane - alpha	4.0E+00	MG/KG	1.7E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.0E-08	1.3E-06	mg/kg/day	5.0E-04	mg/kg/day	2.7E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.6E-08	1.5E-06	mg/kg/day	5.0E-04	mg/kg/day	3.0E-03
				DDE-4,4'	7.6E+00	MG/KG	2.4E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	8.3E-08	1.9E-06	mg/kg/day	3.0E-04	mg/kg/day	6.3E-03
				DDT-4,4'	1.6E+00	MG/KG	5.1E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.7E-08	4.0E-07	mg/kg/day	5.0E-04	mg/kg/day	7.9E-04
				Dieldrin	1.3E+00	MG/KG	1.4E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.2E-06	1.1E-06	mg/kg/day	5.0E-05	mg/kg/day	2.2E-02
				Heptachlor	9.5E-02	MG/KG	1.0E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	4.6E-08	7.9E-08	mg/kg/day	5.0E-04	mg/kg/day	1.6E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	3.5E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.9E-08	2.7E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	1.6E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.2E-06	1.3E-05	mg/kg/day	2.0E-05	mg/kg/day	6.3E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	3.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.7E-07	2.6E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	3.1E-07	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	1.0E-01	mg/kg/day	2.4E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	9.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.7E-06	7.2E-05	mg/kg/day	3.0E-02	mg/kg/day	2.4E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	8.7E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.3E-05	6.8E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	9.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.1E-06	7.6E-05	mg/kg/day	3.0E-02	mg/kg/day	2.5E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	4.8E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.5E-07	3.8E-05	mg/kg/day	3.0E-02	mg/kg/day	1.3E-03
				Chrysene	6.4E+01	MG/KG	9.0E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	6.6E-08	7.0E-05	mg/kg/day	3.0E-02	mg/kg/day	2.3E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	6.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.3E-06	4.6E-06	mg/kg/day	3.0E-02	mg/kg/day	1.5E-04
				Fluoranthene	1.5E+02	MG/KG	2.1E-05	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	3.6E-02	mg/kg/day	4.5E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	2.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-06	1.8E-05	mg/kg/day	5.0E-02	mg/kg/day	3.6E-04
				Naphthalene	7.2E+00	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	7.9E-06	mg/kg/day	2.0E-02	mg/kg/day	3.9E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	1.6E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	2.3E-08	1.3E-05	mg/kg/day	3.8E-03	mg/kg/day	3.3E-03
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								1.0E-04					2.0E+00
		Exposure Point Total									2.3E-04					4.2E+00
	Exposure Medium Total										2.3E-04					4.2E+00

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TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	1.1E-08	mg/kg/day	NA	NA	NA	8.9E-08	mg/kg/day	1.4E-03	mg/kg/day	6.2E-05
				Antimony	4.6E-09	MG/M3	9.0E-12	mg/kg/day	NA	NA	NA	7.0E-11	mg/kg/day	NA	NA	NA
				Arsenic	2.8E-07	MG/M3	5.4E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	8.2E-09	4.2E-09	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	7.2E-08	mg/kg/day	NA	NA	NA	5.6E-07	mg/kg/day	1.4E-04	mg/kg/day	4.0E-03
				Cadmium	2.0E-08	MG/M3	3.9E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.4E-10	3.0E-10	mg/kg/day	5.7E-05	mg/kg/day	5.3E-06
				Chromium	2.9E-07	MG/M3	5.6E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.4E-08	4.4E-09	mg/kg/day	2.3E-06	mg/kg/day	1.9E-03
				Copper	5.6E-07	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	8.5E-09	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	1.0E-07	mg/kg/day	NA	NA	NA	7.7E-07	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	2.7E-09	mg/kg/day	NA	NA	NA	2.1E-08	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	9.8E-10	mg/kg/day	NA	NA	NA	7.6E-09	mg/kg/day	1.4E-05	mg/kg/day	5.3E-04
				Mercury	8.9E-10	MG/M3	1.7E-12	mg/kg/day	NA	NA	NA	1.3E-11	mg/kg/day	8.6E-05	mg/kg/day	1.6E-07
				Nickel	7.4E-08	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	2.8E-11	mg/kg/day	NA	NA	NA	2.2E-10	mg/kg/day	2.9E-06	mg/kg/day	7.7E-05
				Zinc	2.3E-06	MG/M3	4.4E-09	mg/kg/day	NA	NA	NA	3.5E-08	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	7.9E-13	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.4E-11	6.2E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	7.6E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.7E-12	5.9E-11	mg/kg/day	2.0E-04	mg/kg/day	3.0E-07
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	8.4E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.9E-12	6.5E-11	mg/kg/day	2.0E-04	mg/kg/day	3.3E-07
				DDE-4,4'	7.4E-09	MG/M3	1.4E-11	mg/kg/day	NA	NA	NA	1.1E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	3.0E-12	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.0E-12	2.3E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	2.5E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.0E-11	1.9E-11	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	1.8E-13	mg/kg/day	4.6E+00	1/(mg/kg-day)	8.2E-13	1.4E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	4.4E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-13	3.4E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	2.0E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.1E-12	1.6E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	4.2E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-12	3.3E-11	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	9.7E-08	mg/kg/day	NA	NA	NA	7.6E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	9.7E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	9.2E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	6.6E-11	mg/kg/day	NA	NA	NA	5.1E-10	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	9.5E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	8.1E-12	mg/kg/day	NA	NA	NA	6.3E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	2.8E-10	mg/kg/day	NA	NA	NA	2.2E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	3.2E-11	mg/kg/day	NA	NA	NA	2.5E-10	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	3.1E-07	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	8.6E-04	mg/kg/day	2.8E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	2.9E-11	mg/kg/day	NA	NA	NA	2.2E-10	mg/kg/day	NA	NA	NA
				Benzene	1.3E-03	MG/M3	2.6E-06	mg/kg/day	2.7E-02	1/(mg/kg-day)	7.1E-08	2.0E-05	mg/kg/day	8.6E-03	mg/kg/day	2.3E-03
				Chloroform	4.6E-04	MG/M3	8.9E-07	mg/kg/day	8.1E-02	1/(mg/kg-day)	7.1E-08	6.9E-06	mg/kg/day	1.4E-02	mg/kg/day	4.8E-04
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	7.1E-06	mg/kg/day	NA	NA	NA	5.5E-05	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	3.6E-03	MG/M3	7.1E-06	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.5E-07	5.5E-05	mg/kg/day	NA	NA	NA
				Toluene	2.0E-02	MG/M3	3.8E-05	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	1.1E-01	mg/kg/day	2.6E-03
				Trichloroethylene	9.5E-04	MG/M3	1.8E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	7.4E-07	1.4E-05	mg/kg/day	1.0E-02	mg/kg/day	1.4E-03
				Vinyl chloride	3.0E-04	MG/M3	5.7E-07	mg/kg/day	1.5E-02	1/(mg/kg-day)	8.8E-09	4.4E-06	mg/kg/day	2.9E-02	mg/kg/day	1.6E-04
				Xylenes, total	6.4E-03	MG/M3	1.2E-05	mg/kg/day	NA	NA	NA	9.7E-05	mg/kg/day	2.9E-02	mg/kg/day	3.4E-03
			Exp. Route Total								1.1E-06					2.0E-02
		Exposure Point Total									1.1E-06					2.0E-02
	Exposure Medium Total										1.1E-06					2.0E-02
Surface Soil Total											2.3E-04					4.2E+00

NA = Not applicable.

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TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion													
				Aluminum	6.0E+03	MG/KG	2.1E-03	mg/kg/day	NA	NA	NA	5.9E-03	mg/kg/day	1.0E+00	mg/kg/day	5.9E-03
				Antimony	4.7E+00	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	4.6E-06	mg/kg/day	4.0E-04	mg/kg/day	1.2E-02
				Arsenic	2.9E+02	MG/KG	1.0E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.5E-04	2.8E-04	mg/kg/day	3.0E-04	mg/kg/day	9.3E-01
				Barium	3.8E+04	MG/KG	1.3E-02	mg/kg/day	NA	NA	NA	3.7E-02	mg/kg/day	7.0E-02	mg/kg/day	5.3E-01
				Cadmium	2.0E+01	MG/KG	7.1E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	1.0E-03	mg/kg/day	2.0E-02
				Chromium	3.0E+02	MG/KG	1.0E-04	mg/kg/day	NA	NA	NA	2.9E-04	mg/kg/day	3.0E-03	mg/kg/day	9.7E-02
				Copper	5.7E+02	MG/KG	2.0E-04	mg/kg/day	NA	NA	NA	5.6E-04	mg/kg/day	4.0E-02	mg/kg/day	1.4E-02
				Iron	5.2E+04	MG/KG	1.8E-02	mg/kg/day	NA	NA	NA	5.1E-02	mg/kg/day	3.0E-01	mg/kg/day	1.7E-01
				Lead	1.4E+03	MG/KG	5.0E-04	mg/kg/day	NA	NA	NA	1.4E-03	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	5.0E-04	mg/kg/day	1.4E-01	mg/kg/day	3.6E-03
				Mercury	9.1E-01	MG/KG	3.2E-07	mg/kg/day	NA	NA	NA	8.9E-07	mg/kg/day	3.0E-04	mg/kg/day	3.0E-03
				Nickel	7.6E+01	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	7.4E-05	mg/kg/day	2.0E-02	mg/kg/day	3.7E-03
				Silver	1.5E+01	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	5.0E-03	mg/kg/day	2.9E-03
				Zinc	2.3E+03	MG/KG	8.2E-04	mg/kg/day	NA	NA	NA	2.3E-03	mg/kg/day	3.0E-01	mg/kg/day	7.6E-03
				Aldrin	4.2E-01	MG/KG	1.5E-07	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.5E-06	4.1E-07	mg/kg/day	3.0E-05	mg/kg/day	1.4E-02
				Chlordane - alpha	4.0E+00	MG/KG	1.4E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.9E-07	3.9E-06	mg/kg/day	5.0E-04	mg/kg/day	7.8E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.5E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.4E-07	4.3E-06	mg/kg/day	5.0E-04	mg/kg/day	8.6E-03
				DDE-4,4'	7.6E+00	MG/KG	2.6E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	9.0E-07	7.4E-06	mg/kg/day	3.0E-04	mg/kg/day	2.5E-02
				DDT-4,4'	1.6E+00	MG/KG	5.5E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.9E-07	1.5E-06	mg/kg/day	5.0E-04	mg/kg/day	3.1E-03
				Dieldrin	1.3E+00	MG/KG	4.5E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.3E-06	1.3E-06	mg/kg/day	5.0E-05	mg/kg/day	2.5E-02
				Heptachlor	9.5E-02	MG/KG	3.3E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.5E-07	9.3E-08	mg/kg/day	5.0E-04	mg/kg/day	1.9E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	8.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.6E-07	2.3E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.7E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.5E-06	1.0E-05	mg/kg/day	2.0E-05	mg/kg/day	5.2E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	7.8E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.6E-06	2.2E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	1.0E-01	mg/kg/day	2.8E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	2.3E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-05	6.4E-05	mg/kg/day	3.0E-02	mg/kg/day	2.1E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	2.2E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.6E-04	6.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.4E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.8E-05	6.8E-05	mg/kg/day	3.0E-02	mg/kg/day	2.3E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.2E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	8.8E-07	3.4E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				Chrysene	6.4E+01	MG/KG	2.3E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.6E-07	6.3E-05	mg/kg/day	3.0E-02	mg/kg/day	2.1E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-05	4.2E-06	mg/kg/day	3.0E-02	mg/kg/day	1.4E-04
				Fluoranthene	1.5E+02	MG/KG	5.2E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	4.0E-02	mg/kg/day	3.6E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	5.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-06	1.6E-05	mg/kg/day	5.0E-02	mg/kg/day	3.3E-04
				Naphthalene	7.2E+00	MG/KG	2.5E-06	mg/kg/day	NA	NA	NA	7.1E-06	mg/kg/day	2.0E-02	mg/kg/day	3.5E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	5.2E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	7.3E-08	1.5E-05	mg/kg/day	2.0E-02	mg/kg/day	7.3E-04
				Benzene	3.9E+00	MG/KG	1.4E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	7.4E-08	3.8E-06	mg/kg/day	4.0E-03	mg/kg/day	9.5E-04
				Chloroform	1.4E+00	MG/KG	4.9E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	1.0E-02	mg/kg/day	1.4E-04
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	3.9E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	1.0E-02	mg/kg/day	1.1E-03
				Tetrachloroethylene	1.2E+01	MG/KG	4.2E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	2.3E-06	1.2E-05	mg/kg/day	1.0E-02	mg/kg/day	1.2E-03
				Toluene	7.3E+01	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	7.2E-05	mg/kg/day	2.0E-01	mg/kg/day	3.6E-04
				Trichloroethylene	3.2E+00	MG/KG	1.1E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	4.5E-07	3.2E-06	mg/kg/day	3.0E-04	mg/kg/day	1.1E-02
				Vinyl chloride	3.2E-01	MG/KG	1.1E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.7E-07	3.1E-07	mg/kg/day	3.0E-03	mg/kg/day	1.0E-04
				Xylenes, total	2.9E+01	MG/KG	1.0E-05	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	2.0E-01	mg/kg/day	1.4E-04
			Exp. Route Total								3.8E-04					2.4E+00

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TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Dermal	Aluminum	6.0E+03	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	3.9E-04	mg/kg/day	1.0E+00	mg/kg/day	3.9E-04
				Antimony	4.7E+00	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	3.0E-07	mg/kg/day	6.0E-05	mg/kg/day	5.1E-03
				Arsenic	2.9E+02	MG/KG	2.0E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.0E-05	5.5E-05	mg/kg/day	3.0E-04	mg/kg/day	1.8E-01
				Barium	3.8E+04	MG/KG	8.7E-04	mg/kg/day	NA	NA	NA	2.4E-03	mg/kg/day	4.9E-03	mg/kg/day	5.0E-01
				Cadmium	2.0E+01	MG/KG	4.7E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	5.0E-05	mg/kg/day	2.6E-03
				Chromium	3.0E+02	MG/KG	6.8E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	7.5E-05	mg/kg/day	2.6E-01
				Copper	5.7E+02	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	4.0E-02	mg/kg/day	9.3E-04
				Iron	5.2E+04	MG/KG	1.2E-03	mg/kg/day	NA	NA	NA	3.4E-03	mg/kg/day	3.0E-01	mg/kg/day	1.1E-02
				Lead	1.4E+03	MG/KG	3.3E-05	mg/kg/day	NA	NA	NA	9.2E-05	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	5.6E-03	mg/kg/day	5.9E-03
				Mercury	9.1E-01	MG/KG	2.1E-08	mg/kg/day	NA	NA	NA	5.9E-08	mg/kg/day	2.1E-05	mg/kg/day	2.8E-03
				Nickel	7.6E+01	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	4.9E-06	mg/kg/day	8.0E-04	mg/kg/day	6.1E-03
				Silver	1.5E+01	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	9.6E-07	mg/kg/day	2.0E-04	mg/kg/day	4.8E-03
				Zinc	2.3E+03	MG/KG	5.4E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	5.0E-04
				Aldrin	4.2E-01	MG/KG	9.6E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.6E-06	2.7E-07	mg/kg/day	3.0E-05	mg/kg/day	9.0E-03
				Chlordane - alpha	4.0E+00	MG/KG	3.7E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-07	1.0E-06	mg/kg/day	5.0E-04	mg/kg/day	2.1E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	4.1E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.4E-07	1.1E-06	mg/kg/day	5.0E-04	mg/kg/day	2.3E-03
				DDE-4,4'	7.6E+00	MG/KG	5.2E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.8E-07	1.5E-06	mg/kg/day	3.0E-04	mg/kg/day	4.9E-03
				DDT-4,4'	1.6E+00	MG/KG	1.1E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.7E-08	3.1E-07	mg/kg/day	5.0E-04	mg/kg/day	6.1E-04
				Dieldrin	1.3E+00	MG/KG	3.0E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.8E-06	8.4E-07	mg/kg/day	5.0E-05	mg/kg/day	1.7E-02
				Heptachlor	9.5E-02	MG/KG	2.2E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	9.9E-08	6.1E-08	mg/kg/day	5.0E-04	mg/kg/day	1.2E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	7.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.5E-07	2.1E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.5E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.9E-06	9.7E-06	mg/kg/day	2.0E-05	mg/kg/day	4.8E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	7.2E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.4E-06	2.0E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	6.7E-07	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	1.0E-01	mg/kg/day	1.9E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	2.0E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-05	5.5E-05	mg/kg/day	3.0E-02	mg/kg/day	1.8E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	1.9E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-04	5.2E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.1E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-05	5.9E-05	mg/kg/day	3.0E-02	mg/kg/day	2.0E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.0E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	7.6E-07	2.9E-05	mg/kg/day	3.0E-02	mg/kg/day	9.7E-04
				Chrysene	6.4E+01	MG/KG	1.9E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.4E-07	5.4E-05	mg/kg/day	3.0E-02	mg/kg/day	1.8E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.3E-06	3.6E-06	mg/kg/day	3.0E-02	mg/kg/day	1.2E-04
				Fluoranthene	1.5E+02	MG/KG	4.4E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.6E-02	mg/kg/day	3.5E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	5.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.7E-06	1.4E-05	mg/kg/day	5.0E-02	mg/kg/day	2.8E-04
				Naphthalene	7.2E+00	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	6.1E-06	mg/kg/day	2.0E-02	mg/kg/day	3.0E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	3.5E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	4.8E-08	9.7E-06	mg/kg/day	3.8E-03	mg/kg/day	2.6E-03
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								2.3E-04					1.5E+00
		Exposure Point Total									6.1E-04					3.9E+00
	Exposure Medium Total										6.1E-04					3.9E+00

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TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	4.1E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	1.4E-03	mg/kg/day	8.1E-04
				Antimony	4.6E-09	MG/M3	3.2E-10	mg/kg/day	NA	NA	NA	9.0E-10	mg/kg/day	NA	NA	NA
				Arsenic	2.8E-07	MG/M3	2.0E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.9E-07	5.5E-08	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	2.6E-06	mg/kg/day	NA	NA	NA	7.3E-06	mg/kg/day	1.4E-04	mg/kg/day	5.2E-02
				Cadmium	2.0E-08	MG/M3	1.4E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	8.8E-09	3.9E-09	mg/kg/day	5.7E-05	mg/kg/day	6.9E-05
				Chromium	2.9E-07	MG/M3	2.0E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	8.5E-07	5.7E-08	mg/kg/day	2.3E-06	mg/kg/day	2.5E-02
				Copper	5.6E-07	MG/M3	3.9E-08	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	3.6E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	9.8E-08	mg/kg/day	NA	NA	NA	2.7E-07	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	3.5E-08	mg/kg/day	NA	NA	NA	9.9E-08	mg/kg/day	1.4E-05	mg/kg/day	6.9E-03
				Mercury	8.9E-10	MG/M3	6.2E-11	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	8.6E-05	mg/kg/day	2.0E-06
				Nickel	7.4E-08	MG/M3	5.2E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	2.9E-06	mg/kg/day	1.0E-03
				Zinc	2.3E-06	MG/M3	1.6E-07	mg/kg/day	NA	NA	NA	4.5E-07	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	2.9E-11	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.9E-10	8.0E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	2.7E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	9.6E-11	7.7E-10	mg/kg/day	2.0E-04	mg/kg/day	3.8E-06
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	3.0E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.1E-10	8.5E-10	mg/kg/day	2.0E-04	mg/kg/day	4.2E-06
				DDE-4,4'	7.4E-09	MG/M3	5.2E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	1.1E-10	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.7E-11	3.0E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	8.9E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.4E-09	2.5E-10	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	6.5E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	3.0E-11	1.8E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	1.6E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.5E-12	4.4E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	7.3E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.6E-10	2.1E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	1.5E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.3E-11	4.3E-10	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	3.5E-06	mg/kg/day	NA	NA	NA	9.8E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	4.5E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	4.3E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	4.8E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	2.4E-09	mg/kg/day	NA	NA	NA	6.7E-09	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	4.4E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	2.9E-10	mg/kg/day	NA	NA	NA	8.2E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	1.0E-08	mg/kg/day	NA	NA	NA	2.8E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	1.1E-05	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	8.6E-04	mg/kg/day	3.7E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	NA	mg/kg/day	NA
				Benzene	1.3E-03	MG/M3	9.3E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.5E-06	2.6E-04	mg/kg/day	8.6E-03	mg/kg/day	3.0E-02
				Chloroform	4.6E-04	MG/M3	3.2E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	2.6E-06	9.0E-05	mg/kg/day	1.4E-02	mg/kg/day	6.3E-03
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	2.6E-04	mg/kg/day	NA	NA	NA	7.2E-04	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	3.6E-03	MG/M3	2.5E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	5.3E-06	7.1E-04	mg/kg/day	NA	mg/kg/day	NA
				Toluene	2.0E-02	MG/M3	1.4E-03	mg/kg/day	NA	NA	NA	3.9E-03	mg/kg/day	1.1E-01	mg/kg/day	3.4E-02
				Trichloroethylene	9.5E-04	MG/M3	6.7E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	2.7E-05	1.9E-04	mg/kg/day	1.0E-02	mg/kg/day	1.9E-02
				Vinyl chloride	3.0E-04	MG/M3	2.1E-05	mg/kg/day	1.5E-02	1/(mg/kg-day)	3.2E-07	5.8E-05	mg/kg/day	2.9E-02	mg/kg/day	2.0E-03
				Xylenes, total	6.4E-03	MG/M3	4.5E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	2.9E-02	mg/kg/day	4.4E-02
			Exp. Route Total								3.9E-05					2.6E-01
		Exposure Point Total									3.9E-05					2.6E-01
	Exposure Medium Total										3.9E-05					2.6E-01
Surface Soil Total											6.5E-04					4.2E+00

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TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Ingestion													
				Aluminum	6.1E+03	MG/KG	2.1E-03	mg/kg/day	NA	NA	NA	6.0E-03	mg/kg/day	1.0E+00	mg/kg/day	6.0E-03
				Antimony	1.0E+01	MG/KG	3.5E-06	mg/kg/day	NA	NA	NA	9.9E-06	mg/kg/day	4.0E-04	mg/kg/day	2.5E-02
				Arsenic	7.3E+02	MG/KG	2.6E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.8E-04	7.2E-04	mg/kg/day	3.0E-04	mg/kg/day	2.4E+00
				Barium	2.2E+04	MG/KG	7.5E-03	mg/kg/day	NA	NA	NA	2.1E-02	mg/kg/day	7.0E-02	mg/kg/day	3.0E-01
				Cadmium	1.9E+01	MG/KG	6.6E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	1.0E-03	mg/kg/day	1.9E-02
				Chromium	2.7E+03	MG/KG	9.5E-04	mg/kg/day	NA	NA	NA	2.6E-03	mg/kg/day	3.0E-03	mg/kg/day	8.8E-01
				Copper	5.1E+02	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	5.0E-04	mg/kg/day	4.0E-02	mg/kg/day	1.3E-02
				Iron	2.7E+04	MG/KG	9.3E-03	mg/kg/day	NA	NA	NA	2.6E-02	mg/kg/day	3.0E-01	mg/kg/day	8.7E-02
				Lead	1.4E+04	MG/KG	4.9E-03	mg/kg/day	NA	NA	NA	1.4E-02	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	3.2E-04	mg/kg/day	1.4E-01	mg/kg/day	2.3E-03
				Mercury	2.8E+01	MG/KG	9.8E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	3.0E-04	mg/kg/day	9.1E-02
				Nickel	7.0E+01	MG/KG	2.4E-05	mg/kg/day	NA	NA	NA	6.8E-05	mg/kg/day	2.0E-02	mg/kg/day	3.4E-03
				Silver	6.0E+00	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	5.9E-06	mg/kg/day	5.0E-03	mg/kg/day	1.2E-03
				Thallium	1.4E+00	MG/KG	5.1E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	9.0E-05	mg/kg/day	1.6E-02
				Vanadium	2.4E+01	MG/KG	8.3E-06	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	1.0E-03	mg/kg/day	2.3E-02
				Zinc	1.9E+03	MG/KG	6.7E-04	mg/kg/day	NA	NA	NA	1.9E-03	mg/kg/day	3.0E-01	mg/kg/day	6.3E-03
				Aldrin	1.7E-01	MG/KG	6.0E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.0E-06	1.7E-07	mg/kg/day	3.0E-05	mg/kg/day	5.6E-03
				Chlordane - alpha	1.6E+00	MG/KG	5.5E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.9E-07	1.6E-06	mg/kg/day	5.0E-04	mg/kg/day	3.1E-03
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	6.6E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.3E-07	1.9E-06	mg/kg/day	5.0E-04	mg/kg/day	3.7E-03
				DDE-4,4'	4.9E+00	MG/KG	1.7E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.8E-07	4.8E-06	mg/kg/day	3.0E-04	mg/kg/day	1.6E-02
				DDT-4,4'	3.9E-01	MG/KG	1.4E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.7E-08	3.8E-07	mg/kg/day	5.0E-04	mg/kg/day	7.7E-04
				Dieldrin	1.8E-01	MG/KG	6.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.0E-06	1.8E-07	mg/kg/day	5.0E-05	mg/kg/day	3.5E-03
				Heptachlor	3.8E-02	MG/KG	1.3E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	6.0E-08	3.7E-08	mg/kg/day	5.0E-04	mg/kg/day	7.4E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	3.2E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.5E-08	9.0E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.8E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.5E-06	1.1E-05	mg/kg/day	2.0E-05	mg/kg/day	5.3E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	8.1E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.6E-07	2.3E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	1.0E-01	mg/kg/day	2.8E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	6.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.0E-06	1.9E-05	mg/kg/day	3.0E-02	mg/kg/day	6.4E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.6E-05	1.8E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	7.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-06	2.1E-05	mg/kg/day	3.0E-02	mg/kg/day	7.1E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	2.8E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.0E-07	7.8E-06	mg/kg/day	3.0E-02	mg/kg/day	2.6E-04
				Chrysene	1.8E+01	MG/KG	6.4E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.7E-08	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	6.0E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-05	4.0E-06	mg/kg/day	3.0E-02	mg/kg/day	1.3E-04
				Fluoranthene	3.8E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	4.0E-02	mg/kg/day	9.2E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	3.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.5E-06	9.5E-06	mg/kg/day	5.0E-02	mg/kg/day	1.9E-04
				Naphthalene	3.2E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	2.0E-02	mg/kg/day	1.6E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	9.0E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.3E-07	2.5E-05	mg/kg/day	2.0E-02	mg/kg/day	1.3E-03
				Benzene	5.9E+00	MG/KG	2.1E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.1E-07	5.8E-06	mg/kg/day	4.0E-03	mg/kg/day	1.4E-03
				Bromomethane	5.2E-01	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	5.1E-07	mg/kg/day	1.4E-03	mg/kg/day	3.6E-04
				Chloroform	2.2E+00	MG/KG	7.8E-07	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	1.0E-02	mg/kg/day	2.2E-04
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	2.0E-06	mg/kg/day	NA	NA	NA	5.5E-06	mg/kg/day	1.0E-02	mg/kg/day	5.5E-04
				Ethylbenzene	6.4E+00	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	6.2E-06	mg/kg/day	1.0E-01	mg/kg/day	6.2E-05
				Tetrachloroethylene	2.3E+01	MG/KG	8.0E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	4.3E-06	2.2E-05	mg/kg/day	1.0E-02	mg/kg/day	2.2E-03
				Toluene	3.0E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.0E-05	mg/kg/day	2.0E-01	mg/kg/day	1.5E-04
				Trichloroethylene	1.1E+02	MG/KG	4.0E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.6E-05	1.1E-04	mg/kg/day	3.0E-04	mg/kg/day	3.7E-01
				Vinyl chloride	4.8E-01	MG/KG	1.7E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.5E-07	4.7E-07	mg/kg/day	3.0E-03	mg/kg/day	1.6E-04
				Xylenes, total	4.5E+01	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	4.4E-05	mg/kg/day	2.0E-01	mg/kg/day	2.2E-04
			Exp. Route Total								4.9E-04					4.8E+00

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TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal	Aluminum	6.1E+03	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	3.9E-04	mg/kg/day	1.0E+00	mg/kg/day	3.9E-04
				Antimony	1.0E+01	MG/KG	2.3E-07	mg/kg/day	NA	NA	NA	6.6E-07	mg/kg/day	6.0E-05	mg/kg/day	1.1E-02
				Arsenic	7.3E+02	MG/KG	5.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	7.6E-05	1.4E-04	mg/kg/day	3.0E-04	mg/kg/day	4.7E-01
				Barium	2.2E+04	MG/KG	5.0E-04	mg/kg/day	NA	NA	NA	1.4E-03	mg/kg/day	4.9E-03	mg/kg/day	2.8E-01
				Cadmium	1.9E+01	MG/KG	4.4E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	5.0E-05	mg/kg/day	2.5E-03
				Chromium	2.7E+03	MG/KG	6.2E-05	mg/kg/day	NA	NA	NA	1.7E-04	mg/kg/day	7.5E-05	mg/kg/day	2.3E+00
				Copper	5.1E+02	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	4.0E-02	mg/kg/day	8.3E-04
				Iron	2.7E+04	MG/KG	6.2E-04	mg/kg/day	NA	NA	NA	1.7E-03	mg/kg/day	3.0E-01	mg/kg/day	5.7E-03
				Lead	1.4E+04	MG/KG	3.2E-04	mg/kg/day	NA	NA	NA	9.1E-04	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	7.5E-06	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	5.6E-03	mg/kg/day	3.7E-03
				Mercury	2.8E+01	MG/KG	6.4E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	2.1E-05	mg/kg/day	8.6E-02
				Nickel	7.0E+01	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	4.5E-06	mg/kg/day	8.0E-04	mg/kg/day	5.6E-03
				Silver	6.0E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	2.0E-04	mg/kg/day	1.9E-03
				Thallium	1.4E+00	MG/KG	3.3E-08	mg/kg/day	NA	NA	NA	9.3E-08	mg/kg/day	9.0E-05	mg/kg/day	1.0E-03
				Vanadium	2.4E+01	MG/KG	5.5E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	2.6E-05	mg/kg/day	5.9E-02
				Zinc	1.9E+03	MG/KG	4.4E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.0E-01	mg/kg/day	4.1E-04
				Aldrin	1.7E-01	MG/KG	4.0E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	6.8E-07	1.1E-07	mg/kg/day	3.0E-05	mg/kg/day	3.7E-03
				Chlordane - alpha	1.6E+00	MG/KG	1.5E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.1E-08	4.1E-07	mg/kg/day	5.0E-04	mg/kg/day	8.2E-04
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	1.7E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.1E-08	4.9E-07	mg/kg/day	5.0E-04	mg/kg/day	9.8E-04
				DDE-4,4'	4.9E+00	MG/KG	3.4E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.1E-07	9.4E-07	mg/kg/day	3.0E-04	mg/kg/day	3.1E-03
				DDT-4,4'	3.9E-01	MG/KG	2.7E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	9.2E-09	7.6E-08	mg/kg/day	5.0E-04	mg/kg/day	1.5E-04
				Dieldrin	1.8E-01	MG/KG	4.1E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.6E-07	1.2E-07	mg/kg/day	5.0E-05	mg/kg/day	2.3E-03
				Heptachlor	3.8E-02	MG/KG	8.7E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	3.9E-08	2.4E-08	mg/kg/day	5.0E-04	mg/kg/day	4.9E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	3.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.0E-08	8.3E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.5E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.0E-06	9.7E-06	mg/kg/day	2.0E-05	mg/kg/day	4.9E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	7.5E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.5E-07	2.1E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	6.7E-07	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	1.0E-01	mg/kg/day	1.9E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	5.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-06	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.5E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	5.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.9E-05	1.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	6.5E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-06	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	6.1E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	2.4E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.8E-07	6.7E-06	mg/kg/day	3.0E-02	mg/kg/day	2.2E-04
				Chrysene	1.8E+01	MG/KG	5.5E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.0E-08	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.1E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.9E-06	3.4E-06	mg/kg/day	3.0E-02	mg/kg/day	1.1E-04
				Fluoranthene	3.8E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	3.6E-02	mg/kg/day	8.9E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	2.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.1E-06	8.2E-06	mg/kg/day	5.0E-02	mg/kg/day	1.6E-04
				Naphthalene	3.2E+01	MG/KG	9.7E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	2.0E-02	mg/kg/day	1.4E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	5.9E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	8.3E-08	1.7E-05	mg/kg/day	3.8E-03	mg/kg/day	4.4E-03
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.4E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								1.4E-04					3.8E+00
		Exposure Point Total									6.3E-04					8.6E+00
	Exposure Medium Total										6.3E-04					8.6E+00

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TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Inhalation	Aluminum	6.0E-06	MG/M3	4.2E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	1.4E-03	mg/kg/day	8.2E-04
				Antimony	9.9E-09	MG/M3	7.0E-10	mg/kg/day	NA	NA	NA	1.9E-09	mg/kg/day	NA	NA	NA
				Arsenic	7.2E-07	MG/M3	5.0E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	7.6E-07	1.4E-07	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	1.5E-06	mg/kg/day	NA	NA	NA	4.1E-06	mg/kg/day	1.4E-04	mg/kg/day	3.0E-02
				Cadmium	1.9E-08	MG/M3	1.3E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	8.2E-09	3.6E-09	mg/kg/day	5.7E-05	mg/kg/day	6.4E-05
				Chromium	2.7E-06	MG/M3	1.9E-07	mg/kg/day	4.2E+01	1/(mg/kg-day)	7.8E-06	5.2E-07	mg/kg/day	2.3E-06	mg/kg/day	2.3E-01
				Copper	5.0E-07	MG/M3	3.5E-08	mg/kg/day	NA	NA	NA	9.9E-08	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	1.8E-06	mg/kg/day	NA	NA	NA	5.1E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	9.6E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	2.2E-08	mg/kg/day	NA	NA	NA	6.2E-06	mg/kg/day	1.4E-05	mg/kg/day	4.4E-03
				Mercury	2.7E-08	MG/M3	1.9E-09	mg/kg/day	NA	NA	NA	5.4E-09	mg/kg/day	8.6E-05	mg/kg/day	6.3E-05
				Nickel	6.8E-08	MG/M3	4.8E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	2.9E-06	mg/kg/day	4.0E-04
				Thallium	1.4E-09	MG/M3	9.9E-11	mg/kg/day	NA	NA	NA	2.8E-10	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	4.6E-09	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	1.3E-07	mg/kg/day	NA	NA	NA	3.7E-07	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	1.2E-11	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.0E-10	3.3E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	1.1E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.8E-11	3.0E-10	mg/kg/day	2.0E-04	mg/kg/day	1.5E-06
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	1.3E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.5E-11	3.6E-10	mg/kg/day	2.0E-04	mg/kg/day	1.8E-06
				DDE-4,4'	4.8E-09	MG/M3	3.3E-10	mg/kg/day	NA	NA	NA	9.3E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	2.7E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	9.1E-12	7.5E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	1.2E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.0E-10	3.4E-11	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	2.6E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	1.2E-11	7.3E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	6.3E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.2E-12	1.8E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	7.4E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.6E-10	2.1E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.3E-10	MG/M3	1.6E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.6E-12	4.5E-11	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	3.5E-06	mg/kg/day	NA	NA	NA	9.8E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	3.7E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	3.5E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	4.2E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	7.8E-09	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	3.5E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	2.8E-10	mg/kg/day	NA	NA	NA	7.8E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	2.6E-09	mg/kg/day	NA	NA	NA	7.2E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	6.7E-10	mg/kg/day	NA	NA	NA	1.9E-09	mg/kg/day	NA	NA	NA
				Naphthalene	7.2E-04	MG/M3	5.0E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	8.6E-04	mg/kg/day	1.6E-01
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	1.8E-09	mg/kg/day	NA	NA	NA	4.9E-09	mg/kg/day	NA	NA	NA
				Benzene	2.0E-03	MG/M3	1.4E-04	mg/kg/day	2.7E-02	1/(mg/kg-day)	3.9E-06	4.0E-04	mg/kg/day	8.6E-03	mg/kg/day	4.6E-02
				Bromomethane	2.8E-04	MG/M3	1.9E-05	mg/kg/day	NA	NA	NA	5.4E-05	mg/kg/day	1.4E-03	mg/kg/day	3.8E-02
				Chloroform	7.3E-04	MG/M3	5.1E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	4.1E-06	1.4E-04	mg/kg/day	1.4E-02	mg/kg/day	1.0E-02
				Dichloroethylene-1,2 cis	1.9E-03	MG/M3	1.3E-04	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	NA	NA	NA
				Ethylbenzene	1.5E-03	MG/M3	1.0E-04	mg/kg/day	NA	NA	NA	2.9E-04	mg/kg/day	2.9E-01	mg/kg/day	1.0E-03
				Tetrachloroethylene	6.9E-03	MG/M3	4.8E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.0E-05	1.3E-03	mg/kg/day	NA	NA	NA
				Toluene	8.2E-03	MG/M3	5.7E-04	mg/kg/day	NA	NA	NA	1.6E-03	mg/kg/day	1.1E-01	mg/kg/day	1.4E-02
				Trichloroethylene	3.3E-02	MG/M3	2.3E-03	mg/kg/day	4.0E-01	1/(mg/kg-day)	9.3E-04	6.5E-03	mg/kg/day	1.0E-02	mg/kg/day	6.5E-01
				Vinyl chloride	4.4E-04	MG/M3	3.1E-05	mg/kg/day	1.5E-02	1/(mg/kg-day)	4.8E-07	8.7E-05	mg/kg/day	2.9E-02	mg/kg/day	3.0E-03
				Xylenes, total	9.8E-03	MG/M3	6.8E-04	mg/kg/day	NA	NA	NA	1.9E-03	mg/kg/day	2.9E-02	mg/kg/day	6.7E-02
			Exp. Route Total								9.6E-04					1.3E+00
		Exposure Point Total									9.6E-04					1.3E+00
	Exposure Medium Total										9.6E-04					1.3E+00
Subsurface Soil Total											1.6E-03					9.8E+00

NA = Not applicable.

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TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion													
				Aluminum	6.0E+03	MG/KG	2.8E-03	mg/kg/day	NA	NA	NA	8.3E-03	mg/kg/day	1.0E+00	mg/kg/day	8.3E-03
				Antimony	4.7E+00	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	6.5E-06	mg/kg/day	4.0E-04	mg/kg/day	1.6E-02
				Arsenic	2.9E+02	MG/KG	1.3E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.0E-04	3.9E-04	mg/kg/day	3.0E-04	mg/kg/day	1.3E+00
				Barium	3.8E+04	MG/KG	1.8E-02	mg/kg/day	NA	NA	NA	5.2E-02	mg/kg/day	7.0E-02	mg/kg/day	7.4E-01
				Cadmium	2.0E+01	MG/KG	9.6E-06	mg/kg/day	NA	NA	NA	2.8E-05	mg/kg/day	1.0E-03	mg/kg/day	2.8E-02
				Chromium	3.0E+02	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	4.1E-04	mg/kg/day	3.0E-03	mg/kg/day	1.4E-01
				Copper	5.7E+02	MG/KG	2.7E-04	mg/kg/day	NA	NA	NA	7.9E-04	mg/kg/day	4.0E-02	mg/kg/day	2.0E-02
				Iron	5.2E+04	MG/KG	2.5E-02	mg/kg/day	NA	NA	NA	7.2E-02	mg/kg/day	3.0E-01	mg/kg/day	2.4E-01
				Lead	1.4E+03	MG/KG	6.7E-04	mg/kg/day	NA	NA	NA	2.0E-03	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	2.4E-04	mg/kg/day	NA	NA	NA	7.0E-04	mg/kg/day	1.4E-01	mg/kg/day	5.0E-03
				Mercury	9.1E-01	MG/KG	4.3E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	3.0E-04	mg/kg/day	4.2E-03
				Nickel	7.6E+01	MG/KG	3.6E-05	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	2.0E-02	mg/kg/day	5.2E-03
				Silver	1.5E+01	MG/KG	7.0E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	5.0E-03	mg/kg/day	4.1E-03
				Zinc	2.3E+03	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	3.2E-03	mg/kg/day	3.0E-01	mg/kg/day	1.1E-02
				Aldrin	4.2E-01	MG/KG	2.0E-07	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.3E-06	5.7E-07	mg/kg/day	3.0E-05	mg/kg/day	1.9E-02
				Chlordane - alpha	4.0E+00	MG/KG	1.9E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.6E-07	5.5E-06	mg/kg/day	5.0E-04	mg/kg/day	1.1E-02
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	2.1E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.3E-07	6.1E-06	mg/kg/day	5.0E-04	mg/kg/day	1.2E-02
				DDE-4,4'	7.6E+00	MG/KG	3.6E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.2E-06	1.0E-05	mg/kg/day	3.0E-04	mg/kg/day	3.5E-02
				DDT-4,4'	1.6E+00	MG/KG	7.4E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.5E-07	2.2E-06	mg/kg/day	5.0E-04	mg/kg/day	4.3E-03
				Dieldrin	1.3E+00	MG/KG	6.1E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	9.8E-06	1.8E-06	mg/kg/day	5.0E-05	mg/kg/day	3.6E-02
				Heptachlor	9.5E-02	MG/KG	4.5E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	2.0E-07	1.3E-07	mg/kg/day	5.0E-04	mg/kg/day	2.6E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	1.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.2E-07	3.2E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	5.0E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.0E-05	1.5E-05	mg/kg/day	2.0E-05	mg/kg/day	7.3E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	1.0E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.1E-06	3.0E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.0E-06	mg/kg/day	1.0E-01	mg/kg/day	4.0E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	3.1E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.3E-05	9.0E-05	mg/kg/day	3.0E-02	mg/kg/day	3.0E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	2.9E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.1E-04	8.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	3.3E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-05	9.6E-05	mg/kg/day	3.0E-02	mg/kg/day	3.2E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.6E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.2E-06	4.8E-05	mg/kg/day	3.0E-02	mg/kg/day	1.6E-03
				Chrysene	6.4E+01	MG/KG	3.0E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.2E-07	8.8E-05	mg/kg/day	3.0E-02	mg/kg/day	2.9E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	2.0E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.5E-05	5.8E-06	mg/kg/day	3.0E-02	mg/kg/day	1.9E-04
				Fluoranthene	1.5E+02	MG/KG	7.0E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	4.0E-02	mg/kg/day	5.1E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	7.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.7E-06	2.3E-05	mg/kg/day	5.0E-02	mg/kg/day	4.6E-04
				Naphthalene	7.2E+00	MG/KG	3.4E-06	mg/kg/day	NA	NA	NA	9.9E-06	mg/kg/day	2.0E-02	mg/kg/day	5.0E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	7.1E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	9.9E-08	2.1E-05	mg/kg/day	2.0E-02	mg/kg/day	1.0E-03
				Benzene	3.9E+00	MG/KG	1.8E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.0E-07	5.3E-06	mg/kg/day	4.0E-03	mg/kg/day	1.3E-03
				Chloroform	1.4E+00	MG/KG	6.6E-07	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	1.0E-02	mg/kg/day	1.9E-04
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	1.0E-02	mg/kg/day	1.5E-03
				Tetrachloroethylene	1.2E+01	MG/KG	5.7E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	3.1E-06	1.7E-05	mg/kg/day	1.0E-02	mg/kg/day	1.7E-03
				Toluene	7.3E+01	MG/KG	3.4E-05	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	2.0E-01	mg/kg/day	5.0E-04
				Trichloroethylene	3.2E+00	MG/KG	1.5E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	6.1E-07	4.4E-06	mg/kg/day	3.0E-04	mg/kg/day	1.5E-02
				Vinyl chloride	3.2E-01	MG/KG	1.5E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.3E-07	4.4E-07	mg/kg/day	3.0E-03	mg/kg/day	1.5E-04
				Xylenes, total	2.9E+01	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	4.0E-05	mg/kg/day	2.0E-01	mg/kg/day	2.0E-04
			Exp. Route Total								5.2E-04					3.4E+00

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TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dermal	Aluminum	6.0E+03	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	3.3E-04	mg/kg/day	1.0E+00	mg/kg/day	3.3E-04
				Antimony	4.7E+00	MG/KG	8.8E-08	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	6.0E-05	mg/kg/day	4.3E-03
				Arsenic	2.9E+02	MG/KG	1.6E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.4E-05	4.7E-05	mg/kg/day	3.0E-04	mg/kg/day	1.6E-01
				Barium	3.8E+04	MG/KG	7.1E-04	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	4.9E-03	mg/kg/day	4.2E-01
				Cadmium	2.0E+01	MG/KG	3.8E-08	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	5.0E-05	mg/kg/day	2.2E-03
				Chromium	3.0E+02	MG/KG	5.6E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	7.5E-05	mg/kg/day	2.2E-01
				Copper	5.7E+02	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	4.0E-02	mg/kg/day	7.9E-04
				Iron	5.2E+04	MG/KG	9.8E-04	mg/kg/day	NA	NA	NA	2.9E-03	mg/kg/day	3.0E-01	mg/kg/day	9.5E-03
				Lead	1.4E+03	MG/KG	2.7E-05	mg/kg/day	NA	NA	NA	7.6E-05	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	9.6E-06	mg/kg/day	NA	NA	NA	2.8E-05	mg/kg/day	5.6E-03	mg/kg/day	5.0E-03
				Mercury	9.1E-01	MG/KG	1.7E-08	mg/kg/day	NA	NA	NA	5.0E-08	mg/kg/day	2.1E-05	mg/kg/day	2.4E-03
				Nickel	7.6E+01	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.1E-06	mg/kg/day	8.0E-04	mg/kg/day	5.2E-03
				Silver	1.5E+01	MG/KG	2.8E-07	mg/kg/day	NA	NA	NA	8.2E-07	mg/kg/day	2.0E-04	mg/kg/day	4.1E-03
				Zinc	2.3E+03	MG/KG	4.4E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	3.0E-01	mg/kg/day	4.3E-04
				Aldrin	4.2E-01	MG/KG	7.8E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.3E-06	2.3E-07	mg/kg/day	3.0E-05	mg/kg/day	7.6E-03
				Chlordane - alpha	4.0E+00	MG/KG	3.0E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.0E-07	8.7E-07	mg/kg/day	5.0E-04	mg/kg/day	1.7E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	3.3E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.2E-07	9.7E-07	mg/kg/day	5.0E-04	mg/kg/day	1.9E-03
				DDE-4,4'	7.6E+00	MG/KG	4.3E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.4E-07	1.2E-06	mg/kg/day	3.0E-04	mg/kg/day	4.1E-03
				DDT-4,4'	1.6E+00	MG/KG	8.9E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.0E-08	2.6E-07	mg/kg/day	5.0E-04	mg/kg/day	5.2E-04
				Dieldrin	1.3E+00	MG/KG	2.4E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.9E-06	7.1E-07	mg/kg/day	5.0E-05	mg/kg/day	1.4E-02
				Heptachlor	9.5E-02	MG/KG	1.8E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	8.0E-08	5.2E-08	mg/kg/day	5.0E-04	mg/kg/day	1.0E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	6.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-07	1.8E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	2.8E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.6E-06	8.2E-06	mg/kg/day	2.0E-05	mg/kg/day	4.1E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	5.8E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-06	1.7E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	5.4E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.0E-01	mg/kg/day	1.6E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	1.6E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-05	4.7E-05	mg/kg/day	3.0E-02	mg/kg/day	1.6E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	1.5E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-04	4.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	1.7E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-05	5.0E-05	mg/kg/day	3.0E-02	mg/kg/day	1.7E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	8.5E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	6.2E-07	2.5E-05	mg/kg/day	3.0E-02	mg/kg/day	8.2E-04
				Chrysene	6.4E+01	MG/KG	1.6E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.1E-07	4.6E-05	mg/kg/day	3.0E-02	mg/kg/day	1.5E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.0E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.6E-06	3.0E-06	mg/kg/day	3.0E-02	mg/kg/day	1.0E-04
				Fluoranthene	1.5E+02	MG/KG	3.6E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.6E-02	mg/kg/day	3.0E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	4.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.0E-06	1.2E-05	mg/kg/day	5.0E-02	mg/kg/day	2.4E-04
				Naphthalene	7.2E+00	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	5.1E-06	mg/kg/day	2.0E-02	mg/kg/day	2.6E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	2.8E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	3.9E-08	8.2E-06	mg/kg/day	3.8E-03	mg/kg/day	2.2E-03
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								1.8E-04					1.3E+00
		Exposure Point Total									7.0E-04					4.7E+00
	Exposure Medium Total										7.0E-04					4.7E+00

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	5.5E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.4E-03	mg/kg/day	1.1E-03
				Antimony	4.6E-09	MG/M3	4.3E-10	mg/kg/day	NA	NA	NA	1.3E-09	mg/kg/day	NA	NA	NA
				Arsenic	2.8E-07	MG/M3	2.6E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.9E-07	7.6E-08	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	3.5E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	1.4E-04	mg/kg/day	7.2E-02
				Cadmium	2.0E-08	MG/M3	1.9E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.2E-08	5.5E-09	mg/kg/day	5.7E-05	mg/kg/day	9.6E-05
				Chromium	2.9E-07	MG/M3	2.7E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.1E-06	7.9E-08	mg/kg/day	2.3E-06	mg/kg/day	3.5E-02
				Copper	5.6E-07	MG/M3	5.3E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	4.8E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	1.3E-07	mg/kg/day	NA	NA	NA	3.8E-07	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	4.7E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	1.4E-05	mg/kg/day	9.6E-03
				Mercury	8.9E-10	MG/M3	8.4E-11	mg/kg/day	NA	NA	NA	2.4E-10	mg/kg/day	8.6E-05	mg/kg/day	2.8E-06
				Nickel	7.4E-08	MG/M3	7.0E-09	mg/kg/day	NA	NA	NA	2.0E-08	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	4.0E-09	mg/kg/day	2.9E-06	mg/kg/day	1.4E-03
				Zinc	2.3E-06	MG/M3	2.1E-07	mg/kg/day	NA	NA	NA	6.3E-07	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	3.8E-11	mg/kg/day	1.7E+01	1/(mg/kg-day)	6.6E-10	1.1E-10	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	3.7E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-10	1.1E-09	mg/kg/day	2.0E-04	mg/kg/day	5.4E-06
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	4.1E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.4E-10	1.2E-09	mg/kg/day	2.0E-04	mg/kg/day	5.9E-06
				DDE-4,4'	7.4E-09	MG/M3	6.9E-10	mg/kg/day	NA	NA	NA	2.0E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	1.4E-10	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.9E-11	4.2E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	1.2E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.9E-09	3.5E-10	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	8.7E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	4.0E-11	2.5E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	2.1E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.4E-12	6.2E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	9.8E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.4E-10	2.9E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	2.0E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.1E-11	5.9E-10	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	4.7E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	6.0E-09	mg/kg/day	NA	NA	NA	1.8E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	5.7E-09	mg/kg/day	NA	NA	NA	1.7E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	6.4E-09	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	3.2E-09	mg/kg/day	NA	NA	NA	9.3E-09	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	5.9E-09	mg/kg/day	NA	NA	NA	1.7E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	3.9E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	1.4E-08	mg/kg/day	NA	NA	NA	4.0E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	4.5E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	1.5E-05	mg/kg/day	NA	NA	NA	4.4E-05	mg/kg/day	8.6E-04	mg/kg/day	5.1E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	4.0E-09	mg/kg/day	NA	NA	NA
				Benzene	1.3E-03	MG/M3	1.2E-04	mg/kg/day	2.7E-02	1/(mg/kg-day)	3.4E-06	3.6E-04	mg/kg/day	8.6E-03	mg/kg/day	4.2E-02
				Chloroform	4.6E-04	MG/M3	4.3E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	3.4E-06	1.2E-04	mg/kg/day	1.4E-02	mg/kg/day	8.7E-03
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	3.4E-04	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	3.6E-03	MG/M3	3.4E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	7.2E-06	9.9E-04	mg/kg/day	NA	NA	NA
				Toluene	2.0E-02	MG/M3	1.9E-03	mg/kg/day	NA	NA	NA	5.4E-03	mg/kg/day	1.1E-01	mg/kg/day	4.7E-02
				Trichloroethylene	9.5E-04	MG/M3	8.9E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.6E-05	2.6E-04	mg/kg/day	1.0E-02	mg/kg/day	2.6E-02
				Vinyl chloride	3.0E-04	MG/M3	2.8E-05	mg/kg/day	1.5E-02	1/(mg/kg-day)	4.3E-07	8.1E-05	mg/kg/day	2.9E-02	mg/kg/day	2.8E-03
				Xylenes, total	6.4E-03	MG/M3	6.0E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	2.9E-02	mg/kg/day	6.2E-02
			Exp. Route Total								5.2E-05					3.6E-01
		Exposure Point Total									5.2E-05					3.6E-01
	Exposure Medium Total										5.2E-05					3.6E-01
Surface Soil Total											7.5E-04					5.0E+00

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TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Ingestion	Aluminum	6.1E+03	MG/KG	2.9E-03	mg/kg/day	NA	NA	NA	8.4E-03	mg/kg/day	1.0E+00	mg/kg/day	8.4E-03
				Antimony	1.0E+01	MG/KG	4.8E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	4.0E-04	mg/kg/day	3.5E-02
				Arsenic	7.3E+02	MG/KG	3.4E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.2E-04	1.0E-03	mg/kg/day	3.0E-04	mg/kg/day	3.4E+00
				Barium	2.2E+04	MG/KG	1.0E-02	mg/kg/day	NA	NA	NA	3.0E-02	mg/kg/day	7.0E-02	mg/kg/day	4.2E-01
				Cadmium	1.9E+01	MG/KG	8.9E-06	mg/kg/day	NA	NA	NA	2.6E-05	mg/kg/day	1.0E-03	mg/kg/day	2.6E-02
				Chromium	2.7E+03	MG/KG	1.3E-03	mg/kg/day	NA	NA	NA	3.7E-03	mg/kg/day	3.0E-03	mg/kg/day	1.2E+00
				Copper	5.1E+02	MG/KG	2.4E-04	mg/kg/day	NA	NA	NA	7.0E-04	mg/kg/day	4.0E-02	mg/kg/day	1.8E-02
				Iron	2.7E+04	MG/KG	1.3E-02	mg/kg/day	NA	NA	NA	3.7E-02	mg/kg/day	3.0E-01	mg/kg/day	1.2E-01
				Lead	1.4E+04	MG/KG	6.6E-03	mg/kg/day	NA	NA	NA	1.9E-02	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.5E-04	mg/kg/day	NA	NA	NA	4.4E-04	mg/kg/day	1.4E-01	mg/kg/day	3.2E-03
				Mercury	2.8E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	3.8E-05	mg/kg/day	3.0E-04	mg/kg/day	1.3E-01
				Nickel	7.0E+01	MG/KG	3.3E-05	mg/kg/day	NA	NA	NA	9.5E-05	mg/kg/day	2.0E-02	mg/kg/day	4.8E-03
				Silver	6.0E+00	MG/KG	2.8E-06	mg/kg/day	NA	NA	NA	8.2E-06	mg/kg/day	5.0E-03	mg/kg/day	1.6E-03
				Thallium	1.4E+00	MG/KG	6.8E-07	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	9.0E-05	mg/kg/day	2.2E-02
				Vanadium	2.4E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	1.0E-03	mg/kg/day	3.3E-02
				Zinc	1.9E+03	MG/KG	9.0E-04	mg/kg/day	NA	NA	NA	2.6E-03	mg/kg/day	3.0E-01	mg/kg/day	8.8E-03
				Aldrin	1.7E-01	MG/KG	8.1E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.4E-06	2.4E-07	mg/kg/day	3.0E-05	mg/kg/day	7.9E-03
				Chlordane - alpha	1.6E+00	MG/KG	7.4E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.6E-07	2.2E-06	mg/kg/day	5.0E-04	mg/kg/day	4.3E-03
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	8.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.1E-07	2.6E-06	mg/kg/day	5.0E-04	mg/kg/day	5.2E-03
				DDE-4,4'	4.9E+00	MG/KG	2.3E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	7.8E-07	6.7E-06	mg/kg/day	3.0E-04	mg/kg/day	2.2E-02
				DDT-4,4'	3.9E-01	MG/KG	1.8E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	6.3E-08	5.4E-07	mg/kg/day	5.0E-04	mg/kg/day	1.1E-03
				Dieldrin	1.8E-01	MG/KG	8.4E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.3E-06	2.5E-07	mg/kg/day	5.0E-05	mg/kg/day	4.9E-03
				Heptachlor	3.8E-02	MG/KG	1.8E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	8.0E-08	5.2E-08	mg/kg/day	5.0E-04	mg/kg/day	1.0E-04
				Pcb-Aroclor 1248	9.2E-02	MG/KG	4.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	8.7E-08	1.3E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	5.1E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.0E-05	1.5E-05	mg/kg/day	2.0E-05	mg/kg/day	7.4E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	1.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.2E-07	3.2E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.0E-06	mg/kg/day	1.0E-01	mg/kg/day	4.0E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	9.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.7E-06	2.7E-05	mg/kg/day	3.0E-02	mg/kg/day	8.9E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	8.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.2E-05	2.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	1.0E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.4E-06	3.0E-05	mg/kg/day	3.0E-02	mg/kg/day	9.9E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	3.8E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.7E-07	1.1E-05	mg/kg/day	3.0E-02	mg/kg/day	3.7E-04
				Chrysene	1.8E+01	MG/KG	8.6E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	6.3E-08	2.5E-05	mg/kg/day	3.0E-02	mg/kg/day	8.4E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.9E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-05	5.6E-06	mg/kg/day	3.0E-02	mg/kg/day	1.9E-04
				Fluoranthene	3.8E+01	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	5.1E-05	mg/kg/day	4.0E-02	mg/kg/day	1.3E-03
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	4.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.3E-06	1.3E-05	mg/kg/day	5.0E-02	mg/kg/day	2.7E-04
				Naphthalene	3.2E+01	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	4.4E-05	mg/kg/day	2.0E-02	mg/kg/day	2.2E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	1.2E-05	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.7E-07	3.5E-05	mg/kg/day	2.0E-02	mg/kg/day	1.8E-03
				Benzene	5.9E+00	MG/KG	2.8E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.5E-07	8.1E-06	mg/kg/day	4.0E-03	mg/kg/day	2.0E-03
				Bromomethane	5.2E-01	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	7.1E-07	mg/kg/day	1.4E-03	mg/kg/day	5.1E-04
				Chloroform	2.2E+00	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	3.1E-06	mg/kg/day	1.0E-02	mg/kg/day	3.1E-04
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	2.6E-06	mg/kg/day	NA	NA	NA	7.7E-06	mg/kg/day	1.0E-02	mg/kg/day	7.7E-04
				Ethylbenzene	6.4E+00	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	8.7E-06	mg/kg/day	1.0E-01	mg/kg/day	8.7E-05
				Tetrachloroethylene	2.3E+01	MG/KG	1.1E-05	mg/kg/day	5.4E-01	1/(mg/kg-day)	5.8E-06	3.1E-05	mg/kg/day	1.0E-02	mg/kg/day	3.1E-03
				Toluene	3.0E+01	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	4.2E-05	mg/kg/day	2.0E-01	mg/kg/day	2.1E-04
				Trichloroethylene	1.1E+02	MG/KG	5.3E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	2.1E-05	1.6E-04	mg/kg/day	3.0E-04	mg/kg/day	5.2E-01
				Vinyl chloride	4.8E-01	MG/KG	2.3E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.4E-07	6.6E-07	mg/kg/day	3.0E-03	mg/kg/day	2.2E-04
				Xylenes, total	4.5E+01	MG/KG	2.1E-05	mg/kg/day	NA	NA	NA	6.1E-05	mg/kg/day	2.0E-01	mg/kg/day	3.0E-04
			Exp. Route Total								6.5E-04					6.7E+00

301002

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal	Aluminum	6.1E+03	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	3.3E-04	mg/kg/day	1.0E+00	mg/kg/day	3.3E-04
				Antimony	1.0E+01	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	5.5E-07	mg/kg/day	6.0E-05	mg/kg/day	9.2E-03
				Arsenic	7.3E+02	MG/KG	4.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.2E-05	1.2E-04	mg/kg/day	3.0E-04	mg/kg/day	4.0E-01
				Barium	2.2E+04	MG/KG	4.0E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	4.9E-03	mg/kg/day	2.4E-01
				Cadmium	1.9E+01	MG/KG	3.6E-08	mg/kg/day	NA	NA	NA	1.0E-07	mg/kg/day	5.0E-05	mg/kg/day	2.1E-03
				Chromium	2.7E+03	MG/KG	5.1E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	7.5E-05	mg/kg/day	2.0E+00
				Copper	5.1E+02	MG/KG	9.6E-06	mg/kg/day	NA	NA	NA	2.8E-05	mg/kg/day	4.0E-02	mg/kg/day	7.0E-04
				Iron	2.7E+04	MG/KG	5.0E-04	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	3.0E-01	mg/kg/day	4.9E-03
				Lead	1.4E+04	MG/KG	2.6E-04	mg/kg/day	NA	NA	NA	7.7E-04	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	6.1E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	5.6E-03	mg/kg/day	3.2E-03
				Mercury	2.8E+01	MG/KG	5.2E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	2.1E-05	mg/kg/day	7.3E-02
				Nickel	7.0E+01	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	3.8E-06	mg/kg/day	8.0E-04	mg/kg/day	4.8E-03
				Silver	6.0E+00	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	3.3E-07	mg/kg/day	2.0E-04	mg/kg/day	1.6E-03
				Thallium	1.4E+00	MG/KG	2.7E-08	mg/kg/day	NA	NA	NA	7.9E-08	mg/kg/day	9.0E-05	mg/kg/day	8.8E-04
				Vanadium	2.4E+01	MG/KG	4.5E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	2.6E-05	mg/kg/day	5.0E-02
				Zinc	1.9E+03	MG/KG	3.6E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.5E-04
				Aldrin	1.7E-01	MG/KG	3.2E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.5E-07	9.4E-08	mg/kg/day	3.0E-05	mg/kg/day	3.1E-03
				Chlordane - alpha	1.6E+00	MG/KG	1.2E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.2E-08	3.5E-07	mg/kg/day	5.0E-04	mg/kg/day	6.9E-04
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	1.4E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.0E-08	4.1E-07	mg/kg/day	5.0E-04	mg/kg/day	8.3E-04
				DDE-4,4'	4.9E+00	MG/KG	2.7E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	9.3E-08	8.0E-07	mg/kg/day	3.0E-04	mg/kg/day	2.7E-03
				DDT-4,4'	3.9E-01	MG/KG	2.2E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	7.5E-09	6.4E-08	mg/kg/day	5.0E-04	mg/kg/day	1.3E-04
				Dieldrin	1.8E-01	MG/KG	3.4E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	5.4E-07	9.8E-08	mg/kg/day	5.0E-05	mg/kg/day	2.0E-03
				Heptachlor	3.8E-02	MG/KG	7.1E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	3.2E-08	2.1E-08	mg/kg/day	5.0E-04	mg/kg/day	4.1E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	2.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.8E-08	7.1E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	2.8E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.6E-06	8.2E-06	mg/kg/day	2.0E-05	mg/kg/day	4.1E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	6.1E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-07	1.8E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	5.4E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.0E-01	mg/kg/day	1.6E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	4.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-06	1.4E-05	mg/kg/day	3.0E-02	mg/kg/day	4.6E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	4.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.2E-05	1.3E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	5.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.8E-06	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.1E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	1.9E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.4E-07	5.7E-06	mg/kg/day	3.0E-02	mg/kg/day	1.9E-04
				Chrysene	1.8E+01	MG/KG	4.5E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	3.3E-08	1.3E-05	mg/kg/day	3.0E-02	mg/kg/day	4.3E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	9.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.2E-06	2.9E-06	mg/kg/day	3.0E-02	mg/kg/day	9.6E-05
				Fluoranthene	3.8E+01	MG/KG	9.2E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	3.6E-02	mg/kg/day	7.5E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	2.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-06	6.9E-06	mg/kg/day	5.0E-02	mg/kg/day	1.4E-04
				Naphthalene	3.2E+01	MG/KG	7.9E-06	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	2.0E-02	mg/kg/day	1.1E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	4.8E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	6.8E-08	1.4E-05	mg/kg/day	3.8E-03	mg/kg/day	3.7E-03
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.4E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								1.2E-04					3.2E+00
		Exposure Point Total									7.7E-04					9.9E+00
	Exposure Medium Total										7.7E-04					9.9E+00

301003

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Inhalation	Aluminum	6.0E-06	MG/M3	5.6E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.4E-03	NA	1.1E-03
				Antimony	9.9E-09	MG/M3	9.3E-10	mg/kg/day	NA	NA	NA	2.7E-09	mg/kg/day	NA	NA	NA
				Arsenic	7.2E-07	MG/M3	6.7E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.0E-06	2.0E-07	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	2.0E-06	mg/kg/day	NA	NA	NA	5.8E-06	mg/kg/day	1.4E-04	mg/kg/day	4.1E-02
				Cadmium	1.9E-08	MG/M3	1.7E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.1E-08	5.1E-09	mg/kg/day	5.7E-05	mg/kg/day	8.9E-05
				Chromium	2.7E-06	MG/M3	2.5E-07	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.0E-05	7.2E-07	mg/kg/day	2.3E-06	mg/kg/day	3.2E-01
				Copper	5.0E-07	MG/M3	4.7E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	2.4E-06	mg/kg/day	NA	NA	NA	7.1E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	1.3E-06	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	3.0E-08	mg/kg/day	NA	NA	NA	8.7E-08	mg/kg/day	1.4E-05	mg/kg/day	6.1E-03
				Mercury	2.7E-08	MG/M3	2.6E-09	mg/kg/day	NA	NA	NA	7.5E-09	mg/kg/day	8.6E-05	mg/kg/day	8.7E-05
				Nickel	6.8E-08	MG/M3	6.4E-09	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	1.6E-09	mg/kg/day	2.9E-06	mg/kg/day	5.6E-04
				Thallium	1.4E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	3.9E-10	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	2.2E-09	mg/kg/day	NA	NA	NA	6.4E-09	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	1.8E-07	mg/kg/day	NA	NA	NA	5.2E-07	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	1.6E-11	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.7E-10	4.6E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	1.5E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.1E-11	4.2E-10	mg/kg/day	2.0E-04	mg/kg/day	2.1E-06
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	1.7E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.1E-11	5.1E-10	mg/kg/day	2.0E-04	mg/kg/day	2.5E-06
				DDE-4,4'	4.8E-09	MG/M3	4.5E-10	mg/kg/day	NA	NA	NA	1.3E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	3.6E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.2E-11	1.0E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	1.6E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.6E-10	4.8E-11	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	3.5E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	1.6E-11	1.0E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	8.5E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.0E-12	2.5E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	9.9E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.5E-10	2.9E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.3E-10	MG/M3	2.1E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.5E-12	6.2E-11	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	4.7E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	1.8E-09	mg/kg/day	NA	NA	NA	5.2E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	2.0E-09	mg/kg/day	NA	NA	NA	5.8E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	7.8E-09	MG/M3	7.3E-10	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	4.9E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	3.7E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	3.4E-09	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	8.9E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	NA	NA	NA
				Naphthalene	7.2E-04	MG/M3	6.7E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	8.6E-04	mg/kg/day	2.3E-01
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	2.4E-09	mg/kg/day	NA	NA	NA	6.9E-09	mg/kg/day	NA	NA	NA
				Benzene	2.0E-03	MG/M3	1.9E-04	mg/kg/day	2.7E-02	1/(mg/kg-day)	5.2E-06	5.5E-04	mg/kg/day	8.6E-03	mg/kg/day	6.5E-02
				Bromomethane	2.8E-04	MG/M3	2.6E-05	mg/kg/day	NA	NA	NA	7.5E-05	mg/kg/day	1.4E-03	mg/kg/day	5.3E-02
				Chloroform	7.3E-04	MG/M3	6.8E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	5.5E-06	2.0E-04	mg/kg/day	1.4E-02	mg/kg/day	1.4E-02
				Dichloroethylene-1,2 cis	1.9E-03	MG/M3	1.7E-04	mg/kg/day	NA	NA	NA	5.1E-04	mg/kg/day	NA	NA	NA
				Ethylbenzene	1.5E-03	MG/M3	1.4E-04	mg/kg/day	NA	NA	NA	4.0E-04	mg/kg/day	2.9E-01	mg/kg/day	1.4E-03
				Tetrachloroethylene	6.9E-03	MG/M3	6.4E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.3E-05	1.9E-03	mg/kg/day	NA	NA	NA
				Toluene	8.2E-03	MG/M3	7.7E-04	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	1.1E-01	mg/kg/day	2.0E-02
				Trichloroethylene	3.3E-02	MG/M3	3.1E-03	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.2E-03	9.1E-03	mg/kg/day	1.0E-02	mg/kg/day	9.1E-01
				Vinyl chloride	4.1E-04	MG/M3	4.1E-05	mg/kg/day	1.5E-02	1/(mg/kg-day)	6.4E-07	1.2E-04	mg/kg/day	2.9E-02	mg/kg/day	4.2E-03
				Xylenes, total	9.8E-03	MG/M3	9.1E-04	mg/kg/day	NA	NA	NA	2.7E-03	mg/kg/day	2.9E-02	mg/kg/day	9.3E-02
			Exp. Route Total								1.3E-03					1.8E+00
		Exposure Point Total									1.3E-03					1.8E+00
	Exposure Medium Total										1.3E-03					1.8E+00
Subsurface Soil Total											2.1E-03					1.2E+01

NA = Not applicable.

301004

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion													
				Aluminum	6.0E+03	MG/KG	6.6E-03	mg/kg/day	NA	NA	NA	7.7E-02	mg/kg/day	1.0E+00	mg/kg/day	7.7E-02
				Antimony	4.7E+00	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	6.0E-05	mg/kg/day	2.0E-04	mg/kg/day	3.0E-01
				Arsenic	2.9E+02	MG/KG	3.1E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.7E-04	3.7E-03	mg/kg/day	5.0E-03	mg/kg/day	7.3E-01
				Barium	3.8E+04	MG/KG	4.2E-02	mg/kg/day	NA	NA	NA	4.8E-01	mg/kg/day	7.0E-02	mg/kg/day	6.9E+00
				Cadmium	2.0E+01	MG/KG	2.2E-05	mg/kg/day	NA	NA	NA	2.6E-04	mg/kg/day	1.0E-03	mg/kg/day	2.6E-01
				Chromium	3.0E+02	MG/KG	3.3E-04	mg/kg/day	NA	NA	NA	3.8E-03	mg/kg/day	2.0E-02	mg/kg/day	1.9E-01
				Copper	5.7E+02	MG/KG	6.3E-04	mg/kg/day	NA	NA	NA	7.3E-03	mg/kg/day	4.0E-02	mg/kg/day	1.8E-01
				Iron	5.2E+04	MG/KG	5.7E-02	mg/kg/day	NA	NA	NA	6.7E-01	mg/kg/day	3.0E-01	mg/kg/day	2.2E+00
				Lead	1.4E+03	MG/KG	1.6E-03	mg/kg/day	NA	NA	NA	1.6E-02	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	5.6E-04	mg/kg/day	NA	NA	NA	6.6E-03	mg/kg/day	1.4E-01	mg/kg/day	4.7E-02
				Mercury	9.1E-01	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	3.0E-04	mg/kg/day	3.9E-02
				Nickel	7.6E+01	MG/KG	8.3E-05	mg/kg/day	NA	NA	NA	9.7E-04	mg/kg/day	2.0E-02	mg/kg/day	4.8E-02
				Silver	1.5E+01	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.9E-04	mg/kg/day	5.0E-03	mg/kg/day	3.8E-02
				Zinc	2.3E+03	MG/KG	2.6E-03	mg/kg/day	NA	NA	NA	3.0E-02	mg/kg/day	3.0E-01	mg/kg/day	1.0E-01
				Aldrin	4.2E-01	MG/KG	4.6E-07	mg/kg/day	1.7E+01	1/(mg/kg-day)	7.8E-06	5.3E-06	mg/kg/day	3.0E-05	mg/kg/day	1.8E-01
				Chlordane - alpha	4.0E+00	MG/KG	4.4E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-06	5.1E-05	mg/kg/day	6.0E-05	mg/kg/day	8.5E-01
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	4.8E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.7E-06	5.6E-05	mg/kg/day	6.0E-05	mg/kg/day	9.4E-01
				DDE-4,4'	7.6E+00	MG/KG	8.3E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.8E-06	9.7E-05	mg/kg/day	3.0E-04	mg/kg/day	3.2E-01
				DDT-4,4'	1.6E+00	MG/KG	1.7E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.9E-07	2.0E-05	mg/kg/day	5.0E-04	mg/kg/day	4.0E-02
				Dieldrin	1.3E+00	MG/KG	1.4E-06	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.3E-05	1.7E-05	mg/kg/day	5.0E-05	mg/kg/day	3.3E-01
				Heptachlor	9.5E-02	MG/KG	1.0E-07	mg/kg/day	4.5E+00	1/(mg/kg-day)	4.7E-07	1.2E-06	mg/kg/day	5.0E-04	mg/kg/day	2.4E-03
				Pcb-Aroclor 1248	2.3E-01	MG/KG	2.5E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.0E-07	2.9E-06	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	1.2E-05	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.3E-05	1.4E-04	mg/kg/day	5.0E-05	mg/kg/day	2.7E+00
				Pcb-Aroclor 1260	2.2E+00	MG/KG	2.4E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.9E-06	2.8E-05	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	3.2E-06	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	1.0E+00	mg/kg/day	3.7E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	7.2E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.3E-05	8.4E-04	mg/kg/day	3.0E-01	mg/kg/day	2.8E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	6.8E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.0E-04	8.0E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	7.7E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.6E-05	8.9E-04	mg/kg/day	3.0E-01	mg/kg/day	3.0E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	3.8E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.8E-06	4.4E-04	mg/kg/day	3.0E-01	mg/kg/day	1.5E-03
				Chrysene	6.4E+01	MG/KG	7.1E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.2E-07	8.2E-04	mg/kg/day	3.0E-01	mg/kg/day	2.7E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	4.7E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.4E-05	5.5E-05	mg/kg/day	3.0E-01	mg/kg/day	1.8E-04
				Fluoranthene	1.5E+02	MG/KG	1.6E-04	mg/kg/day	NA	NA	NA	1.9E-03	mg/kg/day	4.0E-01	mg/kg/day	4.7E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	1.8E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-05	2.1E-04	mg/kg/day	6.0E-01	mg/kg/day	3.6E-04
				Naphthalene	7.2E+00	MG/KG	7.9E-06	mg/kg/day	NA	NA	NA	9.3E-05	mg/kg/day	2.0E-02	mg/kg/day	4.6E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	1.6E-05	mg/kg/day	1.4E-02	1/(mg/kg-day)	2.3E-07	1.9E-04	mg/kg/day	2.0E-02	mg/kg/day	9.6E-03
				Benzene	3.9E+00	MG/KG	4.2E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	2.3E-07	4.9E-05	mg/kg/day	3.0E-03	mg/kg/day	1.6E-02
				Chloroform	1.4E+00	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	1.0E-02	mg/kg/day	1.8E-03
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	1.0E-01	mg/kg/day	1.4E-03
				Tetrachloroethylene	1.2E+01	MG/KG	1.3E-05	mg/kg/day	5.4E-01	1/(mg/kg-day)	7.2E-06	1.5E-04	mg/kg/day	1.0E-01	mg/kg/day	1.5E-03
				Toluene	7.3E+01	MG/KG	8.0E-05	mg/kg/day	NA	NA	NA	9.4E-04	mg/kg/day	2.0E+00	mg/kg/day	4.7E-04
				Trichloroethylene	3.2E+00	MG/KG	3.5E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.4E-06	4.1E-05	mg/kg/day	3.0E-04	mg/kg/day	1.4E-01
				Vinyl chloride	3.2E-01	MG/KG	3.5E-07	mg/kg/day	7.5E-01	1/(mg/kg-day)	2.6E-07	4.1E-06	mg/kg/day	3.0E-03	mg/kg/day	1.4E-03
				Xylenes, total	2.9E+01	MG/KG	3.2E-05	mg/kg/day	NA	NA	NA	3.7E-04	mg/kg/day	2.0E-01	mg/kg/day	1.9E-03
			Exp. Route Total								1.2E-03					1.7E+01

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TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dermal	Aluminum	6.0E+03	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	1.0E+00	mg/kg/day	2.2E-03
				Antimony	4.7E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	3.0E-05	mg/kg/day	5.6E-02
				Arsenic	2.9E+02	MG/KG	2.6E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.9E-05	3.1E-04	mg/kg/day	5.0E-03	mg/kg/day	6.1E-02
				Barium	3.8E+04	MG/KG	1.2E-03	mg/kg/day	NA	NA	NA	1.4E-02	mg/kg/day	4.9E-03	mg/kg/day	2.8E+00
				Cadmium	2.0E+01	MG/KG	6.3E-08	mg/kg/day	NA	NA	NA	7.3E-07	mg/kg/day	5.0E-05	mg/kg/day	1.5E-02
				Chromium	3.0E+02	MG/KG	9.1E-06	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	5.0E-04	mg/kg/day	2.1E-01
				Copper	5.7E+02	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	4.0E-02	mg/kg/day	5.1E-03
				Iron	5.2E+04	MG/KG	1.6E-03	mg/kg/day	NA	NA	NA	1.9E-02	mg/kg/day	3.0E-01	mg/kg/day	6.3E-02
				Lead	1.4E+03	MG/KG	4.4E-05	mg/kg/day	NA	NA	NA	5.1E-04	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	5.6E-03	mg/kg/day	3.3E-02
				Mercury	9.1E-01	MG/KG	2.8E-08	mg/kg/day	NA	NA	NA	3.3E-07	mg/kg/day	2.1E-05	mg/kg/day	1.6E-02
				Nickel	7.6E+01	MG/KG	2.3E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	8.0E-04	mg/kg/day	3.4E-02
				Silver	1.5E+01	MG/KG	4.6E-07	mg/kg/day	NA	NA	NA	5.3E-06	mg/kg/day	2.0E-04	mg/kg/day	2.7E-02
				Zinc	2.3E+03	MG/KG	7.2E-05	mg/kg/day	NA	NA	NA	8.4E-04	mg/kg/day	3.0E-01	mg/kg/day	2.8E-03
				Aldrin	4.2E-01	MG/KG	1.3E-07	mg/kg/day	17E+01	1/(mg/kg-day)	2.2E-06	1.5E-06	mg/kg/day	3.0E-05	mg/kg/day	5.0E-02
				Chlordane - alpha	4.0E+00	MG/KG	4.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.7E-07	5.7E-06	mg/kg/day	6.0E-05	mg/kg/day	9.6E-02
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	5.4E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.9E-07	6.3E-06	mg/kg/day	6.0E-05	mg/kg/day	1.1E-01
				DDE-4,4'	7.6E+00	MG/KG	7.0E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.4E-07	8.1E-06	mg/kg/day	3.0E-04	mg/kg/day	2.7E-02
				DDT-4,4'	1.6E+00	MG/KG	1.5E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.9E-08	1.7E-06	mg/kg/day	5.0E-04	mg/kg/day	3.4E-03
				Dieldrin	1.3E+00	MG/KG	4.0E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.4E-06	4.7E-06	mg/kg/day	5.0E-05	mg/kg/day	9.3E-02
				Heptachlor	9.5E-02	MG/KG	2.9E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.3E-07	3.4E-07	mg/kg/day	5.0E-04	mg/kg/day	6.8E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	9.9E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-07	1.2E-06	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	4.6E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	9.2E-06	5.4E-05	mg/kg/day	5.0E-05	mg/kg/day	1.1E+00
				Pcb-Aroclor 1260	2.2E+00	MG/KG	9.5E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.9E-06	1.1E-05	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	8.9E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	1.0E+00	mg/kg/day	1.0E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	2.6E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-05	3.1E-04	mg/kg/day	3.0E-01	mg/kg/day	1.0E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	2.5E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.8E-04	2.9E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.8E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.0E-05	3.3E-04	mg/kg/day	3.0E-01	mg/kg/day	1.1E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.4E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.0E-06	1.6E-04	mg/kg/day	3.0E-01	mg/kg/day	5.4E-04
				Chrysene	6.4E+01	MG/KG	2.6E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.9E-07	3.0E-04	mg/kg/day	3.0E-01	mg/kg/day	1.0E-03
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.7E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-05	2.0E-05	mg/kg/day	3.0E-01	mg/kg/day	6.6E-05
				Fluoranthene	1.5E+02	MG/KG	5.9E-05	mg/kg/day	NA	NA	NA	6.9E-04	mg/kg/day	3.6E-01	mg/kg/day	1.9E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	6.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.9E-06	7.8E-05	mg/kg/day	6.0E-01	mg/kg/day	1.3E-04
				Naphthalene	7.2E+00	MG/KG	2.9E-06	mg/kg/day	NA	NA	NA	3.4E-05	mg/kg/day	2.0E-02	mg/kg/day	1.7E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	4.6E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	6.5E-08	5.4E-05	mg/kg/day	3.8E-03	mg/kg/day	1.4E-02
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	7.5E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								3.0E-04					4.8E+00
		Exposure Point Total									1.5E-03					2.2E+01
	Exposure Medium Total										1.5E-03					2.2E+01

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TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	3.3E-07	mg/kg/day	NA	NA	NA	3.8E-06	mg/kg/day	1.4E-03	mg/kg/day	2.7E-03
				Antimony	4.8E-09	MG/M3	2.6E-10	mg/kg/day	NA	NA	NA	3.0E-09	mg/kg/day	1.1E-04	mg/kg/day	2.6E-05
				Arsenic	2.8E-07	MG/M3	1.5E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.3E-07	1.8E-07	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	2.1E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	1.4E-03	mg/kg/day	1.7E-02
				Cadmium	2.0E-08	MG/M3	1.1E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	7.0E-09	1.3E-08	mg/kg/day	2.6E-04	mg/kg/day	5.0E-05
				Chromium	2.9E-07	MG/M3	1.6E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	6.8E-07	1.9E-07	mg/kg/day	2.3E-06	mg/kg/day	8.2E-02
				Copper	5.6E-07	MG/M3	3.1E-08	mg/kg/day	NA	NA	NA	3.6E-07	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	2.8E-06	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	7.7E-08	mg/kg/day	NA	NA	NA	9.0E-07	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	2.8E-08	mg/kg/day	NA	NA	NA	3.2E-07	mg/kg/day	1.4E-05	mg/kg/day	2.3E-02
				Mercury	8.9E-10	MG/M3	4.9E-11	mg/kg/day	NA	NA	NA	5.8E-10	mg/kg/day	8.6E-05	mg/kg/day	6.7E-06
				Nickel	7.4E-08	MG/M3	4.1E-09	mg/kg/day	NA	NA	NA	4.8E-08	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	8.1E-10	mg/kg/day	NA	NA	NA	9.4E-09	mg/kg/day	2.9E-06	mg/kg/day	3.3E-03
				Zinc	2.3E-06	MG/M3	1.3E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	2.3E-11	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.9E-10	2.6E-10	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	2.2E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.6E-11	2.5E-09	mg/kg/day	2.0E-04	mg/kg/day	1.3E-05
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	2.4E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.4E-11	2.8E-09	mg/kg/day	2.0E-04	mg/kg/day	1.4E-05
				DDE-4,4'	7.4E-09	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	8.5E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.9E-11	1.0E-09	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	7.0E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.1E-09	8.2E-10	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	5.1E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	2.3E-11	6.0E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	1.2E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.4E-12	1.5E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	5.8E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-10	6.8E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	1.2E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.2E-11	1.4E-09	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	2.8E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	3.6E-09	mg/kg/day	NA	NA	NA	4.2E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	3.4E-09	mg/kg/day	NA	NA	NA	3.9E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	3.8E-09	mg/kg/day	NA	NA	NA	4.4E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	1.9E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	3.5E-09	mg/kg/day	NA	NA	NA	4.1E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	2.3E-10	mg/kg/day	NA	NA	NA	2.7E-09	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	8.0E-09	mg/kg/day	NA	NA	NA	9.4E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	9.1E-10	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	8.9E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	8.6E-04	mg/kg/day	1.2E-01
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	8.1E-10	mg/kg/day	NA	NA	NA	9.5E-09	mg/kg/day	NA	NA	NA
				Benzene	1.3E-03	MG/M3	7.4E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.0E-06	8.6E-04	mg/kg/day	1.7E-02	mg/kg/day	5.0E-02
				Chloroform	4.6E-04	MG/M3	2.5E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	2.0E-06	3.0E-04	mg/kg/day	1.4E-02	mg/kg/day	2.1E-02
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	2.0E-04	mg/kg/day	NA	NA	NA	2.4E-03	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	3.6E-03	MG/M3	2.0E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	4.2E-06	2.3E-03	mg/kg/day	NA	NA	NA
				Toluene	2.0E-02	MG/M3	1.1E-03	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	1.1E-01	mg/kg/day	1.1E-01
				Trichloroethylene	9.5E-04	MG/M3	5.3E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	2.1E-05	6.1E-04	mg/kg/day	1.0E-02	mg/kg/day	6.1E-02
				Vinyl chloride	3.0E-04	MG/M3	1.6E-05	mg/kg/day	3.1E-02	1/(mg/kg-day)	5.0E-07	1.9E-04	mg/kg/day	2.9E-02	mg/kg/day	6.7E-03
				Xylenes, total	6.4E-03	MG/M3	3.6E-04	mg/kg/day	NA	NA	NA	4.2E-03	mg/kg/day	2.9E-02	mg/kg/day	1.5E-01
			Exp. Route Total								3.1E-05					6.4E-01
		Exposure Point Total									3.1E-05					6.4E-01
	Exposure Medium Total										3.1E-05					6.4E-01
Surface Soil Total											1.5E-03					2.2E+01

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TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil			Aluminum	6.1E+03	MG/KG	6.7E-03	mg/kg/day	NA	NA	NA	7.8E-02	mg/kg/day	1.0E+00	mg/kg/day	7.8E-02
				Antimony	1.0E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	2.0E-04	mg/kg/day	6.5E-01
				Arsenic	7.3E+02	MG/KG	8.0E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.2E-03	9.4E-03	mg/kg/day	5.0E-03	mg/kg/day	1.9E+00
				Barium	2.2E+04	MG/KG	2.4E-02	mg/kg/day	NA	NA	NA	2.8E-01	mg/kg/day	7.0E-02	mg/kg/day	3.9E+00
				Cadmium	1.9E+01	MG/KG	2.1E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	1.0E-03	mg/kg/day	2.4E-01
				Chromium	2.7E+03	MG/KG	3.0E-03	mg/kg/day	NA	NA	NA	3.5E-02	mg/kg/day	2.0E-02	mg/kg/day	1.7E+00
				Copper	5.1E+02	MG/KG	5.6E-04	mg/kg/day	NA	NA	NA	6.6E-03	mg/kg/day	4.0E-02	mg/kg/day	1.6E-01
				Iron	2.7E+04	MG/KG	2.9E-02	mg/kg/day	NA	NA	NA	3.4E-01	mg/kg/day	3.0E-01	mg/kg/day	1.1E+00
				Lead	1.4E+04	MG/KG	1.5E-02	mg/kg/day	NA	NA	NA	1.8E-01	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	3.6E-04	mg/kg/day	NA	NA	NA	4.1E-03	mg/kg/day	1.4E-01	mg/kg/day	3.0E-02
				Mercury	2.8E+01	MG/KG	3.1E-05	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	3.0E-04	mg/kg/day	1.2E+00
				Nickel	7.0E+01	MG/KG	7.6E-05	mg/kg/day	NA	NA	NA	8.9E-04	mg/kg/day	2.0E-02	mg/kg/day	4.4E-02
				Silver	6.0E+00	MG/KG	6.6E-06	mg/kg/day	NA	NA	NA	7.6E-05	mg/kg/day	5.0E-03	mg/kg/day	1.5E-02
				Thallium	1.4E+00	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	9.0E-04	mg/kg/day	2.1E-02
				Vanadium	2.4E+01	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	7.0E-03	mg/kg/day	4.4E-02
				Zinc	1.9E+03	MG/KG	2.1E-03	mg/kg/day	NA	NA	NA	2.5E-02	mg/kg/day	3.0E-01	mg/kg/day	8.2E-02
				Aldrin	1.7E-01	MG/KG	1.9E-07	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.2E-06	2.2E-06	mg/kg/day	3.0E-05	mg/kg/day	7.3E-02
				Chlordane - alpha	1.6E+00	MG/KG	1.7E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.1E-07	2.0E-05	mg/kg/day	6.0E-05	mg/kg/day	3.4E-01
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	2.1E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.3E-07	2.4E-05	mg/kg/day	6.0E-05	mg/kg/day	4.0E-01
				DDE-4,4'	4.9E+00	MG/KG	5.3E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.8E-06	6.2E-05	mg/kg/day	3.0E-04	mg/kg/day	2.1E-01
				DDT-4,4'	3.9E-01	MG/KG	4.3E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.5E-07	5.0E-06	mg/kg/day	5.0E-04	mg/kg/day	1.0E-02
				Dieldrin	1.8E-01	MG/KG	2.0E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.1E-06	2.3E-06	mg/kg/day	5.0E-05	mg/kg/day	4.6E-02
				Heptachlor	3.8E-02	MG/KG	4.2E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.9E-07	4.8E-07	mg/kg/day	5.0E-04	mg/kg/day	9.7E-04
				Pcb-Aroclor 1248	9.2E-02	MG/KG	1.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-07	1.2E-06	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	1.2E-05	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.4E-05	1.4E-04	mg/kg/day	5.0E-05	mg/kg/day	2.8E+00
				Pcb-Aroclor 1260	2.3E-01	MG/KG	2.5E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.1E-07	3.0E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	3.2E-06	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	1.0E+00	mg/kg/day	3.7E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	2.1E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.6E-05	2.5E-04	mg/kg/day	3.0E-01	mg/kg/day	8.3E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	2.0E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-04	2.3E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	2.4E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-05	2.8E-04	mg/kg/day	3.0E-01	mg/kg/day	9.2E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	8.8E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	6.4E-07	1.0E-04	mg/kg/day	3.0E-01	mg/kg/day	3.4E-04
				Chrysene	1.8E+01	MG/KG	2.0E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.5E-07	2.3E-04	mg/kg/day	3.0E-01	mg/kg/day	7.8E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	4.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.2E-05	5.2E-05	mg/kg/day	3.0E-01	mg/kg/day	1.7E-04
				Fluoranthene	3.8E+01	MG/KG	4.1E-05	mg/kg/day	NA	NA	NA	4.8E-04	mg/kg/day	4.0E-01	mg/kg/day	1.2E-03
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	1.1E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.8E-06	1.2E-04	mg/kg/day	6.0E-01	mg/kg/day	2.1E-04
				Naphthalene	3.2E+01	MG/KG	3.5E-05	mg/kg/day	NA	NA	NA	4.1E-04	mg/kg/day	2.0E-02	mg/kg/day	2.1E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	2.8E-05	mg/kg/day	1.4E-02	1/(mg/kg-day)	3.9E-07	3.3E-04	mg/kg/day	2.0E-02	mg/kg/day	1.6E-02
				Benzene	5.9E+00	MG/KG	6.5E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	3.5E-07	7.5E-05	mg/kg/day	3.0E-03	mg/kg/day	2.5E-02
				Bromomethane	5.2E-01	MG/KG	5.7E-07	mg/kg/day	NA	NA	NA	6.6E-06	mg/kg/day	5.0E-03	mg/kg/day	1.3E-03
				Chloroform	2.2E+00	MG/KG	2.4E-06	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	1.0E-02	mg/kg/day	2.9E-03
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	6.2E-06	mg/kg/day	NA	NA	NA	7.2E-05	mg/kg/day	1.0E-01	mg/kg/day	7.2E-04
				Ethylbenzene	6.4E+00	MG/KG	7.0E-06	mg/kg/day	NA	NA	NA	8.1E-05	mg/kg/day	1.0E-01	mg/kg/day	8.1E-04
				Tetrachloroethylene	2.3E+01	MG/KG	2.5E-05	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.4E-05	2.9E-04	mg/kg/day	1.0E-01	mg/kg/day	2.9E-03
				Toluene	3.0E+01	MG/KG	3.3E-05	mg/kg/day	NA	NA	NA	3.9E-04	mg/kg/day	2.0E+00	mg/kg/day	1.9E-04
				Trichloroethylene	1.1E+02	MG/KG	1.2E-04	mg/kg/day	4.0E-01	1/(mg/kg-day)	5.0E-05	1.4E-03	mg/kg/day	3.0E-04	mg/kg/day	4.8E+00
				Vinyl chloride	4.8E-01	MG/KG	5.3E-07	mg/kg/day	7.5E-01	1/(mg/kg-day)	3.9E-07	6.1E-06	mg/kg/day	3.0E-03	mg/kg/day	2.0E-03
				Xylenes, total	4.5E+01	MG/KG	4.9E-05	mg/kg/day	NA	NA	NA	5.7E-04	mg/kg/day	2.0E-01	mg/kg/day	2.8E-03
			Exp. Route Total								1.5E-03					2.0E+01

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TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal	Aluminum	6.1E+03	MG/KG	1.9E-04	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	1.0E+00	mg/kg/day	2.2E-03
				Antimony	1.0E+01	MG/KG	3.1E-07	mg/kg/day	NA	NA	NA	3.6E-06	mg/kg/day	3.0E-05	mg/kg/day	1.2E-01
				Arsenic	7.3E+02	MG/KG	6.8E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.0E-04	7.9E-04	mg/kg/day	5.0E-03	mg/kg/day	1.6E-01
				Barium	2.2E+04	MG/KG	6.6E-04	mg/kg/day	NA	NA	NA	7.7E-03	mg/kg/day	4.9E-03	mg/kg/day	1.6E+00
				Cadmium	1.9E+01	MG/KG	5.8E-08	mg/kg/day	NA	NA	NA	6.8E-07	mg/kg/day	5.0E-05	mg/kg/day	1.4E-02
				Chromium	2.7E+03	MG/KG	8.3E-05	mg/kg/day	NA	NA	NA	9.7E-04	mg/kg/day	5.0E-04	mg/kg/day	1.9E+00
				Copper	5.1E+02	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	4.0E-02	mg/kg/day	4.6E-03
				Iron	2.7E+04	MG/KG	8.2E-04	mg/kg/day	NA	NA	NA	9.6E-03	mg/kg/day	3.0E-01	mg/kg/day	3.2E-02
				Lead	1.4E+04	MG/KG	4.3E-04	mg/kg/day	NA	NA	NA	5.0E-03	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	9.9E-06	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	5.6E-03	mg/kg/day	2.1E-02
				Mercury	2.8E+01	MG/KG	8.6E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	2.1E-05	mg/kg/day	4.8E-01
				Nickel	7.0E+01	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	8.0E-04	mg/kg/day	3.1E-02
				Silver	6.0E+00	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	2.0E-04	mg/kg/day	1.1E-02
				Thallium	1.4E+00	MG/KG	4.4E-08	mg/kg/day	NA	NA	NA	5.2E-07	mg/kg/day	9.0E-04	mg/kg/day	5.7E-04
				Vanadium	2.4E+01	MG/KG	7.3E-07	mg/kg/day	NA	NA	NA	8.5E-06	mg/kg/day	1.8E-04	mg/kg/day	4.7E-02
				Zinc	1.9E+03	MG/KG	5.9E-05	mg/kg/day	NA	NA	NA	6.9E-04	mg/kg/day	3.0E-01	mg/kg/day	2.3E-03
				Aldrin	1.7E-01	MG/KG	5.3E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	9.0E-07	6.2E-07	mg/kg/day	3.0E-05	mg/kg/day	2.1E-02
				Chlordane - alpha	1.6E+00	MG/KG	1.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.8E-08	2.3E-06	mg/kg/day	6.0E-05	mg/kg/day	3.8E-02
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	2.3E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.1E-08	2.7E-06	mg/kg/day	6.0E-05	mg/kg/day	4.5E-02
				DDE-4,4'	4.9E+00	MG/KG	4.5E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.5E-07	5.2E-06	mg/kg/day	3.0E-04	mg/kg/day	1.7E-02
				DDT-4,4'	3.9E-01	MG/KG	3.6E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.2E-08	4.2E-07	mg/kg/day	5.0E-04	mg/kg/day	8.4E-04
				Dieldrin	1.8E-01	MG/KG	5.5E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	8.8E-07	6.4E-07	mg/kg/day	5.0E-05	mg/kg/day	1.3E-02
				Heptachlor	3.8E-02	MG/KG	1.2E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	5.2E-08	1.4E-07	mg/kg/day	5.0E-04	mg/kg/day	2.7E-04
				Pcb-Aroclor 1248	9.2E-02	MG/KG	4.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.9E-08	4.6E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	4.6E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	9.3E-06	5.4E-05	mg/kg/day	5.0E-05	mg/kg/day	1.1E+00
				Pcb-Aroclor 1260	2.3E-01	MG/KG	1.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-07	1.2E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	8.9E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	1.0E+00	mg/kg/day	1.0E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	7.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.7E-06	9.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.0E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	7.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.2E-05	8.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	8.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.3E-06	1.0E-04	mg/kg/day	3.0E-01	mg/kg/day	3.4E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	3.2E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.3E-07	3.7E-05	mg/kg/day	3.0E-01	mg/kg/day	1.2E-04
				Chrysene	1.8E+01	MG/KG	7.3E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.3E-08	8.5E-05	mg/kg/day	3.0E-01	mg/kg/day	2.8E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-05	1.9E-05	mg/kg/day	3.0E-01	mg/kg/day	6.3E-05
				Fluoranthene	3.8E+01	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.7E-04	mg/kg/day	3.6E-01	mg/kg/day	4.9E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	3.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-06	4.5E-05	mg/kg/day	6.0E-01	mg/kg/day	7.6E-05
				Naphthalene	3.2E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	2.0E-02	mg/kg/day	7.5E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	7.9E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.1E-07	9.2E-05	mg/kg/day	3.8E-03	mg/kg/day	2.4E-02
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	5.0E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	7.5E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								1.9E-04					5.7E+00
		Exposure Point Total									1.7E-03					2.6E+01
	Exposure Medium Total										1.7E-03					2.6E+01

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TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Inhalation	Aluminum	6.0E-06	MG/M3	3.3E-07	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	1.4E-03	mg/kg/day	2.7E-03
				Antimony	9.9E-09	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	6.4E-09	mg/kg/day	1.1E-04	mg/kg/day	5.6E-05
				Arsenic	7.2E-07	MG/M3	4.0E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	6.0E-07	4.6E-07	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	1.2E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	1.4E-03	mg/kg/day	9.7E-03
				Cadmium	1.9E-08	MG/M3	1.0E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	6.5E-09	1.2E-08	mg/kg/day	2.6E-04	mg/kg/day	4.7E-05
				Chromium	2.7E-06	MG/M3	1.5E-07	mg/kg/day	4.2E+01	1/(mg/kg-day)	6.2E-06	1.7E-06	mg/kg/day	2.3E-06	mg/kg/day	7.5E-01
				Copper	5.0E-07	MG/M3	2.8E-08	mg/kg/day	NA	NA	NA	3.2E-07	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	1.4E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	7.6E-07	mg/kg/day	NA	NA	NA	8.9E-06	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	1.8E-08	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	1.4E-05	mg/kg/day	1.4E-02
				Mercury	2.7E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	1.8E-08	mg/kg/day	8.6E-05	mg/kg/day	2.1E-04
				Nickel	6.8E-08	MG/M3	3.8E-09	mg/kg/day	NA	NA	NA	4.4E-08	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	3.2E-10	mg/kg/day	NA	NA	NA	3.8E-09	mg/kg/day	2.9E-06	mg/kg/day	1.3E-03
				Thallium	1.4E-09	MG/M3	7.8E-11	mg/kg/day	NA	NA	NA	9.1E-10	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	1.0E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	9.3E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.6E-10	1.1E-10	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	8.6E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.0E-11	1.0E-09	mg/kg/day	2.0E-04	mg/kg/day	5.0E-06
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	1.0E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.6E-11	1.2E-09	mg/kg/day	2.0E-04	mg/kg/day	6.0E-06
				DDE-4,4'	4.8E-09	MG/M3	2.6E-10	mg/kg/day	NA	NA	NA	3.1E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	2.1E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	7.2E-12	2.5E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	9.7E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.6E-10	1.1E-10	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	2.1E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	9.3E-12	2.4E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	5.0E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.7E-12	5.8E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	5.8E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-10	6.8E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.3E-10	MG/M3	1.3E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.4E-12	1.5E-10	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	2.8E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	9.8E-10	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	7.8E-09	MG/M3	4.3E-10	mg/kg/day	NA	NA	NA	5.1E-09	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	9.9E-10	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	2.0E-09	mg/kg/day	NA	NA	NA	2.4E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	5.3E-10	mg/kg/day	NA	NA	NA	6.2E-09	mg/kg/day	NA	NA	NA
				Naphthalene	7.2E-04	MG/M3	4.0E-05	mg/kg/day	NA	NA	NA	4.6E-04	mg/kg/day	8.6E-04	mg/kg/day	5.4E-01
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	1.6E-08	mg/kg/day	NA	NA	NA
				Benzene	2.0E-03	MG/M3	1.1E-04	mg/kg/day	2.7E-02	1/(mg/kg-day)	3.1E-06	1.3E-03	mg/kg/day	1.7E-02	mg/kg/day	7.6E-02
				Bromomethane	2.8E-04	MG/M3	1.5E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	1.4E-03	mg/kg/day	1.2E-01
				Chloroform	7.3E-04	MG/M3	4.0E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	3.2E-06	4.7E-04	mg/kg/day	1.4E-02	mg/kg/day	3.3E-02
				Dichloroethylene-1,2 cis	1.9E-03	MG/M3	1.0E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	NA	NA	NA
				Ethylbenzene	*1.5E-03*	*MG/M3*	*8.1E-05*	*mg/kg/day*	NA	NA	NA	*9.5E-04*	*mg/kg/day*	*2.9E-01*	*mg/kg/day*	3.3E-03
				Tetrachloroethylene	6.9E-03	MG/M3	3.8E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	8.0E-06	4.4E-03	mg/kg/day	NA	NA	NA
				Toluene	8.2E-03	MG/M3	4.5E-04	mg/kg/day	NA	NA	NA	5.3E-03	mg/kg/day	1.1E-01	mg/kg/day	4.6E-02
				Trichloroethylene	3.3E-02	MG/M3	1.8E-03	mg/kg/day	4.0E-01	1/(mg/kg-day)	7.4E-04	2.1E-02	mg/kg/day	1.0E-02	mg/kg/day	2.1E+00
				Vinyl chloride	4.4E-04	MG/M3	2.4E-05	mg/kg/day	3.1E-02	1/(mg/kg-day)	7.5E-07	2.9E-04	mg/kg/day	2.9E-02	mg/kg/day	1.0E-02
				Xylenes, total	9.8E-03	MG/M3	5.4E-04	mg/kg/day	NA	NA	NA	6.3E-03	mg/kg/day	2.9E-02	mg/kg/day	2.2E-01
			Exp. Route Total								7.6E-04					4.0E+00
		Exposure Point Total									7.6E-04					4.0E+00
	Exposure Medium Total										7.6E-04					4.0E+00
Subsurface Soil Total											2.5E-03					3.0E+01

NA = Not applicable.

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TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion													
				Aluminum	6.0E+03	MG/KG	2.0E-04	mg/kg/day	NA	NA	NA	1.4E-02	mg/kg/day	1.0E+00	mg/kg/day	1.4E-02
				Antimony	4.7E+00	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	2.0E-04	mg/kg/day	5.5E-02
				Arsenic	2.9E+02	MG/KG	9.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.4E-05	6.6E-04	mg/kg/day	5.0E-03	mg/kg/day	1.3E-01
				Barium	3.8E+04	MG/KG	1.3E-03	mg/kg/day	NA	NA	NA	8.8E-02	mg/kg/day	7.0E-02	mg/kg/day	1.3E+00
				Cadmium	2.0E+01	MG/KG	6.8E-07	mg/kg/day	NA	NA	NA	4.7E-05	mg/kg/day	1.0E-03	mg/kg/day	4.7E-02
				Chromium	3.0E+02	MG/KG	9.9E-06	mg/kg/day	NA	NA	NA	6.9E-04	mg/kg/day	2.0E-02	mg/kg/day	3.5E-02
				Copper	5.7E+02	MG/KG	1.9E-05	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	4.0E-02	mg/kg/day	3.3E-02
				Iron	5.2E+04	MG/KG	1.7E-03	mg/kg/day	NA	NA	NA	1.2E-01	mg/kg/day	3.0E-01	mg/kg/day	4.1E-01
				Lead	1.4E+03	MG/KG	4.7E-05	mg/kg/day	NA	NA	NA	3.3E-03	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	1.4E-01	mg/kg/day	8.5E-03
				Mercury	9.1E-01	MG/KG	3.0E-08	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	3.0E-04	mg/kg/day	7.1E-03
				Nickel	7.6E+01	MG/KG	2.5E-06	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	2.0E-02	mg/kg/day	8.8E-03
				Silver	1.5E+01	MG/KG	5.0E-07	mg/kg/day	NA	NA	NA	3.5E-05	mg/kg/day	5.0E-03	mg/kg/day	6.9E-03
				Zinc	2.3E+03	MG/KG	7.8E-05	mg/kg/day	NA	NA	NA	5.4E-03	mg/kg/day	3.0E-01	mg/kg/day	1.8E-02
				Aldrin	4.2E-01	MG/KG	1.4E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.4E-07	9.7E-07	mg/kg/day	3.0E-05	mg/kg/day	3.2E-02
				Chlordane - alpha	4.0E+00	MG/KG	1.3E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.7E-08	9.3E-06	mg/kg/day	6.0E-05	mg/kg/day	1.6E-01
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.5E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.1E-08	1.0E-05	mg/kg/day	6.0E-05	mg/kg/day	1.7E-01
				DDE-4,4'	7.6E+00	MG/KG	2.5E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	8.5E-08	1.8E-05	mg/kg/day	3.0E-04	mg/kg/day	5.9E-02
				DDT-4,4'	1.6E+00	MG/KG	5.2E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.8E-08	3.7E-06	mg/kg/day	5.0E-04	mg/kg/day	7.3E-03
				Dieldrin	1.3E+00	MG/KG	4.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.9E-07	3.0E-06	mg/kg/day	5.0E-05	mg/kg/day	6.0E-02
				Heptachlor	9.5E-02	MG/KG	3.2E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.4E-08	2.2E-07	mg/kg/day	5.0E-04	mg/kg/day	4.4E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	7.6E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.5E-08	5.3E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.6E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.1E-07	2.5E-05	mg/kg/day	5.0E-05	mg/kg/day	5.0E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	7.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.5E-07	5.2E-06	mg/kg/day	NA	NA	NA
				Acelophenone	2.9E+00	MG/KG	9.6E-08	mg/kg/day	NA	NA	NA	6.7E-06	mg/kg/day	1.0E+00	mg/kg/day	6.7E-06
				Benzo(a)anthracene	6.6E+01	MG/KG	2.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.6E-06	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	5.1E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	2.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.5E-05	1.4E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-06	1.6E-04	mg/kg/day	3.0E-01	mg/kg/day	5.4E-04
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	8.4E-08	8.1E-05	mg/kg/day	3.0E-01	mg/kg/day	2.7E-04
				Chrysene	6.4E+01	MG/KG	2.1E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.6E-08	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	5.0E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-06	9.9E-06	mg/kg/day	3.0E-01	mg/kg/day	3.3E-05
				Fluoranthene	1.5E+02	MG/KG	4.9E-06	mg/kg/day	NA	NA	NA	3.4E-04	mg/kg/day	4.0E-01	mg/kg/day	8.6E-04
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	5.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.1E-07	3.9E-05	mg/kg/day	6.0E-01	mg/kg/day	6.5E-05
				Naphthalene	7.2E+00	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	2.0E-02	mg/kg/day	8.4E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	5.0E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	7.0E-09	3.5E-05	mg/kg/day	2.0E-02	mg/kg/day	1.7E-03
				Benzene	3.9E+00	MG/KG	1.3E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	7.1E-09	9.0E-06	mg/kg/day	3.0E-03	mg/kg/day	3.0E-03
				Chloroform	1.4E+00	MG/KG	4.6E-08	mg/kg/day	NA	NA	NA	3.3E-06	mg/kg/day	1.0E-02	mg/kg/day	3.3E-04
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	3.7E-07	mg/kg/day	NA	NA	NA	2.6E-05	mg/kg/day	1.0E-01	mg/kg/day	2.6E-04
				Tetrachloroethylene	1.2E+01	MG/KG	4.0E-07	mg/kg/day	5.4E-01	1/(mg/kg-day)	2.2E-07	2.8E-05	mg/kg/day	1.0E-01	mg/kg/day	2.8E-04
				Toluene	7.3E+01	MG/KG	2.4E-06	mg/kg/day	NA	NA	NA	1.7E-04	mg/kg/day	2.0E+00	mg/kg/day	8.5E-05
				Trichloroethylene	3.2E+00	MG/KG	1.1E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	4.3E-08	7.5E-06	mg/kg/day	3.0E-04	mg/kg/day	2.5E-02
				Vinyl chloride	3.2E-01	MG/KG	1.1E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.6E-08	7.4E-07	mg/kg/day	3.0E-03	mg/kg/day	2.5E-04
				Xylenes, total	2.9E+01	MG/KG	9.7E-07	mg/kg/day	NA	NA	NA	6.8E-05	mg/kg/day	2.0E-01	mg/kg/day	3.4E-04
			Exp. Route Total								3.6E-05					3.0E+00

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TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dermal	Aluminum	6.0E+03	MG/KG	4.0E-06	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	1.0E+00	mg/kg/day	2.8E-04
				Antimony	4.7E+00	MG/KG	3.1E-09	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	3.0E-05	mg/kg/day	7.3E-03
				Arsenic	2.9E+02	MG/KG	5.7E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.5E-07	4.0E-05	mg/kg/day	5.0E-03	mg/kg/day	8.0E-03
				Barium	3.8E+04	MG/KG	2.5E-05	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	4.9E-03	mg/kg/day	3.6E-01
				Cadmium	2.0E+01	MG/KG	1.4E-09	mg/kg/day	NA	NA	NA	9.5E-08	mg/kg/day	5.0E-05	mg/kg/day	1.9E-03
				Chromium	3.0E+02	MG/KG	2.0E-07	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.0E-04	mg/kg/day	2.8E-02
				Copper	5.7E+02	MG/KG	3.8E-07	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	4.0E-02	mg/kg/day	6.7E-04
				Iron	5.2E+04	MG/KG	3.5E-05	mg/kg/day	NA	NA	NA	2.4E-03	mg/kg/day	3.0E-01	mg/kg/day	8.1E-03
				Lead	1.4E+03	MG/KG	9.5E-07	mg/kg/day	NA	NA	NA	6.6E-05	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	5.6E-03	mg/kg/day	4.3E-03
				Mercury	9.1E-01	MG/KG	6.1E-10	mg/kg/day	NA	NA	NA	4.2E-08	mg/kg/day	2.1E-05	mg/kg/day	2.0E-03
				Nickel	7.6E+01	MG/KG	5.0E-08	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	8.0E-04	mg/kg/day	4.4E-03
				Silver	1.5E+01	MG/KG	9.9E-09	mg/kg/day	NA	NA	NA	6.9E-07	mg/kg/day	2.0E-04	mg/kg/day	3.5E-03
				Zinc	2.3E+03	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.6E-04
				Aldrin	4.2E-01	MG/KG	2.8E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.7E-08	1.9E-07	mg/kg/day	3.0E-05	mg/kg/day	6.5E-03
				Chlordane - alpha	4.0E+00	MG/KG	1.1E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.7E-09	7.4E-07	mg/kg/day	6.0E-05	mg/kg/day	1.2E-02
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.2E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.1E-09	8.2E-07	mg/kg/day	6.0E-05	mg/kg/day	1.4E-02
				DDE-4,4'	7.6E+00	MG/KG	1.5E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.1E-09	1.1E-06	mg/kg/day	3.0E-04	mg/kg/day	3.5E-03
				DDT-4,4'	1.6E+00	MG/KG	3.1E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.1E-09	2.2E-07	mg/kg/day	5.0E-04	mg/kg/day	4.4E-04
				Dieldrin	1.3E+00	MG/KG	8.6E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.4E-07	6.0E-07	mg/kg/day	5.0E-05	mg/kg/day	1.2E-02
				Heptachlor	9.5E-02	MG/KG	6.3E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	2.8E-09	4.4E-08	mg/kg/day	5.0E-04	mg/kg/day	8.8E-05
				Pcb-Aroclor 1248	2.3E-01	MG/KG	2.1E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.3E-09	1.5E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	9.9E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-07	7.0E-06	mg/kg/day	5.0E-05	mg/kg/day	1.4E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	2.1E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.1E-08	1.4E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	1.0E+00	mg/kg/day	1.3E-06
				Benzo(a)anthracene	6.6E+01	MG/KG	5.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.2E-07	4.0E-05	mg/kg/day	3.0E-01	mg/kg/day	1.3E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	5.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.9E-06	3.8E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	6.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.4E-07	4.2E-05	mg/kg/day	3.0E-01	mg/kg/day	1.4E-04
				Benzo(k)fluoranthene	3.5E+01	MG/KG	3.0E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.2E-08	2.1E-05	mg/kg/day	3.0E-01	mg/kg/day	7.0E-05
				Chrysene	6.4E+01	MG/KG	5.6E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.1E-09	3.9E-05	mg/kg/day	3.0E-01	mg/kg/day	1.3E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	3.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.7E-07	2.6E-06	mg/kg/day	3.0E-01	mg/kg/day	8.6E-06
				Fluoranthene	1.5E+02	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	9.0E-05	mg/kg/day	3.6E-01	mg/kg/day	2.5E-04
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-07	1.0E-05	mg/kg/day	6.0E-01	mg/kg/day	1.7E-05
				Naphthalene	7.2E+00	MG/KG	6.2E-08	mg/kg/day	NA	NA	NA	4.4E-06	mg/kg/day	2.0E-02	mg/kg/day	2.2E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	1.0E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.4E-09	7.0E-06	mg/kg/day	3.8E-03	mg/kg/day	1.8E-03
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								6.5E-06					6.2E-01
		Exposure Point Total									4.3E-05					3.7E+00
	Exposure Medium Total										4.3E-05					3.7E+00

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TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	1.0E-08	mg/kg/day	NA	NA	NA	7.0E-07	mg/kg/day	1.4E-03	mg/kg/day	4.9E-04
				Antimony	4.6E-09	MG/M3	7.8E-12	mg/kg/day	NA	NA	NA	5.5E-10	mg/kg/day	1.1E-04	mg/kg/day	4.8E-06
				Arsenic	2.6E-07	MG/M3	4.7E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	7.1E-09	3.3E-08	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	6.3E-08	mg/kg/day	NA	NA	NA	4.4E-06	mg/kg/day	1.4E-03	mg/kg/day	3.1E-03
				Cadmium	2.0E-08	MG/M3	3.4E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.1E-10	2.4E-09	mg/kg/day	2.6E-04	mg/kg/day	9.2E-06
				Chromium	2.9E-07	MG/M3	4.9E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.1E-08	3.4E-08	mg/kg/day	2.3E-06	mg/kg/day	1.5E-02
				Copper	5.6E-07	MG/M3	9.5E-10	mg/kg/day	NA	NA	NA	6.7E-08	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	8.7E-08	mg/kg/day	NA	NA	NA	6.1E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	2.4E-09	mg/kg/day	NA	NA	NA	1.7E-07	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	8.5E-10	mg/kg/day	NA	NA	NA	6.0E-08	mg/kg/day	1.4E-05	mg/kg/day	4.2E-03
				Mercury	8.9E-10	MG/M3	1.5E-12	mg/kg/day	NA	NA	NA	1.1E-10	mg/kg/day	8.6E-05	mg/kg/day	1.2E-06
				Nickel	7.4E-08	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	9.8E-09	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	2.5E-11	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	2.9E-06	mg/kg/day	6.1E-04
				Zinc	2.3E-06	MG/M3	3.9E-09	mg/kg/day	NA	NA	NA	2.7E-07	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	6.9E-13	mg/kg/day	1.7E+01	NA	1.2E-11	4.8E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	6.6E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.3E-12	4.6E-10	mg/kg/day	2.0E-04	mg/kg/day	2.3E-06
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	7.3E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.6E-12	5.1E-10	mg/kg/day	2.0E-04	mg/kg/day	2.6E-06
				DDE-4,4'	7.4E-09	MG/M3	1.3E-11	mg/kg/day	NA	NA	NA	8.8E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	2.6E-12	mg/kg/day	3.4E-01	1/(mg/kg-day)	8.9E-13	1.8E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	2.2E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.5E-11	1.5E-10	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	1.6E-13	mg/kg/day	4.6E+00	1/(mg/kg-day)	7.2E-13	1.1E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	3.8E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-13	2.7E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	1.8E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.2E-12	1.2E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	3.7E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-12	2.6E-10	mg/kg/day	NA	NA	NA
				Acetophenone	1.5E-05	MG/M3	2.5E-08	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	7.6E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	1.0E-10	mg/kg/day	NA	NA	NA	7.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	8.1E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	5.7E-11	mg/kg/day	NA	NA	NA	4.0E-09	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	7.5E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	7.1E-12	mg/kg/day	NA	NA	NA	4.9E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	2.5E-10	mg/kg/day	NA	NA	NA	1.7E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	2.8E-11	mg/kg/day	NA	NA	NA	1.9E-09	mg/kg/day	NA	NA	NA
				Naphthalene	7.0E-05	MG/M3	1.2E-07	mg/kg/day	NA	NA	NA	8.3E-06	mg/kg/day	8.6E-04	mg/kg/day	9.7E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	2.5E-11	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	NA	NA	NA
				Benzene	6.2E-03	MG/M3	1.0E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.9E-07	7.3E-04	mg/kg/day	1.7E-02	mg/kg/day	4.3E-02
				Chloroform	1.7E-03	MG/M3	2.8E-06	mg/kg/day	8.1E-02	1/(mg/kg-day)	2.3E-07	2.0E-04	mg/kg/day	1.4E-02	mg/kg/day	1.4E-02
				Dichloroethylene-1,2 cis	1.9E-02	MG/M3	3.2E-05	mg/kg/day	NA	NA	NA	2.3E-03	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	1.9E-02	MG/M3	3.2E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	6.7E-07	2.2E-03	mg/kg/day	NA	NA	NA
				Toluene	7.3E-02	MG/M3	1.2E-04	mg/kg/day	NA	NA	NA	8.6E-03	mg/kg/day	1.1E-01	mg/kg/day	7.6E-02
				Trichloroethylene	4.3E-03	MG/M3	7.3E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	2.9E-06	5.1E-04	mg/kg/day	1.0E-02	mg/kg/day	5.1E-02
				Vinyl chloride	5.0E-03	MG/M3	8.4E-06	mg/kg/day	1.5E-02	1/(mg/kg-day)	1.3E-07	5.9E-04	mg/kg/day	2.9E-02	mg/kg/day	2.1E-02
				Xylenes, total	2.4E-02	MG/M3	4.1E-05	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	2.9E-02	mg/kg/day	9.9E-02
			Exp. Route Total								4.2E-06					3.4E-01
		Exposure Point Total									4.2E-06					3.4E-01
	Exposure Medium Total										4.2E-06					3.4E-01
Surface Soil Total											4.7E-05					4.0E+00

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TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: *Future*
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	*Exposure Medium*	*Exposure Point*	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Ingestion													
				Aluminum	6.1E+03	MG/KG	2.0E-04	mg/kg/day	NA	NA	NA	1.4E-02	mg/kg/day	1.0E+00	mg/kg/day	1.4E-02
				Antimony	1.0E+01	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	2.0E-04	mg/kg/day	1.2E-01
				Arsenic	7.3E+02	MG/KG	*2.4E-05*	*mg/kg/day*	*1.5E+00*	*1/(mg/kg-day)*	*3.7E-05*	*1.7E-03*	*mg/kg/day*	*5.0E-03*	*mg/kg/day*	3.4E-01
				Barium	2.2E+04	MG/KG	7.2E-04	mg/kg/day	NA	NA	NA	5.0E-02	mg/kg/day	7.0E-02	mg/kg/day	7.2E-01
				Cadmium	1.9E+01	MG/KG	6.3E-07	mg/kg/day	NA	NA	NA	4.4E-05	mg/kg/day	1.0E-03	mg/kg/day	4.4E-02
				Chromium	2.7E+03	MG/KG	9.0E-05	mg/kg/day	NA	NA	NA	6.3E-03	mg/kg/day	2.0E-02	mg/kg/day	3.1E-01
				Copper	5.1E+02	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	4.0E-02	mg/kg/day	3.0E-02
				Iron	2.7E+04	MG/KG	8.9E-04	mg/kg/day	NA	NA	NA	6.2E-02	mg/kg/day	3.0E-01	mg/kg/day	2.1E-01
				Lead	1.4E+04	MG/KG	4.7E-04	mg/kg/day	NA	NA	NA	3.3E-02	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	7.5E-04	mg/kg/day	1.4E-01	mg/kg/day	5.4E-03
				Mercury	2.8E+01	MG/KG	9.3E-07	mg/kg/day	NA	NA	NA	6.5E-05	mg/kg/day	3.0E-04	mg/kg/day	2.2E-01
				Nickel	7.0E+01	MG/KG	2.3E-06	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	2.0E-02	mg/kg/day	8.1E-03
				Silver	6.0E+00	MG/KG	2.0E-07	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.0E-03	mg/kg/day	2.8E-03
				Thallium	1.4E+00	MG/KG	4.8E-08	mg/kg/day	NA	NA	NA	3.4E-06	mg/kg/day	9.0E-04	mg/kg/day	3.7E-03
				Vanadium	2.4E+01	MG/KG	7.9E-07	mg/kg/day	NA	NA	NA	5.5E-05	mg/kg/day	7.0E-03	mg/kg/day	7.9E-03
				Zinc	1.9E+03	MG/KG	*6.4E-05*	*mg/kg/day*	NA	NA	NA	4.5E-03	mg/kg/day	3.0E-01	mg/kg/day	1.5E-02
				Aldrin	1.7E-01	MG/KG	5.7E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	9.7E-08	4.0E-07	mg/kg/day	3.0E-05	mg/kg/day	1.3E-02
				Chlordane - alpha	1.6E+00	MG/KG	5.3E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-08	3.7E-06	mg/kg/day	6.0E-05	mg/kg/day	6.1E-02
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	6.3E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.2E-08	4.4E-06	mg/kg/day	6.0E-05	mg/kg/day	7.3E-02
				DDE-4,4'	4.9E+00	MG/KG	1.6E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.5E-08	1.1E-05	mg/kg/day	3.0E-04	mg/kg/day	3.8E-02
				DDT-4,4'	3.9E-01	MG/KG	1.3E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.4E-09	9.1E-07	mg/kg/day	5.0E-04	mg/kg/day	1.8E-03
				Dieldrin	1.8E-01	MG/KG	5.9E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	9.5E-08	4.2E-07	mg/kg/day	5.0E-05	mg/kg/day	8.3E-03
				Heptachlor	3.8E-02	MG/KG	1.3E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	5.7E-09	8.8E-08	mg/kg/day	5.0E-04	mg/kg/day	1.8E-04
				Pcb-Aroclor 1248	9.2E-02	MG/KG	3.1E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.1E-09	2.1E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.6E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.2E-07	*2.5E-05*	mg/kg/day	5.0E-05	mg/kg/day	*5.0E-01*
				Pcb-Aroclor 1260	2.3E-01	MG/KG	7.7E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.5E-08	5.4E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	9.6E-08	mg/kg/day	NA	NA	NA	6.7E-06	mg/kg/day	1.0E+00	mg/kg/day	6.7E-06
				Benzo(a)anthracene	2.0E+01	MG/KG	6.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-07	4.5E-05	mg/kg/day	3.0E-01	mg/kg/day	1.5E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.4E-06	4.2E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	7.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.2E-07	5.0E-05	mg/kg/day	3.0E-01	mg/kg/day	1.7E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	2.7E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.9E-08	1.9E-05	mg/kg/day	3.0E-01	mg/kg/day	6.2E-05
				Chrysene	1.8E+01	MG/KG	6.1E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.5E-09	4.3E-05	mg/kg/day	3.0E-01	mg/kg/day	1.4E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.8E-07	9.4E-06	mg/kg/day	3.0E-01	mg/kg/day	3.1E-05
				Fluoranthene	3.8E+01	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	8.7E-05	mg/kg/day	4.0E-01	mg/kg/day	2.2E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	3.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-07	2.3E-05	mg/kg/day	6.0E-01	mg/kg/day	3.8E-05
				Naphthalene	3.2E+01	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	7.5E-05	mg/kg/day	2.0E-02	mg/kg/day	3.8E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	8.5E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.2E-08	6.0E-05	mg/kg/day	2.0E-02	mg/kg/day	3.0E-03
				Benzene	5.9E+00	MG/KG	2.0E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	*1.1E-08*	*1.4E-05*	*mg/kg/day*	*3.0E-03*	*mg/kg/day*	4.6E-03
				Bromomethane	5.2E-01	MG/KG	1.7E-08	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	5.0E-03	mg/kg/day	2.4E-04
				Chloroform	2.2E+00	MG/KG	7.4E-08	mg/kg/day	NA	NA	NA	5.2E-06	mg/kg/day	1.0E-02	mg/kg/day	5.2E-04
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	1.0E-01	mg/kg/day	1.3E-04
				Ethylbenzene	6.4E+00	MG/KG	2.1E-07	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	1.0E-01	mg/kg/day	1.5E-04
				Tetrachloroethylene	2.3E+01	MG/KG	7.6E-07	mg/kg/day	5.4E-01	1/(mg/kg-day)	4.1E-07	5.3E-05	mg/kg/day	1.0E-01	mg/kg/day	5.3E-04
				Toluene	3.0E+01	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	7.1E-05	mg/kg/day	2.0E+00	mg/kg/day	3.5E-05
				Trichloroethylene	1.1E+02	MG/KG	3.8E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.5E-06	2.6E-04	mg/kg/day	3.0E-04	mg/kg/day	8.8E-01
				Vinyl chloride	4.8E-01	MG/KG	1.6E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.4E-08	1.1E-06	mg/kg/day	3.0E-03	mg/kg/day	3.7E-04
				Xylenes, total	4.5E+01	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	2.0E-01	mg/kg/day	5.2E-04
			Exp. Route Total								4.6E-05					3.6E+00

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TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal	Aluminum	6.1E+03	MG/KG	4.1E-06	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	1.0E+00	mg/kg/day	2.8E-04
				Antimony	1.0E+01	MG/KG	6.7E-09	mg/kg/day	NA	NA	NA	4.7E-07	mg/kg/day	2.0E-04	mg/kg/day	2.4E-03
				Arsenic	7.3E+02	MG/KG	1.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.2E-06	1.0E-04	mg/kg/day	5.0E-03	mg/kg/day	2.0E-02
				Barium	2.2E+04	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	7.0E-02	mg/kg/day	1.4E-02
				Cadmium	1.9E+01	MG/KG	1.3E-09	mg/kg/day	NA	NA	NA	8.8E-08	mg/kg/day	1.0E-03	mg/kg/day	8.8E-05
				Chromium	2.7E+03	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	2.0E-02	mg/kg/day	6.3E-03
				Copper	5.1E+02	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	4.0E-02	mg/kg/day	6.0E-04
				Iron	2.7E+04	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	3.0E-01	mg/kg/day	4.1E-03
				Lead	1.4E+04	MG/KG	9.3E-06	mg/kg/day	NA	NA	NA	6.5E-04	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	2.2E-07	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	1.4E-01	mg/kg/day	1.1E-04
				Mercury	2.8E+01	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	3.0E-04	mg/kg/day	4.3E-03
				Nickel	7.0E+01	MG/KG	4.6E-08	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	2.0E-02	mg/kg/day	1.6E-04
				Silver	6.0E+00	MG/KG	4.0E-09	mg/kg/day	NA	NA	NA	2.8E-07	mg/kg/day	5.0E-03	mg/kg/day	5.6E-05
				Thallium	1.4E+00	MG/KG	9.6E-10	mg/kg/day	NA	NA	NA	6.7E-08	mg/kg/day	9.0E-04	mg/kg/day	7.5E-05
				Vanadium	2.4E+01	MG/KG	1.6E-08	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	7.0E-03	mg/kg/day	1.6E-04
				Zinc	1.9E+03	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	9.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.0E-04
				Aldrin	1.7E-01	MG/KG	1.1E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.9E-08	8.0E-08	mg/kg/day	3.0E-05	mg/kg/day	2.7E-03
				Chlordane - alpha	1.6E+00	MG/KG	4.2E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-09	2.9E-07	mg/kg/day	6.0E-05	mg/kg/day	4.9E-03
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	5.0E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-09	3.5E-07	mg/kg/day	6.0E-05	mg/kg/day	5.9E-03
				DDE-4,4'	4.9E+00	MG/KG	9.7E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.3E-09	6.8E-07	mg/kg/day	3.0E-04	mg/kg/day	2.3E-03
				DDT-4,4'	3.9E-01	MG/KG	7.8E-10	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.7E-10	5.5E-08	mg/kg/day	5.0E-04	mg/kg/day	1.1E-04
				Dieldrin	1.8E-01	MG/KG	1.2E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.9E-08	8.3E-08	mg/kg/day	5.0E-05	mg/kg/day	1.7E-03
				Heptachlor	3.8E-02	MG/KG	2.5E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.1E-09	1.8E-08	mg/kg/day	5.0E-04	mg/kg/day	3.5E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	6.6E-10	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.7E-09	6.0E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	1.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-07	7.0E-06	mg/kg/day	5.0E-05	mg/kg/day	1.4E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	2.2E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.3E-09	1.5E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	1.0E+00	mg/kg/day	1.3E-06
				Benzo(a)anthracene	2.0E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-07	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	3.9E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.3E-05	mg/kg/day	3.0E-01	mg/kg/day	4.4E-05
				Benzo(k)fluoranthene	8.0E+00	MG/KG	6.9E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.0E-09	4.8E-06	mg/kg/day	3.0E-01	mg/kg/day	1.6E-05
				Chrysene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.2E-09	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.7E-05
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	3.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.6E-07	2.5E-06	mg/kg/day	3.0E-01	mg/kg/day	8.2E-06
				Fluoranthene	3.8E+01	MG/KG	3.2E-07	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	4.0E-01	mg/kg/day	5.7E-05
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	8.4E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.1E-08	5.9E-06	mg/kg/day	6.0E-01	mg/kg/day	9.8E-06
				Naphthalene	3.2E+01	MG/KG	2.8E-07	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	2.0E-02	mg/kg/day	9.8E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	1.7E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	2.4E-09	1.2E-05	mg/kg/day	2.0E-02	mg/kg/day	6.0E-04
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	5.0E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								4.2E-06					2.1E-01
		Exposure Point Total									5.0E-05					3.8E+00
	Exposure Medium Total										5.0E-05					3.8E+00

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TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Inhalation	Aluminum	6.0E-06	MG/M3	1.0E-08	mg/kg/day	NA	NA	NA	7.1E-07	mg/kg/day	1.4E-03	mg/kg/day	5.0E-04
				Antimony	9.9E-09	MG/M3	1.7E-11	mg/kg/day	NA	NA	NA	1.2E-09	mg/kg/day	1.1E-04	mg/kg/day	1.0E-05
				Arsenic	7.2E-07	MG/M3	1.2E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.8E-08	8.5E-08	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	3.6E-08	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	1.4E-03	mg/kg/day	1.8E-03
				Cadmium	1.9E-08	MG/M3	3.1E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.0E-10	2.2E-09	mg/kg/day	2.6E-04	mg/kg/day	8.6E-06
				Chromium	2.7E-06	MG/M3	4.5E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.9E-07	3.1E-07	mg/kg/day	2.3E-06	mg/kg/day	1.4E-01
				Copper	5.0E-07	MG/M3	8.5E-10	mg/kg/day	NA	NA	NA	6.0E-08	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	4.4E-08	mg/kg/day	NA	NA	NA	3.1E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	2.3E-08	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	5.4E-10	mg/kg/day	NA	NA	NA	3.8E-08	mg/kg/day	1.4E-05	mg/kg/day	2.6E-03
				Mercury	2.7E-08	MG/M3	4.6E-11	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	8.6E-05	mg/kg/day	3.8E-05
				Nickel	6.8E-08	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	8.1E-09	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	9.9E-12	mg/kg/day	NA	NA	NA	6.9E-10	mg/kg/day	2.9E-06	mg/kg/day	2.4E-04
				Thallium	1.4E-09	MG/M3	2.4E-12	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	3.9E-11	mg/kg/day	NA	NA	NA	2.8E-09	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	3.2E-09	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	2.9E-13	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.9E-12	2.0E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	2.6E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	9.2E-13	1.8E-10	mg/kg/day	2.0E-04	mg/kg/day	9.2E-07
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	3.1E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.1E-12	2.2E-10	mg/kg/day	2.0E-04	mg/kg/day	1.1E-06
				DDE-4,4'	4.8E-09	MG/M3	8.1E-12	mg/kg/day	NA	NA	NA	5.6E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	6.5E-13	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.2E-13	4.5E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	3.0E-13	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.8E-12	2.1E-11	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	6.3E-14	mg/kg/day	4.6E+00	1/(mg/kg-day)	2.9E-13	4.4E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	1.5E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.4E-14	1.1E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	1.8E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.2E-12	1.2E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.3E-10	MG/M3	3.9E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-13	2.7E-11	mg/kg/day	NA	NA	NA
				Acetophenone	1.5E-05	MG/M3	2.5E-08	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	3.2E-11	mg/kg/day	NA	NA	NA	2.3E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.0E-11	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	3.6E-11	mg/kg/day	NA	NA	NA	2.5E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	7.8E-09	MG/M3	1.3E-11	mg/kg/day	NA	NA	NA	9.3E-10	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	3.0E-11	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	6.7E-12	mg/kg/day	NA	NA	NA	4.7E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	6.2E-11	mg/kg/day	NA	NA	NA	4.4E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	1.6E-11	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Naphthalene	3.1E-04	MG/M3	5.3E-07	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	8.6E-04	mg/kg/day	4.3E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	4.3E-11	mg/kg/day	NA	NA	NA	3.0E-09	mg/kg/day	NA	NA	NA
				Benzene	9.4E-03	MG/M3	1.6E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	4.3E-07	1.1E-03	mg/kg/day	1.7E-02	mg/kg/day	6.5E-02
				Bromomethane	2.5E-03	MG/M3	4.2E-06	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	1.4E-03	mg/kg/day	2.1E-01
				Chloroform	2.6E-03	MG/M3	4.5E-06	mg/kg/day	8.1E-02	1/(mg/kg-day)	3.6E-07	3.1E-04	mg/kg/day	1.4E-02	mg/kg/day	2.2E-02
				Dichloroethylene-1,2 cis	9.6E-03	MG/M3	1.6E-05	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	NA	NA	NA
				Ethylbenzene	5.4E-03	MG/M3	9.1E-06	mg/kg/day	NA	NA	NA	6.4E-04	mg/kg/day	2.9E-01	NA	2.2E-03
				Tetrachloroethylene	3.5E-02	MG/M3	6.0E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.3E-06	4.2E-03	mg/kg/day	NA	NA	NA
				Toluene	3.0E-02	MG/M3	5.1E-05	mg/kg/day	NA	NA	NA	3.6E-03	mg/kg/day	1.1E-01	mg/kg/day	3.1E-02
				Trichloroethylene	1.5E-01	MG/M3	2.5E-04	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.0E-04	1.8E-02	mg/kg/day	1.0E-02	mg/kg/day	1.8E+00
				Vinyl chloride	7.5E-03	MG/M3	1.3E-05	mg/kg/day	1.5E-02	1/(mg/kg-day)	2.0E-07	8.9E-04	mg/kg/day	2.9E-02	mg/kg/day	3.1E-02
				Xylenes, total	3.6E-02	MG/M3	6.2E-05	mg/kg/day	NA	NA	NA	4.3E-03	mg/kg/day	2.9E-02	mg/kg/day	1.5E-01
			Exp. Route Total								1.0E-04					2.5E+00
		Exposure Point Total									1.0E-04					2.5E+00
	Exposure Medium Total										1.0E-04					2.5E+00
Subsurface Soil Total											1.5E-04					6.3E+00

NA = Not applicable.

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TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Junkyard Surface Soil	Ingestion													
				Antimony	4.1E+00	MG/KG	1.9E-06	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	4.0E-04	mg/kg/day	1.4E-02
				Arsenic	2.8E+01	MG/KG	1.3E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.0E-05	3.8E-05	mg/kg/day	3.0E-04	mg/kg/day	1.3E-01
				Barium	1.6E+04	MG/KG	7.5E-03	mg/kg/day	NA	NA	NA	2.2E-02	mg/kg/day	7.0E-02	mg/kg/day	3.1E-01
				Cadmium	1.8E+01	MG/KG	8.6E-06	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	1.0E-03	mg/kg/day	2.5E-02
				Chromium	1.6E+01	MG/KG	7.6E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	3.0E-03	mg/kg/day	7.4E-03
				Iron	3.3E+04	MG/KG	1.5E-02	mg/kg/day	NA	NA	NA	4.5E-02	mg/kg/day	3.0E-01	mg/kg/day	1.5E-01
				Lead	2.1E+03	MG/KG	1.0E-03	mg/kg/day	NA	NA	NA	2.9E-03	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	1.0E-04	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	1.4E-01	mg/kg/day	2.1E-03
				Mercury	2.4E+00	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	3.3E-06	mg/kg/day	3.0E-04	mg/kg/day	1.1E-02
				Benzo(a)anthracene	1.6E+00	MG/KG	7.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-07	2.2E-06	mg/kg/day	3.0E-02	mg/kg/day	7.3E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	7.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.1E-06	2.1E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	7.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.1E-07	2.1E-06	mg/kg/day	3.0E-02	mg/kg/day	6.8E-05
			Exp. Route Total								2.6E-05					6.5E-01
			Dermal													
				Antimony	4.1E+00	MG/KG	7.7E-08	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	6.0E-05	mg/kg/day	3.7E-03
				Arsenic	2.8E+01	MG/KG	1.6E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.3E-06	4.5E-06	mg/kg/day	3.0E-04	mg/kg/day	1.5E-02
				Barium	1.6E+04	MG/KG	3.0E-04	mg/kg/day	NA	NA	NA	8.7E-04	mg/kg/day	4.9E-03	mg/kg/day	1.8E-01
				Cadmium	1.8E+01	MG/KG	3.4E-08	mg/kg/day	NA	NA	NA	1.0E-07	mg/kg/day	5.0E-05	mg/kg/day	2.0E-03
				Chromium	1.6E+01	MG/KG	3.0E-07	mg/kg/day	NA	NA	NA	8.9E-07	mg/kg/day	7.5E-05	mg/kg/day	1.2E-02
				Iron	3.3E+04	MG/KG	6.1E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	3.0E-01	mg/kg/day	6.0E-03
				Lead	2.1E+03	MG/KG	4.0E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	4.1E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	5.6E-03	mg/kg/day	2.1E-03
				Mercury	2.4E+00	MG/KG	4.5E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	2.1E-05	mg/kg/day	6.2E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	3.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-07	1.1E-06	mg/kg/day	3.0E-02	mg/kg/day	3.8E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	3.7E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.7E-06	1.1E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	3.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.7E-07	1.1E-06	mg/kg/day	3.0E-02	mg/kg/day	3.6E-05
			Exp. Route Total								5.6E-06					2.3E-01
		Exposure Point Total									3.1E-05					8.7E-01
	Exposure Medium Total										3.1E-05					8.7E-01

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TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Junkyard Surface Soil	Inhalation	Antimony	4.0E-09	MG/M3	3.8E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Arsenic	2.7E-08	MG/M3	2.5E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.8E-08	7.4E-09	mg/kg/day	NA	NA	NA
				Barium	1.6E-05	MG/M3	1.5E-06	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	1.4E-04	mg/kg/day	3.1E-02
				Cadmium	1.8E-08	MG/M3	1.7E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.1E-08	4.9E-09	mg/kg/day	5.7E-05	mg/kg/day	8.6E-05
				Chromium	1.6E-08	MG/M3	1.5E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	6.2E-08	4.3E-09	mg/kg/day	2.3E-06	mg/kg/day	1.9E-03
				Iron	3.2E-05	MG/M3	3.0E-06	mg/kg/day	NA	NA	NA	8.8E-06	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	2.0E-07	mg/kg/day	NA	NA	NA	5.7E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	2.0E-08	mg/kg/day	NA	NA	NA	5.9E-08	mg/kg/day	1.4E-05	mg/kg/day	4.1E-03
				Mercury	2.4E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	6.4E-10	mg/kg/day	8.6E-05	mg/kg/day	7.5E-06
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Junkyard Surface Soil (cont.)	Inhalation (cont.)	Benzo(a)anthracene	1.6E-09	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	4.3E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.5E-09	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	4.0E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E-09	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	4.0E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.1E-07					3.7E-02
		Exposure Point Total									1.1E-07					3.7E-02
	Exposure Medium Total										1.1E-07					3.7E-02
Surface Soil Total											3.1E-05					9.1E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion	Aluminum	9.1E+03	MG/KG	4.3E-03	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	1.0E+00	mg/kg/day	1.3E-02
				Antimony	4.1E+00	MG/KG	1.9E-06	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	4.0E-04	mg/kg/day	1.4E-02
				Arsenic	1.2E+03	MG/KG	5.8E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.7E-04	1.7E-03	mg/kg/day	3.0E-04	mg/kg/day	5.7E+00
				Barium	1.9E+04	MG/KG	8.7E-03	mg/kg/day	NA	NA	NA	2.5E-02	mg/kg/day	7.0E-02	mg/kg/day	3.6E-01
				Cadmium	2.5E+01	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	3.4E-05	mg/kg/day	1.0E-03	mg/kg/day	3.4E-02
				Chromium	1.8E+01	MG/KG	8.6E-06	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	3.0E-03	mg/kg/day	8.4E-03
				Iron	6.1E+04	MG/KG	2.9E-02	mg/kg/day	NA	NA	NA	8.3E-02	mg/kg/day	3.0E-01	mg/kg/day	2.8E-01
				Lead	2.1E+03	MG/KG	1.0E-03	mg/kg/day	NA	NA	NA	2.9E-03	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	1.2E-04	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	1.4E-01	mg/kg/day	2.6E-03
				Mercury	2.4E+00	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	3.3E-06	mg/kg/day	3.0E-04	mg/kg/day	1.1E-02
				Benzo(a)anthracene	1.8E+00	MG/KG	8.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-07	2.5E-06	mg/kg/day	3.0E-02	mg/kg/day	8.2E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	7.5E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.5E-06	2.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	8.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.5E-07	2.6E-06	mg/kg/day	3.0E-02	mg/kg/day	8.7E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.7E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-06	4.9E-07	mg/kg/day	3.0E-02	mg/kg/day	1.6E-05
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	4.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.4E-07	1.4E-06	mg/kg/day	5.0E-02	mg/kg/day	2.7E-05
			Exp. Route Total								8.8E-04					6.4E+00

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TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Dermal	Aluminum	9.1E+03	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	5.0E-04	mg/kg/day	1.0E+00	mg/kg/day	5.0E-04
				Antimony	4.1E+00	MG/KG	7.7E-08	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	6.0E-05	mg/kg/day	3.7E-03
				Arsenic	1.2E+03	MG/KG	7.0E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.0E-04	2.0E-04	mg/kg/day	3.0E-04	mg/kg/day	6.8E-01
				Barium	1.9E+04	MG/KG	3.5E-04	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	4.9E-03	mg/kg/day	2.1E-01
				Cadmium	2.5E+01	MG/KG	4.6E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	5.0E-05	mg/kg/day	2.7E-03
				Chromium	1.8E+01	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	7.5E-05	mg/kg/day	1.3E-02
				Iron	6.1E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	3.3E-03	mg/kg/day	3.0E-01	mg/kg/day	1.1E-02
				Lead	2.1E+03	MG/KG	4.0E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	5.0E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.6E-03	mg/kg/day	2.6E-03
				Mercury	2.4E+00	MG/KG	4.5E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	2.1E-05	mg/kg/day	6.2E-03
				Benzo(a)anthracene	1.8E+00	MG/KG	4.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.2E-07	1.3E-06	mg/kg/day	3.0E-02	mg/kg/day	4.3E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	3.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.8E-06	1.1E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	4.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.4E-07	1.4E-06	mg/kg/day	3.0E-02	mg/kg/day	4.5E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	8.8E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.4E-07	2.6E-07	mg/kg/day	3.0E-02	mg/kg/day	8.5E-06
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	2.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.8E-07	7.1E-07	mg/kg/day	5.0E-02	mg/kg/day	1.4E-05
			Exp. Route Total								1.1E-04					9.2E-01
		Exposure Point Total									9.9E-04					7.3E+00
	Exposure Medium Total										9.9E-04					7.3E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation	Aluminum	9.0E-06	MG/M3	8.4E-07	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	1.4E-03	mg/kg/day	1.7E-03
				Antimony	4.0E-09	MG/M3	3.8E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Arsenic	1.2E-06	MG/M3	1.1E-07	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.7E-06	3.3E-07	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	1.7E-06	mg/kg/day	NA	NA	NA	4.9E-06	mg/kg/day	1.4E-04	mg/kg/day	3.5E-02
				Cadmium	2.4E-08	MG/M3	2.3E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.4E-08	6.6E-09	mg/kg/day	5.7E-05	mg/kg/day	1.2E-04
				Chromium	1.8E-08	MG/M3	1.7E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	7.0E-08	4.9E-09	mg/kg/day	2.3E-06	mg/kg/day	2.1E-03
				Iron	6.0E-05	MG/M3	5.6E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	2.0E-07	mg/kg/day	NA	NA	NA	5.7E-07	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	2.4E-08	mg/kg/day	NA	NA	NA	7.1E-08	mg/kg/day	1.4E-05	mg/kg/day	5.0E-03
				Mercury	2.4E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	6.4E-10	mg/kg/day	8.6E-05	mg/kg/day	7.5E-06
				Benzo(a)anthracene	1.8E-09	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	4.3E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	5.1E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	3.3E-11	mg/kg/day	NA	NA	NA	9.6E-11	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	9.2E-11	mg/kg/day	NA	NA	NA	2.7E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.8E-06					4.4E-02
		Exposure Point Total									1.8E-06					4.4E-02
	Exposure Medium Total										1.8E-06					4.4E-02
Subsurface Soil Total											9.9E-04					7.4E+00

NA = Not applicable.

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TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Junkyard Surface Soil	Ingestion													
				Antimony	4.1E+00	MG/KG	4.5E-06	*mg/kg/day*	NA	NA	NA	5.2E-05	*mg/kg/day*	2.0E-04	mg/kg/day	2.6E-01
				Arsenic	2.8E+01	MG/KG	3.0E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.6E-05	3.5E-04	mg/kg/day	5.0E-03	mg/kg/day	7.1E-02
				Barium	1.6E+04	MG/KG	1.8E-02	mg/kg/day	NA	NA	NA	2.0E-01	mg/kg/day	7.0E-02	mg/kg/day	2.9E+00
				Cadmium	1.8E+01	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	2.3E-04	mg/kg/day	1.0E-03	mg/kg/day	2.3E-01
				Chromium	1.6E+01	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	2.0E-02	mg/kg/day	1.0E-02
				Iron	3.3E+04	MG/KG	3.6E-02	mg/kg/day	NA	NA	NA	4.2E-01	mg/kg/day	3.0E-01	mg/kg/day	1.4E+00
				Lead	2.1E+03	MG/KG	2.3E-03	mg/kg/day	NA	NA	NA	2.7E-02	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	2.4E-04	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	1.4E-01	mg/kg/day	2.0E-02
				Mercury	2.4E+00	MG/KG	2.6E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	3.0E-04	mg/kg/day	1.0E-01
				Benzo(a)anthracene	1.6E+00	MG/KG	1.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-06	2.0E-05	mg/kg/day	3.0E-01	mg/kg/day	6.8E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	1.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-05	1.9E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	1.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-06	1.9E-05	mg/kg/day	3.0E-01	mg/kg/day	6.4E-05
			Exp. Route Total								6.0E-05					5.0E+00
			Dermal													
				Antimony	4.1E+00	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	3.0E-05	mg/kg/day	4.9E-02
				Arsenic	2.8E+01	MG/KG	2.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.8E-06	3.0E-05	mg/kg/day	5.0E-03	mg/kg/day	5.9E-03
				Barium	1.6E+04	MG/KG	4.9E-04	mg/kg/day	NA	NA	NA	5.7E-03	mg/kg/day	4.9E-03	mg/kg/day	1.2E+00
				Cadmium	1.8E+01	MG/KG	5.6E-08	mg/kg/day	NA	NA	NA	6.6E-07	mg/kg/day	5.0E-05	mg/kg/day	1.3E-02
				Chromium	1.6E+01	MG/KG	5.0E-07	mg/kg/day	NA	NA	NA	5.8E-06	mg/kg/day	5.0E-04	mg/kg/day	1.2E-02
				Iron	3.3E+04	MG/KG	1.0E-03	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	3.0E-01	mg/kg/day	3.9E-02
				Lead	2.1E+03	MG/KG	6.6E-05	mg/kg/day	NA	NA	NA	7.7E-04	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	6.7E-06	mg/kg/day	NA	NA	NA	7.8E-05	mg/kg/day	5.6E-03	mg/kg/day	1.4E-02
				Mercury	2.4E+00	MG/KG	7.4E-08	mg/kg/day	NA	NA	NA	8.6E-07	mg/kg/day	2.1E-05	mg/kg/day	4.1E-02
				Benzo(a)anthracene	1.6E+00	MG/KG	6.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-07	7.4E-06	mg/kg/day	3.0E-01	mg/kg/day	2.5E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	6.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.4E-06	7.0E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	6.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.4E-07	7.0E-06	mg/kg/day	3.0E-01	mg/kg/day	2.3E-05
			Exp. Route Total								9.1E-06					1.3E+00
		Exposure Point Total									6.9E-05					6.4E+00
	Exposure Medium Total										6.9E-05					6.4E+00
Surface Soil	Ambient Air	Emissions from Junkyard Surface Soil	Inhalation													
				Antimony	4.0E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	1.1E-04	mg/kg/day	2.3E-05
				Arsenic	2.7E-08	MG/M3	1.5E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.3E-08	1.7E-08	mg/kg/day	NA	NA	NA
				Barium	1.6E-05	MG/M3	8.7E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	1.4E-03	mg/kg/day	7.2E-03
				Cadmium	1.8E-08	MG/M3	9.9E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	6.2E-09	1.2E-08	mg/kg/day	2.6E-04	mg/kg/day	4.5E-05
				Chromium	1.6E-08	MG/M3	8.8E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	3.7E-08	1.0E-08	mg/kg/day	2.3E-06	mg/kg/day	4.5E-03
				Iron	3.2E-05	MG/M3	1.8E-06	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	1.2E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	1.4E-05	mg/kg/day	9.7E-03
				Mercury	2.4E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	8.6E-05	mg/kg/day	1.8E-05

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TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Junkyard Surface Soil (cont.)	Inhalation (cont.)	Benzo(a)anthracene	1.6E-09	MG/M3	8.7E-11	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.5E-09	MG/M3	8.1E-11	mg/kg/day	NA	NA	NA	9.5E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E-09	MG/M3	8.1E-11	mg/kg/day	NA	NA	NA	9.5E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								6.6E-08					2.1E-02
		Exposure Point Total									6.6E-08					2.1E-02
	Exposure Medium Total										6.6E-08					2.1E-02
Surface Soil Total											6.9E-05					6.4E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion													
				Aluminum	9.1E+03	MG/KG	1.0E-02	mg/kg/day	NA	NA	NA	1.2E-01	mg/kg/day	1.0E+00	mg/kg/day	1.2E-01
				Antimony	4.1E+00	MG/KG	4.5E-06	mg/kg/day	NA	NA	NA	5.2E-05	mg/kg/day	2.0E-04	mg/kg/day	2.6E-01
				Arsenic	1.2E+03	MG/KG	1.4E-03	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.0E-03	1.6E-02	mg/kg/day	5.0E-03	mg/kg/day	3.2E+00
				Barium	1.9E+04	MG/KG	2.0E-02	mg/kg/day	NA	NA	NA	2.4E-01	mg/kg/day	7.0E-02	mg/kg/day	3.4E+00
				Cadmium	2.5E+01	MG/KG	2.7E-05	mg/kg/day	NA	NA	NA	3.2E-04	mg/kg/day	1.0E-03	mg/kg/day	3.2E-01
				Chromium	1.8E+01	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	2.3E-04	mg/kg/day	2.0E-02	mg/kg/day	1.2E-02
				Iron	6.1E+04	MG/KG	6.7E-02	mg/kg/day	NA	NA	NA	7.8E-01	mg/kg/day	3.0E-01	mg/kg/day	2.6E+00
				Lead	2.1E+03	MG/KG	2.3E-03	mg/kg/day	NA	NA	NA	2.7E-02	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	2.9E-04	mg/kg/day	NA	NA	NA	3.4E-03	mg/kg/day	1.4E-01	mg/kg/day	2.4E-02
				Mercury	2.4E+00	MG/KG	2.6E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	3.0E-04	mg/kg/day	1.0E-01
				Benzo(a)anthracene	1.8E+00	MG/KG	2.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-06	2.3E-05	mg/kg/day	3.0E-01	mg/kg/day	7.7E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	1.8E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.3E-05	2.0E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	2.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-06	2.4E-05	mg/kg/day	3.0E-01	mg/kg/day	8.1E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	3.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.9E-06	4.6E-06	mg/kg/day	3.0E-01	mg/kg/day	1.5E-05
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	1.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.0E-07	1.3E-05	mg/kg/day	6.0E-01	mg/kg/day	2.1E-05
			Exp. Route Total								2.1E-03					1.0E+01
			Dermal													
				Aluminum	9.1E+03	MG/KG	2.8E-04	mg/kg/day	NA	NA	NA	3.3E-03	mg/kg/day	1.0E+00	mg/kg/day	3.3E-03
				Antimony	4.1E+00	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	3.0E-05	mg/kg/day	4.9E-02
				Arsenic	1.2E+03	MG/KG	1.1E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.7E-04	1.3E-03	mg/kg/day	5.0E-03	mg/kg/day	2.7E-01
				Barium	1.9E+04	MG/KG	5.7E-04	mg/kg/day	NA	NA	NA	6.6E-03	mg/kg/day	4.9E-03	mg/kg/day	1.4E+00
				Cadmium	2.5E+01	MG/KG	7.6E-08	mg/kg/day	NA	NA	NA	8.9E-07	mg/kg/day	5.0E-05	mg/kg/day	1.8E-02
				Chromium	1.8E+01	MG/KG	5.6E-07	mg/kg/day	NA	NA	NA	6.6E-06	mg/kg/day	5.0E-04	mg/kg/day	1.3E-02
				Iron	6.1E+04	MG/KG	1.9E-03	mg/kg/day	NA	NA	NA	2.2E-02	mg/kg/day	3.0E-01	mg/kg/day	7.3E-02
				Lead	2.1E+03	MG/KG	6.6E-05	mg/kg/day	NA	NA	NA	7.7E-04	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	8.1E-06	mg/kg/day	NA	NA	NA	9.5E-05	mg/kg/day	5.6E-03	mg/kg/day	1.7E-02
				Mercury	2.4E+00	MG/KG	7.4E-08	mg/kg/day	NA	NA	NA	8.6E-07	mg/kg/day	2.1E-05	mg/kg/day	4.1E-02
				Benzo(a)anthracene	1.8E+00	MG/KG	7.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.2E-07	8.4E-06	mg/kg/day	3.0E-01	mg/kg/day	2.8E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	6.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.7E-06	7.4E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	7.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-07	8.8E-06	mg/kg/day	3.0E-01	mg/kg/day	2.9E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-06	1.7E-06	mg/kg/day	3.0E-01	mg/kg/day	5.6E-06
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	4.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-07	4.7E-06	mg/kg/day	6.0E-01	mg/kg/day	7.8E-06

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TABLE 7.7.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Dermal													
			Exp. Route Total								1.8E-04					1.8E+00
		Exposure Point Total									2.2E-03					1.2E+01
	Exposure Medium Total										2.2E-03					1.2E+01
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation													
				Aluminum	9.0E-06	MG/M3	4.9E-07	mg/kg/day	NA	NA	NA	5.8E-06	mg/kg/day	1.4E-03	mg/kg/day	4.0E-03
				Antimony	4.0E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	1.1E-04	mg/kg/day	2.3E-05
				Arsenic	1.2E-06	MG/M3	6.7E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.0E-06	7.8E-07	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	1.0E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	1.4E-03	mg/kg/day	8.3E-03
				Cadmium	2.4E-08	MG/M3	1.3E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	8.5E-09	1.6E-08	mg/kg/day	2.6E-04	mg/kg/day	6.1E-05
				Chromium	1.8E-08	MG/M3	9.9E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	4.2E-08	1.2E-08	mg/kg/day	2.3E-06	mg/kg/day	5.1E-03
				Iron	6.0E-05	MG/M3	3.3E-06	mg/kg/day	NA	NA	NA	3.8E-05	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	1.2E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	1.4E-08	mg/kg/day	NA	NA	NA	1.7E-07	mg/kg/day	1.4E-05	mg/kg/day	1.2E-02
				Mercury	2.4E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	8.6E-05	mg/kg/day	1.8E-05
				Benzo(a)anthracene	1.8E-09	MG/M3	9.7E-11	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	8.7E-11	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	1.0E-10	mg/kg/day	NA	NA	NA	1.2E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	1.9E-11	mg/kg/day	NA	NA	NA	2.3E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	5.4E-11	mg/kg/day	NA	NA	NA	6.3E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.1E-06					2.9E-02
		Exposure Point Total									1.1E-06					2.9E-02
	Exposure Medium Total										1.1E-06					2.9E-02
Subsurface Soil Total											2.2E-03					1.2E+01

NA = Not applicable.

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TABLE 7.8.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Junkyard Surface Soil	Ingestion													
				Antimony	4.1E+00	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.0E-06	mg/kg/day	4.0E-04	mg/kg/day	1.0E-02
				Arsenic	2.8E+01	MG/KG	9.7E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.5E-05	2.7E-05	mg/kg/day	3.0E-04	mg/kg/day	9.0E-02
				Barium	1.6E+04	MG/KG	5.6E-03	mg/kg/day	NA	NA	NA	1.6E-02	mg/kg/day	7.0E-02	mg/kg/day	2.2E-01
				Cadmium	1.8E+01	MG/KG	6.4E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	1.0E-03	mg/kg/day	1.8E-02
				Chromium	1.6E+01	MG/KG	5.7E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	3.0E-03	mg/kg/day	5.3E-03
				Iron	3.3E+04	MG/KG	1.1E-02	mg/kg/day	NA	NA	NA	3.2E-02	mg/kg/day	3.0E-01	mg/kg/day	1.1E-01
				Lead	2.1E+03	MG/KG	7.5E-04	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	7.7E-05	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	1.4E-01	mg/kg/day	1.5E-03
				Mercury	2.4E+00	MG/KG	8.4E-07	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	3.0E-04	mg/kg/day	7.8E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	5.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.1E-07	1.6E-06	mg/kg/day	3.0E-02	mg/kg/day	5.2E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	5.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.8E-06	1.5E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	5.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.8E-07	1.5E-06	mg/kg/day	3.0E-02	mg/kg/day	4.9E-05
			Exp. Route Total								1.9E-05					4.6E-01
			Dermal													
				Antimony	4.1E+00	MG/KG	9.5E-08	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	6.0E-05	mg/kg/day	4.4E-03
				Arsenic	2.8E+01	MG/KG	1.9E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.9E-06	5.4E-06	mg/kg/day	3.0E-04	mg/kg/day	1.8E-02
				Barium	1.6E+04	MG/KG	3.7E-04	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	4.9E-03	mg/kg/day	2.1E-01
				Cadmium	1.8E+01	MG/KG	4.2E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	5.0E-05	mg/kg/day	2.4E-03
				Chromium	1.6E+01	MG/KG	3.7E-07	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	7.5E-05	mg/kg/day	1.4E-02
				Iron	3.3E+04	MG/KG	7.6E-04	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	3.0E-01	mg/kg/day	7.1E-03
				Lead	2.1E+03	MG/KG	4.9E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	5.1E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.6E-03	mg/kg/day	2.5E-03
				Mercury	2.4E+00	MG/KG	5.5E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	2.1E-05	mg/kg/day	7.4E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	4.8E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-07	1.3E-06	mg/kg/day	3.0E-02	mg/kg/day	4.5E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	4.5E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.3E-06	1.3E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	4.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.3E-07	1.3E-06	mg/kg/day	3.0E-02	mg/kg/day	4.2E-05
			Exp. Route Total								6.8E-06					2.7E-01
		Exposure Point Total									2.6E-05					7.3E-01
	Exposure Medium Total										2.6E-05					7.3E-01

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TABLE 7.8.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Junkyard Surface Soil	Inhalation	Antimony	4.0E-09	MG/M3	2.8E-10	mg/kg/day	NA	NA	NA	7.9E-10	mg/kg/day	NA	NA	NA
				Arsenic	2.7E-08	MG/M3	1.9E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.9E-08	5.3E-09	mg/kg/day	NA	NA	NA
				Barium	1.6E-05	MG/M3	1.1E-06	mg/kg/day	NA	NA	NA	3.1E-06	mg/kg/day	1.4E-04	mg/kg/day	2.2E-02
				Cadmium	1.8E-08	MG/M3	1.3E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	7.9E-09	3.5E-09	mg/kg/day	5.7E-05	mg/kg/day	6.2E-05
				Chromium	1.6E-08	MG/M3	1.1E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	4.7E-08	3.1E-09	mg/kg/day	2.3E-06	mg/kg/day	1.4E-03
				Iron	3.2E-05	MG/M3	2.2E-06	mg/kg/day	NA	NA	NA	6.3E-06	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	1.5E-07	mg/kg/day	NA	NA	NA	4.1E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	1.5E-08	mg/kg/day	NA	NA	NA	4.2E-08	mg/kg/day	1.4E-05	mg/kg/day	2.9E-03
				Mercury	2.4E-09	MG/M3	1.6E-10	mg/kg/day	NA	NA	NA	4.6E-10	mg/kg/day	8.6E-05	mg/kg/day	5.4E-06
				Benzo(a)anthracene	1.6E-09	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	3.1E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.5E-09	MG/M3	1.0E-10	mg/kg/day	NA	NA	NA	2.9E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E-09	MG/M3	1.0E-10	mg/kg/day	NA	NA	NA	2.9E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								8.3E-08					2.6E-02
		Exposure Point Total									8.3E-08					2.6E-02
	Exposure Medium Total										8.3E-08					2.6E-02
Surface Soil Total											2.6E-05					7.6E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion	Aluminum	9.1E+03	MG/KG	3.2E-03	mg/kg/day	NA	NA	NA	8.9E-03	mg/kg/day	1.0E+00	mg/kg/day	8.9E-03
				Antimony	4.1E+00	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.0E-06	mg/kg/day	4.0E-04	mg/kg/day	1.0E-02
				Arsenic	1.2E+03	MG/KG	4.3E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.5E-04	1.2E-03	mg/kg/day	3.0E-04	mg/kg/day	4.0E+00
				Barium	1.9E+04	MG/KG	6.5E-03	mg/kg/day	NA	NA	NA	1.8E-02	mg/kg/day	7.0E-02	mg/kg/day	2.6E-01
				Cadmium	2.5E+01	MG/KG	8.7E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	1.0E-03	mg/kg/day	2.4E-02
				Chromium	1.8E+01	MG/KG	6.4E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	3.0E-03	mg/kg/day	6.0E-03
				Iron	6.1E+04	MG/KG	2.1E-02	mg/kg/day	NA	NA	NA	6.0E-02	mg/kg/day	3.0E-01	mg/kg/day	2.0E-01
				Lead	2.1E+03	MG/KG	7.5E-04	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	9.3E-05	mg/kg/day	NA	NA	NA	2.6E-04	mg/kg/day	1.4E-01	mg/kg/day	1.9E-03
				Mercury	2.4E+00	MG/KG	8.4E-07	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	3.0E-04	mg/kg/day	7.8E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	6.3E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.6E-07	1.8E-06	mg/kg/day	3.0E-02	mg/kg/day	5.9E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	5.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.1E-06	1.6E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	6.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.8E-07	1.9E-06	mg/kg/day	3.0E-02	mg/kg/day	6.2E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.2E-07	3.5E-07	mg/kg/day	3.0E-02	mg/kg/day	1.2E-05
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	3.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.6E-07	9.8E-07	mg/kg/day	5.0E-02	mg/kg/day	2.0E-05
			Exp. Route Total								6.6E-04					4.6E+00

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TABLE 7.8.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Dermal	Aluminum	9.1E+03	MG/KG	2.1E-04	mg/kg/day	NA	NA	NA	5.9E-04	mg/kg/day	1.0E+00	mg/kg/day	5.9E-04
				Antimony	4.1E+00	MG/KG	9.5E-08	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	6.0E-05	mg/kg/day	4.4E-03
				Arsenic	1.2E+03	MG/KG	8.6E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.3E-04	2.4E-04	mg/kg/day	3.0E-04	mg/kg/day	8.0E-01
				Barium	1.9E+04	MG/KG	4.3E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	4.9E-03	mg/kg/day	2.4E-01
				Cadmium	2.5E+01	MG/KG	5.7E-08	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	5.0E-05	mg/kg/day	3.2E-03
				Chromium	1.8E+01	MG/KG	4.2E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	7.5E-05	mg/kg/day	1.6E-02
				Iron	6.1E+04	MG/KG	1.4E-03	mg/kg/day	NA	NA	NA	3.9E-03	mg/kg/day	3.0E-01	mg/kg/day	1.3E-02
				Lead	2.1E+03	MG/KG	4.9E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	6.1E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	5.6E-03	mg/kg/day	3.1E-03
				Mercury	2.4E+00	MG/KG	5.5E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	2.1E-05	mg/kg/day	7.4E-03
				Benzo(a)anthracene	1.8E+00	MG/KG	5.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.9E-07	1.5E-06	mg/kg/day	3.0E-02	mg/kg/day	5.0E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	4.8E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.5E-06	1.3E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	5.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.2E-07	1.6E-06	mg/kg/day	3.0E-02	mg/kg/day	5.3E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.1E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.9E-07	3.0E-07	mg/kg/day	3.0E-02	mg/kg/day	1.0E-05
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	3.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-07	8.4E-07	mg/kg/day	5.0E-02	mg/kg/day	1.7E-05
			Exp. Route Total								1.3E-04					1.1E+00
		Exposure Point Total									7.9E-04					5.7E+00
	Exposure Medium Total										7.9E-04					5.7E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation	Aluminum	9.0E-06	MG/M3	6.3E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	1.4E-03	mg/kg/day	1.2E-03
				Antimony	4.0E-09	MG/M3	2.8E-10	mg/kg/day	NA	NA	NA	7.9E-10	mg/kg/day	NA	NA	NA
				Arsenic	1.2E-06	MG/M3	8.5E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.3E-06	2.4E-07	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	1.3E-06	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	1.4E-04	mg/kg/day	2.5E-02
				Cadmium	2.4E-08	MG/M3	1.7E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.1E-08	4.8E-09	mg/kg/day	5.7E-05	mg/kg/day	8.3E-05
				Chromium	1.8E-08	MG/M3	1.3E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	5.3E-08	3.5E-09	mg/kg/day	2.3E-06	mg/kg/day	1.5E-03
				Iron	6.0E-05	MG/M3	4.2E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	1.5E-07	mg/kg/day	NA	NA	NA	4.1E-07	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	1.8E-08	mg/kg/day	NA	NA	NA	5.1E-08	mg/kg/day	1.4E-05	mg/kg/day	3.6E-03
				Mercury	2.4E-09	MG/M3	1.6E-10	mg/kg/day	NA	NA	NA	4.6E-10	mg/kg/day	8.6E-05	mg/kg/day	5.4E-06
				Benzo(a)anthracene	1.8E-09	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	3.5E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	3.1E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	3.6E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	2.5E-11	mg/kg/day	NA	NA	NA	6.9E-11	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	6.9E-11	mg/kg/day	NA	NA	NA	1.9E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.3E-06					3.2E-02
		Exposure Point Total									1.3E-06					3.2E-02
	Exposure Medium Total										1.3E-06					3.2E-02
Subsurface Soil Total											7.9E-04					5.7E+00

NA = Not applicable.

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TABLE 7.9.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Junkyard Surface Soil	Ingestion													
				Antimony	4.1E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	9.5E-06	mg/kg/day	2.0E-04	mg/kg/day	4.8E-02
				Arsenic	2.8E+01	MG/KG	9.2E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.4E-06	6.4E-05	mg/kg/day	5.0E-03	mg/kg/day	1.3E-02
				Barium	1.6E+04	MG/KG	5.3E-04	mg/kg/day	NA	NA	NA	3.7E-02	mg/kg/day	7.0E-02	mg/kg/day	5.3E-01
				Cadmium	1.8E+01	MG/KG	6.1E-07	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	1.0E-03	mg/kg/day	4.3E-02
				Chromium	1.6E+01	MG/KG	5.4E-07	mg/kg/day	NA	NA	NA	3.8E-05	mg/kg/day	2.0E-02	mg/kg/day	1.9E-03
				Iron	3.3E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	7.6E-02	mg/kg/day	3.0E-01	mg/kg/day	2.5E-01
				Lead	2.1E+03	MG/KG	7.1E-05	mg/kg/day	NA	NA	NA	5.0E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.2E+02	MG/KG	7.3E-06	mg/kg/day	NA	NA	NA	5.1E-04	mg/kg/day	1.4E-01	mg/kg/day	3.6E-03
				Mercury	2.4E+00	MG/KG	8.0E-08	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	3.0E-04	mg/kg/day	1.9E-02
				Benzo(a)anthracene	1.6E+00	MG/KG	5.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.9E-08	3.7E-06	mg/kg/day	3.0E-01	mg/kg/day	1.2E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	5.0E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.6E-07	3.5E-06	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	5.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.6E-08	3.5E-06	mg/kg/day	3.0E-01	mg/kg/day	1.2E-05
			Exp. Route Total								1.8E-06					9.1E-01
			Dermal													
				Antimony	4.1E+00	MG/KG	2.7E-09	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	3.0E-05	mg/kg/day	6.4E-03
				Arsenic	2.8E+01	MG/KG	5.5E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.3E-08	3.9E-06	mg/kg/day	5.0E-03	mg/kg/day	7.7E-04
				Barium	1.6E+04	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	7.4E-04	mg/kg/day	4.9E-03	mg/kg/day	1.5E-01
				Cadmium	1.8E+01	MG/KG	1.2E-09	mg/kg/day	NA	NA	NA	8.5E-08	mg/kg/day	5.0E-05	mg/kg/day	1.7E-03
				Chromium	1.6E+01	MG/KG	1.1E-08	mg/kg/day	NA	NA	NA	7.5E-07	mg/kg/day	5.0E-04	mg/kg/day	1.5E-03
				Iron	3.3E+04	MG/KG	2.2E-05	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	3.0E-01	mg/kg/day	5.1E-03
				Lead	2.1E+03	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.2E+02	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	5.6E-03	mg/kg/day	1.8E-03
				Mercury	2.4E+00	MG/KG	1.6E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	2.1E-05	mg/kg/day	5.3E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	1.4E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-08	9.7E-07	mg/kg/day	3.0E-01	mg/kg/day	3.2E-06
				Benzo(a)pyrene	1.5E+00	MG/KG	1.3E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.5E-08	9.1E-07	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	1.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.5E-09	9.1E-07	mg/kg/day	3.0E-01	mg/kg/day	3.0E-06
			Exp. Route Total								2.0E-07					1.7E-01
		Exposure Point Total									2.0E-06					1.1E+00
	Exposure Medium Total										2.0E-06					1.1E+00

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TABLE 7.9.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Junkyard Surface Soil	Inhalation	Antimony	4.0E-09	MG/M3	6.8E-12	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	1.1E-04	NA	4.2E-06
				Arsenic	2.7E-08	MG/M3	4.6E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	6.9E-10	3.2E-09	mg/kg/day	NA	NA	NA
				Barium	1.6E-05	MG/M3	2.7E-08	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	1.4E-03	mg/kg/day	1.3E-03
				Cadmium	1.8E-08	MG/M3	3.0E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.9E-10	2.1E-09	mg/kg/day	2.6E-04	mg/kg/day	8.3E-06
				Chromium	1.6E-08	MG/M3	2.7E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.1E-09	1.9E-09	mg/kg/day	2.3E-06	mg/kg/day	8.2E-04
				Iron	3.2E-05	MG/M3	5.4E-08	mg/kg/day	NA	NA	NA	3.8E-06	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	3.5E-09	mg/kg/day	NA	NA	NA	2.5E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	3.6E-10	mg/kg/day	NA	NA	NA	2.5E-08	mg/kg/day	1.4E-05	mg/kg/day	1.8E-03
				Mercury	2.4E-09	MG/M3	4.0E-12	mg/kg/day	NA	NA	NA	2.8E-10	mg/kg/day	8.6E-05	mg/kg/day	3.2E-06
				Benzo(a)anthracene	1.6E-09	MG/M3	2.7E-12	mg/kg/day	NA	NA	NA	1.9E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.5E-09	MG/M3	2.5E-12	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E-09	MG/M3	2.5E-12	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								2.0E-09					3.9E-03
		Exposure Point Total									2.0E-09					3.9E-03
	Exposure Medium Total										2.0E-09					3.9E-03
Surface Soil Total											2.0E-06					1.1E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion	Aluminum	9.1E+03	MG/KG	3.0E-04	mg/kg/day	NA	NA	NA	2.1E-02	mg/kg/day	1.0E+00	mg/kg/day	2.1E-02
				Antimony	4.1E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	9.5E-06	mg/kg/day	2.0E-04	mg/kg/day	4.8E-02
				Arsenic	1.2E+03	MG/KG	4.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.2E-05	2.9E-03	mg/kg/day	5.0E-03	mg/kg/day	5.8E-01
				Barium	1.9E+04	MG/KG	6.1E-04	mg/kg/day	NA	NA	NA	4.3E-02	mg/kg/day	7.0E-02	mg/kg/day	6.1E-01
				Cadmium	2.5E+01	MG/KG	8.2E-07	mg/kg/day	NA	NA	NA	5.8E-05	mg/kg/day	1.0E-03	mg/kg/day	5.8E-02
				Chromium	1.8E+01	MG/KG	6.1E-07	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	2.0E-02	mg/kg/day	2.1E-03
				Iron	6.1E+04	MG/KG	2.0E-03	mg/kg/day	NA	NA	NA	1.4E-01	mg/kg/day	3.0E-01	mg/kg/day	4.7E-01
				Lead	2.1E+03	MG/KG	7.1E-05	mg/kg/day	NA	NA	NA	5.0E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.7E+02	MG/KG	8.8E-06	mg/kg/day	NA	NA	NA	6.2E-04	mg/kg/day	1.4E-01	mg/kg/day	4.4E-03
				Mercury	2.4E+00	MG/KG	8.0E-08	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	3.0E-04	mg/kg/day	1.9E-02
				Benzo(a)anthracene	1.8E+00	MG/KG	6.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.4E-08	4.2E-06	mg/kg/day	3.0E-01	mg/kg/day	1.4E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	5.3E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.9E-07	3.7E-06	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	6.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.6E-08	4.4E-06	mg/kg/day	3.0E-01	mg/kg/day	1.5E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.2E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.7E-08	8.4E-07	mg/kg/day	3.0E-01	mg/kg/day	2.8E-06
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	3.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-08	2.3E-06	mg/kg/day	6.0E-01	mg/kg/day	3.9E-06
			Exp. Route Total								6.2E-05					1.8E+00

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TABLE 7.9.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Dermal	Aluminum	9.1E+03	MG/KG	6.1E-06	mg/kg/day	NA	NA	NA	4.2E-04	mg/kg/day	1.0E+00	mg/kg/day	4.2E-04
				Antimony	4.1E+00	MG/KG	2.7E-09	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	2.0E-04	mg/kg/day	9.5E-04
				Arsenic	1.2E+03	MG/KG	2.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.7E-06	1.7E-04	mg/kg/day	5.0E-03	mg/kg/day	3.5E-02
				Barium	1.9E+04	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	8.6E-04	mg/kg/day	7.0E-02	mg/kg/day	1.2E-02
				Cadmium	2.5E+01	MG/KG	1.6E-09	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	1.0E-03	mg/kg/day	1.2E-04
				Chromium	1.8E+01	MG/KG	1.2E-08	mg/kg/day	NA	NA	NA	8.5E-07	mg/kg/day	2.0E-02	mg/kg/day	4.3E-05
				Iron	6.1E+04	MG/KG	4.0E-05	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	3.0E-01	mg/kg/day	9.4E-03
				Lead	2.1E+03	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.7E+02	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	1.4E-01	mg/kg/day	8.8E-05
				Mercury	2.4E+00	MG/KG	1.6E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	3.0E-04	mg/kg/day	3.7E-04
				Benzo(a)anthracene	1.8E+00	MG/KG	1.6E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-08	1.1E-06	mg/kg/day	3.0E-01	mg/kg/day	3.6E-06
				Benzo(a)pyrene	1.6E+00	MG/KG	1.4E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-07	9.7E-07	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	1.6E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-08	1.1E-06	mg/kg/day	3.0E-01	mg/kg/day	3.8E-06
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	3.1E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.3E-08	2.2E-07	mg/kg/day	3.0E-01	mg/kg/day	7.3E-07
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	8.6E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.3E-09	6.0E-07	mg/kg/day	6.0E-01	mg/kg/day	1.0E-06
			Exp. Route Total								3.9E-06					5.8E-02
		Exposure Point Total									6.6E-05					1.9E+00
	Exposure Medium Total										6.6E-05					1.9E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation	Aluminum	9.0E-06	MG/M3	1.5E-08	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	1.4E-03	mg/kg/day	7.4E-04
				Antimony	4.0E-09	MG/M3	6.8E-12	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	1.1E-04	NA	4.2E-06
				Arsenic	1.2E-06	MG/M3	2.1E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.1E-08	1.4E-07	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	3.1E-08	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	1.4E-03	mg/kg/day	1.5E-03
				Cadmium	2.4E-08	MG/M3	4.1E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.6E-10	2.9E-09	mg/kg/day	2.6E-04	mg/kg/day	1.1E-05
				Chromium	1.8E-08	MG/M3	3.0E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.3E-09	2.1E-09	mg/kg/day	2.3E-06	mg/kg/day	9.3E-04
				Iron	6.0E-05	MG/M3	1.0E-07	mg/kg/day	NA	NA	NA	7.1E-06	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	3.5E-09	mg/kg/day	NA	NA	NA	2.5E-07	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	4.4E-10	mg/kg/day	NA	NA	NA	3.1E-08	mg/kg/day	1.4E-05	mg/kg/day	2.2E-03
				Mercury	2.4E-09	MG/M3	4.0E-12	mg/kg/day	NA	NA	NA	2.8E-10	mg/kg/day	8.6E-05	mg/kg/day	3.2E-06
				Benzo(a)anthracene	1.8E-09	MG/M3	3.0E-12	mg/kg/day	NA	NA	NA	2.1E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	2.7E-12	mg/kg/day	NA	NA	NA	1.9E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	3.1E-12	mg/kg/day	NA	NA	NA	2.2E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	6.0E-13	mg/kg/day	NA	NA	NA	4.2E-11	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	1.7E-12	mg/kg/day	NA	NA	NA	1.2E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								3.2E-08					5.4E-03
		Exposure Point Total									3.2E-08					5.4E-03
	Exposure Medium Total										3.2E-08					5.4E-03
Subsurface Soil Total											6.6E-05					1.9E+00

NA = Not applicable.

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TABLE 7.10.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion													
				Antimony	3.4E+00	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	4.7E-06	mg/kg/day	4.0E-04	mg/kg/day	1.2E-02
				Arsenic	3.4E+02	MG/KG	1.6E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.4E-04	4.6E-04	mg/kg/day	3.0E-04	mg/kg/day	1.5E+00
				Barium	2.3E+04	MG/KG	1.1E-02	mg/kg/day	NA	NA	NA	3.1E-02	mg/kg/day	7.0E-02	mg/kg/day	4.4E-01
				Cadmium	4.6E+00	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	6.3E-06	mg/kg/day	1.0E-03	mg/kg/day	6.3E-03
				Chromium	4.1E+02	MG/KG	1.9E-04	mg/kg/day	NA	NA	NA	5.7E-04	mg/kg/day	3.0E-03	mg/kg/day	1.9E-01
				Iron	2.8E+04	MG/KG	1.3E-02	mg/kg/day	NA	NA	NA	3.8E-02	mg/kg/day	3.0E-01	mg/kg/day	1.3E-01
				Lead	6.6E+02	MG/KG	3.1E-04	mg/kg/day	NA	NA	NA	9.1E-04	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	9.9E-05	mg/kg/day	NA	NA	NA	2.9E-04	mg/kg/day	1.4E-01	mg/kg/day	2.1E-03
				Mercury	5.7E+00	MG/KG	2.7E-06	mg/kg/day	NA	NA	NA	7.8E-06	mg/kg/day	3.0E-04	mg/kg/day	2.6E-02
				Aldrin	7.3E-02	MG/KG	3.4E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.8E-07	1.0E-07	mg/kg/day	3.0E-05	mg/kg/day	3.3E-03
				Dieldrin	1.2E-01	MG/KG	5.6E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	9.0E-07	1.6E-07	mg/kg/day	5.0E-05	mg/kg/day	3.3E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.5E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.0E-06	4.4E-06	mg/kg/day	2.0E-05	mg/kg/day	2.2E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	1.1E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.2E-06	3.3E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				Benzo(a)pyrene	1.8E+01	MG/KG	8.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.2E-05	2.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	7.5E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-06	2.2E-05	mg/kg/day	3.0E-02	mg/kg/day	7.3E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	8.5E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	6.2E-07	2.5E-05	mg/kg/day	3.0E-02	mg/kg/day	8.2E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	9.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.9E-06	2.7E-06	mg/kg/day	3.0E-02	mg/kg/day	9.1E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	2.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.0E-06	7.8E-06	mg/kg/day	5.0E-02	mg/kg/day	1.6E-04
				Naphthalene	5.9E+00	MG/KG	2.8E-06	mg/kg/day	NA	NA	NA	8.1E-06	mg/kg/day	2.0E-02	mg/kg/day	4.0E-04
			Exp. Route Total								3.3E-04					2.6E+00
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal													
				Antimony	3.4E+00	MG/KG	6.4E-08	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	6.0E-05	mg/kg/day	3.1E-03
				Arsenic	3.4E+02	MG/KG	1.9E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.9E-05	5.6E-05	mg/kg/day	3.0E-04	mg/kg/day	1.9E-01
				Barium	2.3E+04	MG/KG	4.2E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	4.9E-03	mg/kg/day	2.5E-01
				Cadmium	4.6E+00	MG/KG	8.6E-09	mg/kg/day	NA	NA	NA	2.5E-08	mg/kg/day	5.0E-05	mg/kg/day	5.0E-04
				Chromium	4.1E+02	MG/KG	7.7E-06	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	7.5E-05	mg/kg/day	3.0E-01
				Iron	2.8E+04	MG/KG	5.2E-04	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	3.0E-01	mg/kg/day	5.0E-03
				Lead	6.6E+02	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	3.6E-05	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	4.0E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	5.6E-03	mg/kg/day	2.1E-03
				Mercury	5.7E+00	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	3.1E-07	mg/kg/day	2.1E-05	mg/kg/day	1.5E-02
				Aldrin	7.3E-02	MG/KG	1.4E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.3E-07	4.0E-08	mg/kg/day	3.0E-05	mg/kg/day	1.3E-03
				Dieldrin	1.2E-01	MG/KG	2.2E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.6E-07	6.6E-08	mg/kg/day	5.0E-05	mg/kg/day	1.3E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	8.4E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.7E-06	2.4E-06	mg/kg/day	2.0E-05	mg/kg/day	1.2E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	5.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-06	1.7E-05	mg/kg/day	3.0E-02	mg/kg/day	5.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	4.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.2E-05	1.3E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	3.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-06	1.1E-05	mg/kg/day	3.0E-02	mg/kg/day	3.8E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	4.4E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.2E-07	1.3E-05	mg/kg/day	3.0E-02	mg/kg/day	4.3E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	4.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.6E-06	1.4E-06	mg/kg/day	3.0E-02	mg/kg/day	4.7E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	1.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-06	4.1E-06	mg/kg/day	5.0E-02	mg/kg/day	8.1E-05
				Naphthalene	5.9E+00	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.2E-06	mg/kg/day	2.0E-02	mg/kg/day	2.1E-04
			Exp. Route Total								7.5E-05					8.9E-01
		Exposure Point Total									4.0E-04					3.5E+00
	Exposure Medium Total										4.0E-04					3.5E+00

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TABLE 7.10.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	3.1E-10	mg/kg/day	NA	NA	NA	9.1E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.3E-07	MG/M3	3.1E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.7E-07	9.1E-08	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	2.1E-06	mg/kg/day	NA	NA	NA	6.0E-06	mg/kg/day	1.4E-04	mg/kg/day	4.3E-02
				Cadmium	4.5E-09	MG/M3	4.2E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.7E-09	1.2E-09	mg/kg/day	5.7E-05	mg/kg/day	2.2E-05
				Chromium	4.0E-07	MG/M3	3.8E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.6E-06	1.1E-07	mg/kg/day	2.3E-06	mg/kg/day	4.8E-02
				Iron	2.7E-05	MG/M3	2.5E-06	mg/kg/day	NA	NA	NA	7.4E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	6.1E-08	mg/kg/day	NA	NA	NA	1.8E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	1.9E-08	mg/kg/day	NA	NA	NA	5.6E-08	mg/kg/day	1.4E-05	mg/kg/day	4.0E-03
				Mercury	5.6E-09	MG/M3	5.2E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	8.6E-05	mg/kg/day	1.8E-05
				Aldrin	7.2E-11	MG/M3	6.7E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.1E-10	2.0E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	1.1E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.8E-10	3.2E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	2.9E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.0E-10	8.6E-10	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	2.2E-09	mg/kg/day	NA	NA	NA	6.4E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-09	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	5.4E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	5.2E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.3E-04	MG/M3	1.2E-05	mg/kg/day	NA	NA	NA	3.6E-05	mg/kg/day	8.6E-04	mg/kg/day	4.2E-02
			Exp. Route Total								2.1E-06					1.4E-01
		Exposure Point Total									2.1E-06					1.4E-01
	Exposure Medium Total										2.1E-06					1.4E-01
Surface Soil Total											4.1E-04					3.6E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	2.7E-03	mg/kg/day	NA	NA	NA	7.8E-03	mg/kg/day	1.0E+00	mg/kg/day	7.8E-03
				Antimony	2.3E+00	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	4.0E-04	mg/kg/day	8.0E-03
				Arsenic	3.7E+02	MG/KG	1.7E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.6E-04	5.0E-04	mg/kg/day	3.0E-04	mg/kg/day	1.7E+00
				Barium	3.5E+04	MG/KG	1.7E-02	mg/kg/day	NA	NA	NA	4.8E-02	mg/kg/day	7.0E-02	mg/kg/day	6.9E-01
				Cadmium	3.0E+00	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.1E-06	mg/kg/day	1.0E-03	mg/kg/day	4.1E-03
				Chromium	2.8E+02	MG/KG	1.3E-04	mg/kg/day	NA	NA	NA	3.8E-04	mg/kg/day	3.0E-03	mg/kg/day	1.3E-01
				Copper	2.6E+02	MG/KG	1.2E-04	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	4.0E-02	mg/kg/day	9.0E-03
				Iron	2.0E+04	MG/KG	9.6E-03	mg/kg/day	NA	NA	NA	2.8E-02	mg/kg/day	3.0E-01	mg/kg/day	9.3E-02
				Lead	8.5E+02	MG/KG	4.0E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	8.2E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	1.4E-01	mg/kg/day	1.7E-03
				Mercury	1.8E+00	MG/KG	8.4E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	3.0E-04	mg/kg/day	8.2E-03
				Thallium	9.6E-01	MG/KG	4.5E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	9.0E-05	mg/kg/day	1.5E-02
				Aldrin	4.3E-02	MG/KG	2.0E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.5E-07	5.9E-08	mg/kg/day	3.0E-05	mg/kg/day	2.0E-03
				Chlordane - alpha	6.3E+00	MG/KG	3.0E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.0E-06	8.7E-06	mg/kg/day	5.0E-04	mg/kg/day	1.7E-02
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	3.4E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.2E-06	9.9E-06	mg/kg/day	5.0E-04	mg/kg/day	2.0E-02
				Dieldrin	2.3E-01	MG/KG	1.1E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.7E-06	3.1E-07	mg/kg/day	5.0E-05	mg/kg/day	6.2E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	2.0E-07	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.9E-06	6.0E-07	mg/kg/day	1.3E-05	mg/kg/day	4.6E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	8.9E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.8E-06	2.6E-06	mg/kg/day	2.0E-05	mg/kg/day	1.3E-01
				Pcb-Aroclor 1260	6.5E-01	MG/KG	3.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.1E-07	8.9E-07	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	2.4E-08	mg/kg/day	NA	NA	NA	7.1E-08	mg/kg/day	1.0E-01	mg/kg/day	7.1E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	1.1E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.2E-06	3.3E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03

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TABLE 7.10.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	8.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.2E-05	2.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	7.5E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-06	2.2E-05	mg/kg/day	3.0E-02	mg/kg/day	7.3E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	8.9E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	6.5E-07	2.6E-05	mg/kg/day	3.0E-02	mg/kg/day	8.7E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	1.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.2E-06	3.3E-06	mg/kg/day	3.0E-02	mg/kg/day	1.1E-04
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	3.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-06	8.8E-06	mg/kg/day	5.0E-02	mg/kg/day	1.8E-04
				Naphthalene	4.4E+00	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	6.1E-06	mg/kg/day	2.0E-02	mg/kg/day	3.0E-04
			Exp. Route Total								3.5E-04					2.9E+00
			Dermal													
				Aluminum	5.7E+03	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	3.1E-04	mg/kg/day	1.0E+00	mg/kg/day	3.1E-04
				Antimony	2.3E+00	MG/KG	4.4E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	6.0E-05	mg/kg/day	2.1E-03
				Arsenic	3.7E+02	MG/KG	2.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.1E-05	6.0E-05	mg/kg/day	3.0E-04	mg/kg/day	2.0E-01
				Barium	3.5E+04	MG/KG	6.6E-04	mg/kg/day	NA	NA	NA	1.9E-03	mg/kg/day	4.9E-03	mg/kg/day	3.9E-01
				Cadmium	3.0E+00	MG/KG	5.6E-09	mg/kg/day	NA	NA	NA	1.6E-08	mg/kg/day	5.0E-05	mg/kg/day	3.3E-04
				Chromium	2.8E+02	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	7.5E-05	mg/kg/day	2.0E-01
				Copper	2.6E+02	MG/KG	4.9E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	4.0E-02	mg/kg/day	3.6E-04
				Iron	2.0E+04	MG/KG	3.8E-04	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	3.0E-01	mg/kg/day	3.7E-03
				Lead	8.5E+02	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	4.7E-05	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	3.3E-06	mg/kg/day	NA	NA	NA	9.5E-06	mg/kg/day	5.6E-03	mg/kg/day	1.7E-03
				Mercury	1.8E+00	MG/KG	3.4E-08	mg/kg/day	NA	NA	NA	9.8E-08	mg/kg/day	2.1E-05	mg/kg/day	4.7E-03
				Thallium	9.6E-01	MG/KG	1.8E-08	mg/kg/day	NA	NA	NA	5.2E-08	mg/kg/day	9.0E-05	mg/kg/day	5.8E-04
				Aldrin	4.3E-02	MG/KG	8.1E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.4E-07	2.4E-08	mg/kg/day	3.0E-05	mg/kg/day	7.9E-04
				Chlordane - alpha	6.3E+00	MG/KG	4.7E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.7E-07	1.4E-06	mg/kg/day	5.0E-04	mg/kg/day	2.8E-03
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	5.4E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.9E-07	1.6E-06	mg/kg/day	5.0E-04	mg/kg/day	3.2E-03
				Dieldrin	2.3E-01	MG/KG	4.2E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.8E-07	1.2E-07	mg/kg/day	5.0E-05	mg/kg/day	2.5E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	8.2E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	7.4E-07	2.4E-07	mg/kg/day	1.3E-05	mg/kg/day	1.8E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	5.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.0E-06	1.5E-06	mg/kg/day	2.0E-05	mg/kg/day	7.3E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	1.7E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.4E-07	5.0E-07	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	9.7E-09	mg/kg/day	NA	NA	NA	2.8E-08	mg/kg/day	1.0E-01	mg/kg/day	2.8E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	5.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-06	1.7E-05	mg/kg/day	3.0E-02	mg/kg/day	5.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	4.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.2E-05	1.3E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	3.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-06	1.1E-05	mg/kg/day	3.0E-02	mg/kg/day	3.8E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	4.6E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.4E-07	1.4E-05	mg/kg/day	3.0E-02	mg/kg/day	4.5E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	5.8E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.3E-06	1.7E-06	mg/kg/day	3.0E-02	mg/kg/day	5.7E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	1.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-06	4.5E-06	mg/kg/day	5.0E-02	mg/kg/day	9.1E-05
				Naphthalene	4.4E+00	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	3.1E-06	mg/kg/day	2.0E-02	mg/kg/day	1.6E-04
			Exp. Route Total								7.9E-05					9.1E-01
		Exposure Point Total									4.3E-04					3.8E+00
	Exposure Medium Total										4.3E-04					3.8E+00

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TABLE 7.10.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	5.2E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	1.4E-03	mg/kg/day	1.1E-03
				Antimony	2.3E-09	MG/M3	2.1E-10	mg/kg/day	NA	NA	NA	6.2E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.6E-07	MG/M3	3.3E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	5.0E-07	9.8E-08	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	3.2E-06	mg/kg/day	NA	NA	NA	9.4E-06	mg/kg/day	1.4E-04	mg/kg/day	6.7E-02
				Cadmium	2.9E-09	MG/M3	2.8E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.7E-09	8.0E-10	mg/kg/day	5.7E-05	mg/kg/day	1.4E-05
				Chromium	2.7E-07	MG/M3	2.6E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.1E-06	7.5E-08	mg/kg/day	2.3E-06	mg/kg/day	3.3E-02
				Copper	2.6E-07	MG/M3	2.4E-08	mg/kg/day	NA	NA	NA	7.0E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	5.5E-06	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	7.8E-08	mg/kg/day	NA	NA	NA	2.3E-07	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	1.6E-08	mg/kg/day	NA	NA	NA	4.6E-08	mg/kg/day	1.4E-05	mg/kg/day	3.3E-03
				Mercury	1.8E-09	MG/M3	1.6E-10	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	8.6E-05	mg/kg/day	5.6E-06
				Thallium	9.4E-10	MG/M3	8.8E-11	mg/kg/day	NA	NA	NA	2.6E-10	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	4.0E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	6.8E-11	1.2E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	5.8E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-10	1.7E-09	mg/kg/day	2.0E-04	mg/kg/day	8.5E-06
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	6.6E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.3E-10	1.9E-09	mg/kg/day	2.0E-04	mg/kg/day	9.7E-06
				Dieldrin	2.2E-10	MG/M3	2.1E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.3E-10	6.1E-11	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	4.0E-11	mg/kg/day	9.1E+00	1/(mg/kg-day)	3.6E-10	1.2E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	1.7E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.1E-11	5.1E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	5.9E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.1E-11	1.7E-10	mg/kg/day	NA	NA	NA
				Acetophenone	9.0E-07	MG/M3	8.4E-08	mg/kg/day	NA	NA	NA	2.5E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	2.2E-09	mg/kg/day	NA	NA	NA	6.4E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	5.1E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	6.4E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	5.9E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	NA	NA	NA
				Naphthalene	9.8E-05	MG/M3	9.2E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	8.6E-04	mg/kg/day	3.1E-02
			Exp. Route Total								1.6E-06					1.4E-01
		Exposure Point Total									1.6E-06					1.4E-01
	Exposure Medium Total										1.6E-06					1.4E-01
Subsurface Soil Total											4.3E-04					3.9E+00

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TABLE 7.11.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion													
				Antimony	3.4E+00	MG/KG	3.7E-06	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	2.0E-04	mg/kg/day	2.2E-01
				Arsenic	3.4E+02	MG/KG	3.7E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.6E-04	4.3E-03	mg/kg/day	5.0E-03	mg/kg/day	8.7E-01
				Barium	2.3E+04	MG/KG	2.5E-02	mg/kg/day	NA	NA	NA	2.9E-01	mg/kg/day	7.0E-02	mg/kg/day	4.1E+00
				Cadmium	4.6E+00	MG/KG	5.0E-06	mg/kg/day	NA	NA	NA	5.9E-05	mg/kg/day	1.0E-03	mg/kg/day	5.9E-02
				Chromium	4.1E+02	MG/KG	4.5E-04	mg/kg/day	NA	NA	NA	5.3E-03	mg/kg/day	2.0E-02	mg/kg/day	2.6E-01
				Iron	2.8E+04	MG/KG	3.0E-02	mg/kg/day	NA	NA	NA	3.5E-01	mg/kg/day	3.0E-01	mg/kg/day	1.2E+00
				Lead	6.6E+02	MG/KG	7.2E-04	mg/kg/day	NA	NA	NA	8.5E-03	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	2.3E-04	mg/kg/day	NA	NA	NA	2.7E-03	mg/kg/day	1.4E-01	mg/kg/day	1.9E-02
				Mercury	5.7E+00	MG/KG	6.2E-06	mg/kg/day	NA	NA	NA	7.3E-05	mg/kg/day	3.0E-04	mg/kg/day	2.4E-01
				Aldrin	7.3E-02	MG/KG	8.0E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.4E-06	9.3E-07	mg/kg/day	3.0E-05	mg/kg/day	3.1E-02
				Dieldrin	1.2E-01	MG/KG	1.3E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.1E-06	1.5E-06	mg/kg/day	5.0E-05	mg/kg/day	3.1E-02
				Pcb-Aroclor 1254	3.2E+00	MG/KG	3.5E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.0E-06	4.1E-05	mg/kg/day	5.0E-05	mg/kg/day	8.2E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	2.6E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-05	3.1E-04	mg/kg/day	3.0E-01	mg/kg/day	1.0E-03
				Benzo(a)pyrene	1.8E+01	MG/KG	2.0E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-04	2.3E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.8E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-05	2.0E-04	mg/kg/day	3.0E-01	mg/kg/day	6.8E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	2.0E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.4E-06	2.3E-04	mg/kg/day	3.0E-01	mg/kg/day	7.7E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	2.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.6E-05	2.6E-05	mg/kg/day	3.0E-01	mg/kg/day	8.5E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	6.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.6E-06	7.3E-05	mg/kg/day	6.0E-01	mg/kg/day	1.2E-04
				Naphthalene	5.9E+00	MG/KG	6.5E-06	mg/kg/day	NA	NA	NA	7.5E-05	mg/kg/day	2.0E-02	mg/kg/day	3.8E-03
			Exp. Route Total								7.7E-04					7.9E+00
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal													
				Antimony	3.4E+00	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	3.0E-05	mg/kg/day	4.1E-02
				Arsenic	3.4E+02	MG/KG	3.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.7E-05	3.6E-04	mg/kg/day	5.0E-03	mg/kg/day	7.3E-02
				Barium	2.3E+04	MG/KG	6.9E-04	mg/kg/day	NA	NA	NA	8.1E-03	mg/kg/day	4.9E-03	mg/kg/day	1.7E+00
				Cadmium	4.6E+00	MG/KG	1.4E-08	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	5.0E-05	mg/kg/day	3.3E-03
				Chromium	4.1E+02	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	5.0E-04	mg/kg/day	3.0E-01
				Iron	2.8E+04	MG/KG	8.5E-04	mg/kg/day	NA	NA	NA	9.9E-03	mg/kg/day	3.0E-01	mg/kg/day	3.3E-02
				Lead	6.6E+02	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	6.5E-06	mg/kg/day	NA	NA	NA	7.6E-05	mg/kg/day	5.6E-03	mg/kg/day	1.3E-02
				Mercury	5.7E+00	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	2.1E-05	mg/kg/day	9.7E-02
				Aldrin	7.3E-02	MG/KG	2.2E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.8E-07	2.6E-07	mg/kg/day	3.0E-05	mg/kg/day	8.7E-03
				Dieldrin	1.2E-01	MG/KG	3.7E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	5.9E-07	4.3E-07	mg/kg/day	5.0E-05	mg/kg/day	8.6E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.4E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.7E-06	1.6E-05	mg/kg/day	5.0E-05	mg/kg/day	3.2E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	9.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.0E-06	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	7.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.2E-05	8.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	6.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-06	7.4E-05	mg/kg/day	3.0E-01	mg/kg/day	2.5E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	7.2E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.2E-07	8.4E-05	mg/kg/day	3.0E-01	mg/kg/day	2.8E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	8.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.8E-06	9.3E-06	mg/kg/day	3.0E-01	mg/kg/day	3.1E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	2.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-06	2.7E-05	mg/kg/day	6.0E-01	mg/kg/day	4.4E-05
				Naphthalene	5.9E+00	MG/KG	2.4E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	2.0E-02	mg/kg/day	1.4E-03
			Exp. Route Total								1.2E-04					2.5E+00
		Exposure Point Total									8.9E-04					1.0E+01
	Exposure Medium Total										8.9E-04					1.0E+01

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TABLE 7.11.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	1.1E-04	NA	1.9E-05
				Arsenic	3.3E-07	MG/M3	1.8E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.8E-07	2.1E-07	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	1.2E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	1.4E-03	mg/kg/day	1.0E-02
				Cadmium	4.5E-09	MG/M3	2.5E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.6E-09	2.9E-09	mg/kg/day	2.6E-04	mg/kg/day	1.1E-05
				Chromium	4.0E-07	MG/M3	2.2E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	9.4E-07	2.6E-07	mg/kg/day	2.3E-06	mg/kg/day	1.1E-01
				Iron	2.7E-05	MG/M3	1.5E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	3.6E-08	mg/kg/day	NA	NA	NA	4.2E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	1.1E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	1.4E-05	mg/kg/day	9.3E-03
				Mercury	5.6E-09	MG/M3	3.1E-10	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	8.6E-05	mg/kg/day	4.2E-05
				Aldrin	7.2E-11	MG/M3	4.0E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	6.8E-11	4.6E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	6.5E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.0E-10	7.6E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	1.7E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.1E-11	2.0E-09	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	9.7E-10	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	8.7E-10	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	9.7E-10	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-09	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	1.3E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	3.1E-10	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.3E-04	MG/M3	7.2E-06	mg/kg/day	NA	NA	NA	8.4E-05	mg/kg/day	8.6E-04	mg/kg/day	9.8E-02
			Exp. Route Total								1.2E-06					2.3E-01
		Exposure Point Total									1.2E-06					2.3E-01
	Exposure Medium Total										1.2E-06					2.3E-01
Surface Soil Total											8.9E-04					1.1E+01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	6.3E-03	mg/kg/day	NA	NA	NA	7.3E-02	mg/kg/day	1.0E+00	mg/kg/day	7.3E-02
				Antimony	2.3E+00	MG/KG	2.5E-06	mg/kg/day	NA	NA	NA	3.0E-05	mg/kg/day	2.0E-04	mg/kg/day	1.5E-01
				Arsenic	3.7E+02	MG/KG	4.0E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.0E-04	4.7E-03	mg/kg/day	5.0E-03	mg/kg/day	9.3E-01
				Barium	3.5E+04	MG/KG	3.9E-02	mg/kg/day	NA	NA	NA	4.5E-01	mg/kg/day	7.0E-02	mg/kg/day	6.4E+00
				Cadmium	3.0E+00	MG/KG	3.3E-06	mg/kg/day	NA	NA	NA	3.8E-05	mg/kg/day	1.0E-03	mg/kg/day	3.8E-02
				Chromium	2.8E+02	MG/KG	3.1E-04	mg/kg/day	NA	NA	NA	3.6E-03	mg/kg/day	2.0E-02	mg/kg/day	1.8E-01
				Copper	2.6E+02	MG/KG	2.9E-04	mg/kg/day	NA	NA	NA	3.3E-03	mg/kg/day	4.0E-02	mg/kg/day	8.4E-02
				Iron	2.0E+04	MG/KG	2.2E-02	mg/kg/day	NA	NA	NA	2.6E-01	mg/kg/day	3.0E-01	mg/kg/day	8.7E-01
				Lead	8.5E+02	MG/KG	9.4E-04	mg/kg/day	NA	NA	NA	1.1E-02	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	1.9E-04	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	1.4E-01	mg/kg/day	1.6E-02
				Mercury	1.8E+00	MG/KG	2.0E-06	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	3.0E-04	mg/kg/day	7.7E-02
				Thallium	9.6E-01	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	9.0E-04	mg/kg/day	1.4E-02
				Aldrin	4.3E-02	MG/KG	4.7E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	8.1E-07	5.5E-07	mg/kg/day	3.0E-05	mg/kg/day	1.8E-02
				Chlordane - alpha	6.3E+00	MG/KG	6.9E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.4E-06	8.1E-05	mg/kg/day	6.0E-05	mg/kg/day	1.3E+00
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	7.9E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.8E-06	9.2E-05	mg/kg/day	6.0E-05	mg/kg/day	1.5E+00
				Dieldrin	2.3E-01	MG/KG	2.5E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.0E-06	2.9E-06	mg/kg/day	5.0E-05	mg/kg/day	5.8E-02
				Heptachlor Epoxide	4.4E-01	MG/KG	4.8E-07	mg/kg/day	9.1E+00	1/(mg/kg-day)	4.3E-06	5.6E-06	mg/kg/day	1.3E-05	mg/kg/day	4.3E-01
				Pcb-Aroclor 1254	1.9E+00	MG/KG	2.1E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.2E-06	2.4E-05	mg/kg/day	5.0E-05	mg/kg/day	4.9E-01
				Pcb-Aroclor 1260	6.5E-01	MG/KG	7.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.4E-06	8.3E-06	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	5.7E-08	mg/kg/day	NA	NA	NA	6.6E-07	mg/kg/day	1.0E+00	mg/kg/day	6.6E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	2.6E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-05	3.1E-04	mg/kg/day	3.0E-01	mg/kg/day	1.0E-03

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TABLE 7.11.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	2.0E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-04	2.3E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.8E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-05	2.0E-04	mg/kg/day	3.0E-01	mg/kg/day	6.8E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	2.1E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.5E-06	2.4E-04	mg/kg/day	3.0E-01	mg/kg/day	8.1E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	2.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.9E-05	3.1E-05	mg/kg/day	3.0E-01	mg/kg/day	1.0E-04
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	7.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.1E-06	8.2E-05	mg/kg/day	6.0E-01	mg/kg/day	1.4E-04
				Naphthalene	4.4E+00	MG/KG	4.8E-06	mg/kg/day	NA	NA	NA	5.7E-05	mg/kg/day	2.0E-02	mg/kg/day	2.8E-03
			Exp. Route Total								8.2E-04					1.3E+01
			Dermal													
				Aluminum	5.7E+03	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	2.0E-03	mg/kg/day	1.0E+00	mg/kg/day	2.0E-03
				Antimony	2.3E+00	MG/KG	7.1E-08	mg/kg/day	NA	NA	NA	8.3E-07	mg/kg/day	3.0E-05	mg/kg/day	2.8E-02
				Arsenic	3.7E+02	MG/KG	3.4E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.0E-05	3.9E-04	mg/kg/day	5.0E-03	mg/kg/day	7.8E-02
				Barium	3.5E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	4.9E-03	mg/kg/day	2.6E+00
				Cadmium	3.0E+00	MG/KG	9.2E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	5.0E-05	mg/kg/day	2.1E-03
				Chromium	2.8E+02	MG/KG	8.6E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	5.0E-04	mg/kg/day	2.0E-01
				Copper	2.6E+02	MG/KG	8.0E-06	mg/kg/day	NA	NA	NA	9.4E-05	mg/kg/day	4.0E-02	mg/kg/day	2.3E-03
				Iron	2.0E+04	MG/KG	6.3E-04	mg/kg/day	NA	NA	NA	7.3E-03	mg/kg/day	3.0E-01	mg/kg/day	2.4E-02
				Lead	8.5E+02	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	3.1E-04	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	5.3E-06	mg/kg/day	NA	NA	NA	6.2E-05	mg/kg/day	5.6E-03	mg/kg/day	1.1E-02
				Mercury	1.8E+00	MG/KG	5.5E-08	mg/kg/day	NA	NA	NA	6.4E-07	mg/kg/day	2.1E-05	mg/kg/day	3.1E-02
				Thallium	9.6E-01	MG/KG	2.9E-08	mg/kg/day	NA	NA	NA	3.4E-07	mg/kg/day	9.0E-04	mg/kg/day	3.8E-04
				Aldrin	4.3E-02	MG/KG	1.3E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.3E-07	1.5E-07	mg/kg/day	3.0E-05	mg/kg/day	5.2E-03
				Chlordane - alpha	6.3E+00	MG/KG	7.8E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.7E-07	9.0E-06	mg/kg/day	6.0E-05	mg/kg/day	1.5E-01
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	8.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.1E-07	1.0E-05	mg/kg/day	6.0E-05	mg/kg/day	1.7E-01
				Dieldrin	2.3E-01	MG/KG	7.0E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.1E-06	8.1E-07	mg/kg/day	5.0E-05	mg/kg/day	1.6E-02
				Heptachlor Epoxide	4.4E-01	MG/KG	1.3E-07	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.2E-06	1.6E-06	mg/kg/day	1.3E-05	mg/kg/day	1.2E-01
				Pcb-Aroclor 1254	1.9E+00	MG/KG	8.2E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.6E-06	9.5E-06	mg/kg/day	5.0E-05	mg/kg/day	1.9E-01
				Pcb-Aroclor 1260	6.5E-01	MG/KG	2.8E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.6E-07	3.2E-06	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	1.6E-08	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	1.0E+00	mg/kg/day	1.9E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	9.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.0E-06	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	7.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.2E-05	8.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	6.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-06	7.4E-05	mg/kg/day	3.0E-01	mg/kg/day	2.5E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	7.6E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.5E-07	8.8E-05	mg/kg/day	3.0E-01	mg/kg/day	2.9E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	9.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.0E-06	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.7E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	2.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-06	3.0E-05	mg/kg/day	6.0E-01	mg/kg/day	5.0E-05
				Naphthalene	4.4E+00	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	2.0E-02	mg/kg/day	1.0E-03
			Exp. Route Total								1.3E-04					3.6E+00
		Exposure Point Total									9.5E-04					1.6E+01
	Exposure Medium Total										9.5E-04					1.6E+01

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TABLE 7.11.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	3.1E-07	mg/kg/day	NA	NA	NA	3.6E-06	mg/kg/day	1.4E-03	mg/kg/day	2.5E-03
				Antimony	2.3E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	1.1E-04	NA	1.3E-05
				Arsenic	3.6E-07	MG/M3	2.0E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.0E-07	2.3E-07	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	1.4E-03	mg/kg/day	1.6E-02
				Cadmium	2.9E-09	MG/M3	1.6E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.0E-09	1.9E-09	mg/kg/day	2.6E-04	mg/kg/day	7.4E-06
				Chromium	2.7E-07	MG/M3	1.5E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	6.3E-07	1.8E-07	mg/kg/day	2.3E-06	mg/kg/day	7.7E-02
				Copper	2.6E-07	MG/M3	1.4E-08	mg/kg/day	NA	NA	NA	1.7E-07	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	4.6E-08	mg/kg/day	NA	NA	NA	5.4E-07	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	9.4E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	1.4E-05	mg/kg/day	7.7E-03
				Mercury	1.8E-09	MG/M3	9.7E-11	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	8.6E-05	mg/kg/day	1.3E-05
				Thallium	9.4E-10	MG/M3	5.2E-11	mg/kg/day	NA	NA	NA	6.1E-10	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	2.3E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.0E-11	2.7E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	3.4E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.2E-10	4.0E-09	mg/kg/day	2.0E-04	mg/kg/day	2.0E-05
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	3.9E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.4E-10	4.6E-09	mg/kg/day	2.0E-04	mg/kg/day	2.3E-05
				Dieldrin	2.2E-10	MG/M3	1.2E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.0E-10	1.4E-10	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	2.4E-11	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.1E-10	2.8E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	1.0E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.6E-11	1.2E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	3.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.2E-11	4.1E-10	mg/kg/day	NA	NA	NA
				Acetophenone	9.0E-07	MG/M3	5.0E-08	mg/kg/day	NA	NA	NA	5.8E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	9.7E-10	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	8.7E-10	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	3.5E-10	mg/kg/day	NA	NA	NA	4.0E-09	mg/kg/day	NA	NA	NA
				Naphthalene	9.8E-05	MG/M3	5.4E-06	mg/kg/day	NA	NA	NA	6.3E-05	mg/kg/day	8.6E-04	mg/kg/day	7.4E-02
			Exp. Route Total								9.3E-07					1.8E-01
		Exposure Point Total									9.3E-07					1.8E-01
	Exposure Medium Total										9.3E-07					1.8E-01
Subsurface Soil Total											9.5E-04					1.7E+01

NA = Not applicable.

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TABLE 7.12.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion													
				Antimony	3.4E+00	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	3.3E-06	mg/kg/day	4.0E-04	mg/kg/day	8.3E-03
				Arsenic	3.4E+02	MG/KG	1.2E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.8E-04	3.3E-04	mg/kg/day	3.0E-04	mg/kg/day	1.1E+00
				Barium	2.3E+04	MG/KG	7.9E-03	mg/kg/day	NA	NA	NA	2.2E-02	mg/kg/day	7.0E-02	mg/kg/day	3.2E-01
				Cadmium	4.6E+00	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	4.5E-06	mg/kg/day	1.0E-03	mg/kg/day	4.5E-03
				Chromium	4.1E+02	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	4.0E-04	mg/kg/day	3.0E-03	mg/kg/day	1.3E-01
				Iron	2.8E+04	MG/KG	9.7E-03	mg/kg/day	NA	NA	NA	2.7E-02	mg/kg/day	3.0E-01	mg/kg/day	9.0E-02
				Lead	6.6E+02	MG/KG	2.3E-04	mg/kg/day	NA	NA	NA	6.5E-04	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	7.4E-05	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	1.4E-01	mg/kg/day	1.5E-03
				Mercury	5.7E+00	MG/KG	2.0E-06	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	3.0E-04	mg/kg/day	1.9E-02
				Aldrin	7.3E-02	MG/KG	2.6E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.3E-07	7.1E-08	mg/kg/day	3.0E-05	mg/kg/day	2.4E-03
				Dieldrin	1.2E-01	MG/KG	4.2E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.7E-07	1.2E-07	mg/kg/day	5.0E-05	mg/kg/day	2.3E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.1E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.2E-06	3.1E-06	mg/kg/day	2.0E-05	mg/kg/day	1.6E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	8.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.1E-06	2.3E-05	mg/kg/day	3.0E-02	mg/kg/day	7.8E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.6E-05	1.8E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	5.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.1E-06	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.2E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	6.3E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.6E-07	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	5.9E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	7.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.1E-06	2.0E-06	mg/kg/day	3.0E-02	mg/kg/day	6.5E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	2.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-06	5.6E-06	mg/kg/day	5.0E-02	mg/kg/day	1.1E-04
				Naphthalene	5.9E+00	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	5.8E-06	mg/kg/day	2.0E-02	mg/kg/day	2.9E-04
			Exp. Route Total								2.4E-04					1.8E+00
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal													
				Antimony	3.4E+00	MG/KG	7.8E-08	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	6.0E-05	mg/kg/day	3.7E-03
				Arsenic	3.4E+02	MG/KG	2.3E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.5E-05	6.6E-05	mg/kg/day	3.0E-04	mg/kg/day	2.2E-01
				Barium	2.3E+04	MG/KG	5.2E-04	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	4.9E-03	mg/kg/day	3.0E-01
				Cadmium	4.6E+00	MG/KG	1.1E-08	mg/kg/day	NA	NA	NA	3.0E-08	mg/kg/day	5.0E-05	mg/kg/day	5.9E-04
				Chromium	4.1E+02	MG/KG	9.5E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	7.5E-05	mg/kg/day	3.6E-01
				Iron	2.8E+04	MG/KG	6.4E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	3.0E-01	mg/kg/day	6.0E-03
				Lead	6.6E+02	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	4.9E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.6E-03	mg/kg/day	2.4E-03
				Mercury	5.7E+00	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	3.7E-07	mg/kg/day	2.1E-05	mg/kg/day	1.8E-02
				Aldrin	7.3E-02	MG/KG	1.7E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.9E-07	4.7E-08	mg/kg/day	3.0E-05	mg/kg/day	1.6E-03
				Dieldrin	1.2E-01	MG/KG	2.8E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.4E-07	7.7E-08	mg/kg/day	5.0E-05	mg/kg/day	1.5E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.0E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.1E-06	2.9E-06	mg/kg/day	2.0E-05	mg/kg/day	1.4E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	7.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.3E-06	2.0E-05	mg/kg/day	3.0E-02	mg/kg/day	6.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	5.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.9E-05	1.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	4.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-06	1.3E-05	mg/kg/day	3.0E-02	mg/kg/day	4.5E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	5.4E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.9E-07	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.0E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	6.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.4E-06	1.7E-06	mg/kg/day	3.0E-02	mg/kg/day	5.6E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	1.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-06	4.8E-06	mg/kg/day	5.0E-02	mg/kg/day	9.6E-05
				Naphthalene	5.9E+00	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	5.0E-06	mg/kg/day	2.0E-02	mg/kg/day	2.5E-04
			Exp. Route Total								9.2E-05					1.1E+00
		Exposure Point Total									3.4E-04					2.9E+00
	Exposure Medium Total										3.4E-04					2.9E+00

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TABLE 7.12.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	2.3E-10	mg/kg/day	NA	NA	NA	6.5E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.3E-07	MG/M3	2.3E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.5E-07	6.5E-08	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	1.5E-06	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	1.4E-04	mg/kg/day	3.1E-02
				Cadmium	4.5E-09	MG/M3	3.2E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.0E-09	8.8E-10	mg/kg/day	5.7E-05	mg/kg/day	1.5E-05
				Chromium	4.0E-07	MG/M3	2.8E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.2E-06	7.9E-08	mg/kg/day	2.3E-06	mg/kg/day	3.5E-02
				Iron	2.7E-05	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	5.3E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	4.5E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	1.4E-08	mg/kg/day	NA	NA	NA	4.0E-08	mg/kg/day	1.4E-05	mg/kg/day	2.8E-03
				Mercury	5.6E-09	MG/M3	3.9E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	8.6E-05	mg/kg/day	1.3E-05
				Aldrin	7.2E-11	MG/M3	5.0E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	8.6E-11	1.4E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	8.2E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.3E-10	2.3E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	2.2E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.7E-11	6.1E-10	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	4.6E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	3.5E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	3.1E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	3.5E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-09	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	3.8E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	3.9E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.3E-04	MG/M3	9.2E-06	mg/kg/day	NA	NA	NA	2.6E-05	mg/kg/day	8.6E-04	mg/kg/day	3.0E-02
			Exp. Route Total								1.5E-06					9.8E-02
		Exposure Point Total									1.5E-06					9.8E-02
	Exposure Medium Total										1.5E-06					9.8E-02
Surface Soil Total											3.4E-04					3.0E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	2.0E-03	mg/kg/day	NA	NA	NA	5.6E-03	mg/kg/day	1.0E+00	mg/kg/day	5.6E-03
				Antimony	2.3E+00	MG/KG	8.1E-07	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	4.0E-04	mg/kg/day	5.7E-03
				Arsenic	3.7E+02	MG/KG	1.3E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.9E-04	3.6E-04	mg/kg/day	3.0E-04	mg/kg/day	1.2E+00
				Barium	3.5E+04	MG/KG	1.2E-02	mg/kg/day	NA	NA	NA	3.5E-02	mg/kg/day	7.0E-02	mg/kg/day	4.9E-01
				Cadmium	3.0E+00	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	2.9E-06	mg/kg/day	1.0E-03	mg/kg/day	2.9E-03
				Chromium	2.8E+02	MG/KG	9.7E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	3.0E-03	mg/kg/day	9.1E-02
				Copper	2.6E+02	MG/KG	9.1E-05	mg/kg/day	NA	NA	NA	2.6E-04	mg/kg/day	4.0E-02	mg/kg/day	6.4E-03
				Iron	2.0E+04	MG/KG	7.2E-03	mg/kg/day	NA	NA	NA	2.0E-02	mg/kg/day	3.0E-01	mg/kg/day	6.7E-02
				Lead	8.5E+02	MG/KG	3.0E-04	mg/kg/day	NA	NA	NA	8.4E-04	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	6.1E-05	mg/kg/day	NA	NA	NA	1.7E-04	mg/kg/day	1.4E-01	mg/kg/day	1.2E-03
				Mercury	1.8E+00	MG/KG	6.3E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	3.0E-04	mg/kg/day	5.9E-03
				Thallium	9.6E-01	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	9.4E-07	mg/kg/day	9.0E-05	mg/kg/day	1.0E-02
				Aldrin	4.3E-02	MG/KG	1.5E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.6E-07	4.2E-08	mg/kg/day	3.0E-05	mg/kg/day	1.4E-03
				Chlordane - alpha	6.3E+00	MG/KG	2.2E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.7E-07	6.2E-06	mg/kg/day	5.0E-04	mg/kg/day	1.2E-02
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	2.5E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.8E-07	7.1E-06	mg/kg/day	5.0E-04	mg/kg/day	1.4E-02
				Dieldrin	2.3E-01	MG/KG	7.9E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.3E-06	2.2E-07	mg/kg/day	5.0E-05	mg/kg/day	4.4E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	1.5E-07	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.4E-06	4.3E-07	mg/kg/day	1.3E-05	mg/kg/day	3.3E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	6.7E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.3E-06	1.9E-06	mg/kg/day	2.0E-05	mg/kg/day	9.3E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	2.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.5E-07	6.3E-07	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	1.8E-08	mg/kg/day	NA	NA	NA	5.1E-08	mg/kg/day	1.0E-01	mg/kg/day	5.1E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	8.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.1E-06	2.3E-05	mg/kg/day	3.0E-02	mg/kg/day	7.8E-04

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TABLE 7.12.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	6.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.6E-05	1.8E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	5.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.1E-06	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.2E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	6.6E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.8E-07	1.9E-05	mg/kg/day	3.0E-02	mg/kg/day	6.2E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	8.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.1E-06	2.3E-06	mg/kg/day	3.0E-02	mg/kg/day	7.8E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	2.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.6E-06	6.3E-06	mg/kg/day	5.0E-02	mg/kg/day	1.3E-04
				Naphthalene	4.4E+00	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	2.0E-02	mg/kg/day	2.2E-04
			Exp. Route Total								2.6E-04					2.0E+00
			Dermal													
				Aluminum	5.7E+03	MG/KG	1.3E-04	mg/kg/day	NA	NA	NA	3.7E-04	mg/kg/day	1.0E+00	mg/kg/day	3.7E-04
				Antimony	2.3E+00	MG/KG	5.4E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	6.0E-05	mg/kg/day	2.5E-03
				Arsenic	3.7E+02	MG/KG	2.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.8E-05	7.1E-05	mg/kg/day	3.0E-04	mg/kg/day	2.4E-01
				Barium	3.5E+04	MG/KG	8.1E-04	mg/kg/day	NA	NA	NA	2.3E-03	mg/kg/day	4.9E-03	mg/kg/day	4.7E-01
				Cadmium	3.0E+00	MG/KG	6.9E-09	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	5.0E-05	mg/kg/day	3.9E-04
				Chromium	2.8E+02	MG/KG	6.4E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	7.5E-05	mg/kg/day	2.4E-01
				Copper	2.6E+02	MG/KG	6.0E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	4.0E-02	mg/kg/day	4.2E-04
				Iron	2.0E+04	MG/KG	4.7E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	3.0E-01	mg/kg/day	4.4E-03
				Lead	8.5E+02	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	5.5E-05	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	4.0E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	5.6E-03	mg/kg/day	2.0E-03
				Mercury	1.8E+00	MG/KG	4.1E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	2.1E-05	mg/kg/day	5.5E-03
				Thallium	9.6E-01	MG/KG	2.2E-08	mg/kg/day	NA	NA	NA	6.2E-08	mg/kg/day	9.0E-05	mg/kg/day	6.9E-04
				Aldrin	4.3E-02	MG/KG	1.0E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.7E-07	2.8E-08	mg/kg/day	3.0E-05	mg/kg/day	9.3E-04
				Chlordane - alpha	6.3E+00	MG/KG	5.8E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-07	1.6E-06	mg/kg/day	5.0E-04	mg/kg/day	3.3E-03
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	6.7E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.3E-07	1.9E-06	mg/kg/day	5.0E-04	mg/kg/day	3.7E-03
				Dieldrin	2.3E-01	MG/KG	5.2E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	8.4E-07	1.5E-07	mg/kg/day	5.0E-05	mg/kg/day	2.9E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	1.0E-07	mg/kg/day	9.1E+00	1/(mg/kg-day)	9.1E-07	2.8E-07	mg/kg/day	1.3E-05	mg/kg/day	2.2E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	6.2E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-06	1.7E-06	mg/kg/day	2.0E-05	mg/kg/day	8.6E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	2.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.2E-07	5.9E-07	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	1.2E-08	mg/kg/day	NA	NA	NA	3.4E-08	mg/kg/day	1.0E-01	mg/kg/day	3.4E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	7.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.3E-06	2.0E-05	mg/kg/day	3.0E-02	mg/kg/day	6.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	5.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.9E-05	1.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	4.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-06	1.3E-05	mg/kg/day	3.0E-02	mg/kg/day	4.5E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	5.7E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.2E-07	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.3E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	7.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-06	2.0E-06	mg/kg/day	3.0E-02	mg/kg/day	6.7E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	1.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-06	5.4E-06	mg/kg/day	5.0E-02	mg/kg/day	1.1E-04
				Naphthalene	4.4E+00	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	2.0E-02	mg/kg/day	1.9E-04
			Exp. Route Total								9.7E-05					1.1E+00
		Exposure Point Total									3.6E-04					3.1E+00
	Exposure Medium Total										3.6E-04					3.1E+00

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TABLE 7.12.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	3.9E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	1.4E-03	mg/kg/day	7.7E-04
				Antimony	2.3E-09	MG/M3	1.6E-10	mg/kg/day	NA	NA	NA	4.5E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.8E-07	MG/M3	2.5E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.8E-07	7.0E-08	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	2.4E-06	mg/kg/day	NA	NA	NA	6.8E-06	mg/kg/day	1.4E-04	mg/kg/day	4.8E-02
				Cadmium	2.9E-09	MG/M3	2.1E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.3E-09	5.8E-10	mg/kg/day	5.7E-05	mg/kg/day	1.0E-05
				Chromium	2.7E-07	MG/M3	1.9E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	8.0E-07	5.3E-08	mg/kg/day	2.3E-06	mg/kg/day	2.3E-02
				Copper	2.6E-07	MG/M3	1.8E-08	mg/kg/day	NA	NA	NA	5.0E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	1.4E-06	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	5.8E-08	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	3.3E-08	mg/kg/day	1.4E-05	mg/kg/day	2.3E-03
				Mercury	1.8E-09	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	3.4E-10	mg/kg/day	8.6E-05	mg/kg/day	4.0E-06
				Thallium	9.4E-10	MG/M3	6.6E-11	mg/kg/day	NA	NA	NA	1.8E-10	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	3.0E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.1E-11	8.3E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	4.3E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-10	1.2E-09	mg/kg/day	2.0E-04	mg/kg/day	6.1E-06
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	5.0E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.7E-10	1.4E-09	mg/kg/day	2.0E-04	mg/kg/day	6.9E-06
				Dieldrin	2.2E-10	MG/M3	1.6E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.5E-10	4.4E-11	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	3.0E-11	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.7E-10	8.4E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	1.3E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.6E-11	3.7E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	4.4E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.6E-11	1.2E-10	mg/kg/day	NA	NA	NA
				Acetophenone	9.0E-07	MG/M3	6.3E-08	mg/kg/day	NA	NA	NA	1.8E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	4.6E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	3.5E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	3.1E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	1.6E-10	mg/kg/day	NA	NA	NA	4.6E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	4.4E-10	mg/kg/day	NA	NA	NA	1.2E-09	mg/kg/day	NA	NA	NA
				Naphthalene	9.8E-05	MG/M3	6.9E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	8.6E-04	mg/kg/day	2.2E-02
			Exp. Route Total								1.2E-06					9.7E-02
		Exposure Point Total									1.2E-06					9.7E-02
	Exposure Medium Total										1.2E-06					9.7E-02
Subsurface Soil Total											3.6E-04					3.2E+00

NA = Not applicable.

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TABLE 7.13.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion													
				Antimony	3.4E+00	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	7.9E-06	mg/kg/day	2.0E-04	mg/kg/day	4.0E-02
				Arsenic	3.4E+02	MG/KG	1.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.7E-05	7.9E-04	mg/kg/day	5.0E-03	mg/kg/day	1.6E-01
				Barium	2.3E+04	MG/KG	7.5E-04	mg/kg/day	NA	NA	NA	5.3E-02	mg/kg/day	7.0E-02	mg/kg/day	7.5E-01
				Cadmium	4.6E+00	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	1.0E-03	mg/kg/day	1.1E-02
				Chromium	4.1E+02	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	9.6E-04	mg/kg/day	2.0E-02	mg/kg/day	4.8E-02
				Iron	2.8E+04	MG/KG	9.2E-04	mg/kg/day	NA	NA	NA	6.4E-02	mg/kg/day	3.0E-01	mg/kg/day	2.1E-01
				Lead	6.6E+02	MG/KG	2.2E-05	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.1E+02	MG/KG	7.0E-06	mg/kg/day	NA	NA	NA	4.9E-04	mg/kg/day	1.4E-01	mg/kg/day	3.5E-03
				Mercury	5.7E+00	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	3.0E-04	mg/kg/day	4.4E-02
				Aldrin	7.3E-02	MG/KG	2.4E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.1E-08	1.7E-07	mg/kg/day	3.0E-05	mg/kg/day	5.7E-03
				Dieldrin	1.2E-01	MG/KG	4.0E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.4E-08	2.8E-07	mg/kg/day	5.0E-05	mg/kg/day	5.6E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.1E-07	7.4E-06	mg/kg/day	5.0E-05	mg/kg/day	1.5E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	8.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.8E-07	5.6E-05	mg/kg/day	3.0E-01	mg/kg/day	1.9E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.4E-06	4.2E-05	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	5.3E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.9E-07	3.7E-05	mg/kg/day	3.0E-01	mg/kg/day	1.2E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	6.0E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.4E-08	4.2E-05	mg/kg/day	3.0E-01	mg/kg/day	1.4E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	6.6E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.8E-07	4.6E-06	mg/kg/day	3.0E-01	mg/kg/day	1.5E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.3E-05	mg/kg/day	6.0E-01	mg/kg/day	2.2E-05
				Naphthalene	5.9E+00	MG/KG	2.0E-07	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	2.0E-02	mg/kg/day	6.9E-04
			Exp. Route Total								2.3E-05					1.4E+00
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal													
				Antimony	3.4E+00	MG/KG	2.3E-09	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	3.0E-05	mg/kg/day	5.3E-03
				Arsenic	3.4E+02	MG/KG	6.8E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.0E-06	4.7E-05	mg/kg/day	5.0E-03	mg/kg/day	9.5E-03
				Barium	2.3E+04	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	4.9E-03	mg/kg/day	2.1E-01
				Cadmium	4.6E+00	MG/KG	3.1E-10	mg/kg/day	NA	NA	NA	2.1E-08	mg/kg/day	5.0E-05	mg/kg/day	4.3E-04
				Chromium	4.1E+02	MG/KG	2.7E-07	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	5.0E-04	mg/kg/day	3.8E-02
				Iron	2.8E+04	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	3.0E-01	mg/kg/day	4.3E-03
				Lead	6.6E+02	MG/KG	4.4E-07	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.1E+02	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	9.8E-06	mg/kg/day	5.6E-03	mg/kg/day	1.8E-03
				Mercury	5.7E+00	MG/KG	3.8E-09	mg/kg/day	NA	NA	NA	2.7E-07	mg/kg/day	2.1E-05	mg/kg/day	1.3E-02
				Aldrin	7.3E-02	MG/KG	4.8E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	8.2E-09	3.4E-08	mg/kg/day	3.0E-05	mg/kg/day	1.1E-03
				Dieldrin	1.2E-01	MG/KG	8.0E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.3E-08	5.6E-08	mg/kg/day	5.0E-05	mg/kg/day	1.1E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	3.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.0E-08	2.1E-06	mg/kg/day	5.0E-05	mg/kg/day	4.2E-02
				Benzo(a)anthracene	2.4E+01	MG/KG	2.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-07	1.5E-05	mg/kg/day	3.0E-01	mg/kg/day	4.8E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.1E-05	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-07	9.7E-06	mg/kg/day	3.0E-01	mg/kg/day	3.2E-05
				Benzo(k)fluoranthene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.1E-08	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.6E-05
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	1.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.3E-07	1.2E-06	mg/kg/day	3.0E-01	mg/kg/day	4.0E-06
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	4.9E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.6E-08	3.4E-06	mg/kg/day	6.0E-01	mg/kg/day	5.7E-06
				Naphthalene	5.9E+00	MG/KG	5.1E-08	mg/kg/day	NA	NA	NA	3.6E-06	mg/kg/day	2.0E-02	mg/kg/day	1.8E-04
			Exp. Route Total								2.7E-06					3.3E-01
		Exposure Point Total									2.6E-05					1.8E+00
	Exposure Medium Total										2.6E-05					1.8E+00

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TABLE 7.13.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	5.6E-12	mg/kg/day	NA	NA	NA	3.9E-10	mg/kg/day	1.1E-04	NA	3.5E-06
				Arsenic	3.3E-07	MG/M3	5.6E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	8.5E-09	3.9E-08	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	3.7E-08	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	1.4E-03	mg/kg/day	1.9E-03
				Cadmium	4.5E-09	MG/M3	7.6E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.8E-11	5.3E-10	mg/kg/day	2.6E-04	mg/kg/day	2.1E-06
				Chromium	4.0E-07	MG/M3	6.8E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.9E-08	4.8E-08	mg/kg/day	2.3E-06	mg/kg/day	2.1E-02
				Iron	2.7E-05	MG/M3	4.6E-08	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	7.7E-08	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	3.5E-10	mg/kg/day	NA	NA	NA	2.4E-08	mg/kg/day	1.4E-05	mg/kg/day	1.7E-03
				Mercury	5.6E-09	MG/M3	9.4E-12	mg/kg/day	NA	NA	NA	6.6E-10	mg/kg/day	8.6E-05	mg/kg/day	7.7E-06
				Aldrin	7.2E-11	MG/M3	1.2E-13	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.1E-12	8.5E-12	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	2.0E-13	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.2E-12	1.4E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	5.3E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.9E-12	3.7E-10	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	4.0E-11	mg/kg/day	NA	NA	NA	2.8E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.0E-11	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	2.7E-11	mg/kg/day	NA	NA	NA	1.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	3.0E-11	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-09	MG/M3	3.3E-12	mg/kg/day	NA	NA	NA	2.3E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	9.4E-12	mg/kg/day	NA	NA	NA	6.6E-10	mg/kg/day	NA	NA	NA
				Naphthalene	5.7E-05	MG/M3	9.7E-08	mg/kg/day	NA	NA	NA	6.8E-06	mg/kg/day	8.6E-04	mg/kg/day	7.9E-03
			Exp. Route Total								3.7E-08					3.2E-02
		Exposure Point Total									3.7E-08					3.2E-02
	Exposure Medium Total										3.7E-08					3.2E-02
Surface Soil Total											2.6E-05					1.8E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	1.9E-04	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	1.0E+00	mg/kg/day	1.3E-02
				Antimony	2.3E+00	MG/KG	7.7E-08	mg/kg/day	NA	NA	NA	5.4E-06	mg/kg/day	2.0E-04	mg/kg/day	2.7E-02
				Arsenic	3.7E+02	MG/KG	1.2E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.8E-05	8.5E-04	mg/kg/day	5.0E-03	mg/kg/day	1.7E-01
				Barium	3.5E+04	MG/KG	1.2E-03	mg/kg/day	NA	NA	NA	8.2E-02	mg/kg/day	7.0E-02	mg/kg/day	1.2E+00
				Cadmium	3.0E+00	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	7.0E-06	mg/kg/day	1.0E-03	mg/kg/day	7.0E-03
				Chromium	2.8E+02	MG/KG	9.3E-06	mg/kg/day	NA	NA	NA	6.5E-04	mg/kg/day	2.0E-02	mg/kg/day	3.2E-02
				Copper	2.6E+02	MG/KG	8.7E-06	mg/kg/day	NA	NA	NA	6.1E-04	mg/kg/day	4.0E-02	mg/kg/day	1.5E-02
				Iron	2.0E+04	MG/KG	6.8E-04	mg/kg/day	NA	NA	NA	4.8E-02	mg/kg/day	3.0E-01	mg/kg/day	1.6E-01
				Lead	8.5E+02	MG/KG	2.8E-05	mg/kg/day	NA	NA	NA	2.0E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.7E+02	MG/KG	5.8E-06	mg/kg/day	NA	NA	NA	4.0E-04	mg/kg/day	1.4E-01	mg/kg/day	2.9E-03
				Mercury	1.8E+00	MG/KG	6.0E-08	mg/kg/day	NA	NA	NA	4.2E-06	mg/kg/day	3.0E-04	mg/kg/day	1.4E-02
				Thallium	9.6E-01	MG/KG	3.2E-08	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	9.0E-04	mg/kg/day	2.5E-03
				Aldrin	4.3E-02	MG/KG	1.4E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.4E-08	1.0E-07	mg/kg/day	3.0E-05	mg/kg/day	3.4E-03
				Chlordane - alpha	6.3E+00	MG/KG	2.1E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.3E-08	1.5E-05	mg/kg/day	6.0E-05	mg/kg/day	2.4E-01
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	2.4E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.4E-08	1.7E-05	mg/kg/day	6.0E-05	mg/kg/day	2.8E-01
				Dieldrin	2.3E-01	MG/KG	7.5E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.2E-07	5.3E-07	mg/kg/day	5.0E-05	mg/kg/day	1.1E-02
				Heptachlor Epoxide	4.4E-01	MG/KG	1.4E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.3E-07	1.0E-06	mg/kg/day	1.3E-05	mg/kg/day	7.8E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	6.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.3E-07	4.4E-06	mg/kg/day	5.0E-05	mg/kg/day	8.9E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	2.1E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.3E-08	1.5E-06	mg/kg/day	NA	mg/kg/day	NA
				Acetophenone	5.2E-02	MG/KG	1.7E-09	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	1.0E+00	mg/kg/day	1.2E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	8.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.8E-07	5.6E-05	mg/kg/day	3.0E-01	mg/kg/day	1.9E-04

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TABLE 7.13.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	6.0E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.4E-06	4.2E-05	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	5.3E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.9E-07	3.7E-05	mg/kg/day	3.0E-01	mg/kg/day	1.2E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	6.3E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.6E-08	4.4E-05	mg/kg/day	3.0E-01	mg/kg/day	1.5E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	8.0E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.8E-07	5.6E-06	mg/kg/day	3.0E-01	mg/kg/day	1.9E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	2.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.6E-07	1.5E-05	mg/kg/day	6.0E-01	mg/kg/day	2.5E-05
				Naphthalene	4.4E+00	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	2.0E-02	mg/kg/day	5.1E-04
			Exp. Route Total								2.5E-05					2.3E+00
			Dermal													
				Aluminum	5.7E+03	MG/KG	3.8E-06	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	1.0E+00	mg/kg/day	2.7E-04
				Antimony	2.3E+00	MG/KG	1.5E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	2.0E-04	mg/kg/day	5.4E-04
				Arsenic	3.7E+02	MG/KG	7.3E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.1E-06	5.1E-05	mg/kg/day	5.0E-03	mg/kg/day	1.0E-02
				Barium	3.5E+04	MG/KG	2.3E-05	mg/kg/day	NA	NA	NA	1.6E-03	mg/kg/day	7.0E-02	mg/kg/day	2.3E-02
				Cadmium	3.0E+00	MG/KG	2.0E-10	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	1.0E-03	mg/kg/day	1.4E-05
				Chromium	2.8E+02	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	2.0E-02	mg/kg/day	6.5E-04
				Copper	2.6E+02	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	4.0E-02	mg/kg/day	3.0E-04
				Iron	2.0E+04	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	9.5E-04	mg/kg/day	3.0E-01	mg/kg/day	3.2E-03
				Lead	8.5E+02	MG/KG	5.7E-07	mg/kg/day	NA	NA	NA	4.0E-05	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.7E+02	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	8.1E-06	mg/kg/day	1.4E-01	mg/kg/day	5.8E-05
				Mercury	1.8E+00	MG/KG	1.2E-09	mg/kg/day	NA	NA	NA	8.3E-08	mg/kg/day	3.0E-04	mg/kg/day	2.8E-04
				Thallium	9.6E-01	MG/KG	6.4E-10	mg/kg/day	NA	NA	NA	4.5E-08	mg/kg/day	9.0E-04	mg/kg/day	5.0E-05
				Aldrin	4.3E-02	MG/KG	2.9E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.9E-09	2.0E-08	mg/kg/day	3.0E-05	mg/kg/day	6.7E-04
				Chlordane - alpha	6.3E+00	MG/KG	1.7E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.9E-09	1.2E-06	mg/kg/day	6.0E-05	mg/kg/day	2.0E-02
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	1.9E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.7E-09	1.3E-06	mg/kg/day	6.0E-05	mg/kg/day	2.2E-02
				Dieldrin	2.3E-01	MG/KG	1.5E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.4E-08	1.1E-07	mg/kg/day	5.0E-05	mg/kg/day	2.1E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	2.9E-09	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.6E-08	2.0E-07	mg/kg/day	1.3E-05	mg/kg/day	1.6E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	1.8E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.5E-08	1.2E-06	mg/kg/day	5.0E-05	mg/kg/day	2.5E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	6.0E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-08	4.2E-07	mg/kg/day	NA	mg/kg/day	NA
				Acetophenone	5.2E-02	MG/KG	3.5E-10	mg/kg/day	NA	NA	NA	2.4E-08	mg/kg/day	1.0E+00	mg/kg/day	2.4E-08
				Benzo(a)anthracene	2.4E+01	MG/KG	2.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-07	1.5E-05	mg/kg/day	3.0E-01	mg/kg/day	4.8E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.1E-05	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-07	9.7E-06	mg/kg/day	3.0E-01	mg/kg/day	3.2E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.2E-08	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.8E-05
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	2.1E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.5E-07	1.5E-06	mg/kg/day	3.0E-01	mg/kg/day	4.8E-06
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	5.5E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.0E-08	3.9E-06	mg/kg/day	6.0E-01	mg/kg/day	6.4E-06
				Naphthalene	4.4E+00	MG/KG	3.8E-08	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	2.0E-02	mg/kg/day	1.3E-04
			Exp. Route Total								2.8E-06					1.2E-01
		Exposure Point Total									2.8E-05					2.4E+00
	Exposure Medium Total										2.8E-05					2.4E+00

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TABLE 7.13.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	9.5E-09	mg/kg/day	NA	NA	NA	6.6E-07	mg/kg/day	1.4E-03	mg/kg/day	4.6E-04
				Antimony	2.3E-09	MG/M3	3.9E-12	mg/kg/day	NA	NA	NA	2.7E-10	mg/kg/day	1.1E-04	NA	2.4E-06
				Arsenic	3.6E-07	MG/M3	6.1E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	9.1E-09	4.2E-08	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	5.8E-08	mg/kg/day	NA	NA	NA	4.1E-06	mg/kg/day	1.4E-03	mg/kg/day	2.9E-03
				Cadmium	2.9E-09	MG/M3	5.0E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	3.1E-11	3.5E-10	mg/kg/day	2.6E-04	mg/kg/day	1.4E-06
				Chromium	2.7E-07	MG/M3	4.6E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.9E-08	3.2E-08	mg/kg/day	2.3E-06	mg/kg/day	1.4E-02
				Copper	2.6E-07	MG/M3	4.3E-10	mg/kg/day	NA	NA	NA	3.0E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	3.4E-08	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	9.9E-08	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	2.9E-10	mg/kg/day	NA	NA	NA	2.0E-08	mg/kg/day	1.4E-05	mg/kg/day	1.4E-03
				Mercury	1.8E-09	MG/M3	3.0E-12	mg/kg/day	NA	NA	NA	2.1E-10	mg/kg/day	8.6E-05	mg/kg/day	2.4E-06
				Thallium	9.4E-10	MG/M3	1.6E-12	mg/kg/day	NA	NA	NA	1.1E-10	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	7.2E-14	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.2E-12	5.0E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	1.0E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.7E-12	7.3E-10	mg/kg/day	2.0E-04	mg/kg/day	3.7E-06
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	1.2E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.2E-12	8.4E-10	mg/kg/day	2.0E-04	mg/kg/day	4.2E-06
				Dieldrin	2.2E-10	MG/M3	3.8E-13	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.1E-12	2.6E-11	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	7.2E-13	mg/kg/day	9.1E+00	1/(mg/kg-day)	6.6E-12	5.1E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	3.2E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.1E-12	2.2E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	1.1E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.8E-13	7.5E-11	mg/kg/day	NA	NA	NA
				Acetophenone	2.6E-07	MG/M3	4.4E-10	mg/kg/day	NA	NA	NA	3.1E-08	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	4.0E-11	mg/kg/day	NA	NA	NA	2.8E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.0E-11	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	2.7E-11	mg/kg/day	NA	NA	NA	1.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	3.1E-11	mg/kg/day	NA	NA	NA	2.2E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	4.0E-12	mg/kg/day	NA	NA	NA	2.8E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	1.1E-11	mg/kg/day	NA	NA	NA	7.4E-10	mg/kg/day	NA	NA	NA
				Naphthalene	4.3E-05	MG/M3	7.3E-08	mg/kg/day	NA	NA	NA	5.1E-06	mg/kg/day	8.6E-04	mg/kg/day	5.9E-03
			Exp. Route Total								2.9E-08					2.5E-02
		Exposure Point Total									2.9E-08					2.5E-02
	Exposure Medium Total										2.9E-08					2.5E-02
Subsurface Soil Total											2.8E-05					2.5E+00

NA = Not applicable.

301044

TABLE 7.14.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	6.8E-04	mg/kg/day	NA	NA	NA	5.3E-03	mg/kg/day	1.0E+00	mg/kg/day	5.3E-03
				Arsenic	3.2E+01	MG/KG	3.8E-06	mg/kg/day	1.5E+00	NA	5.7E-06	2.9E-05	mg/kg/day	3.0E-04	mg/kg/day	9.8E-02
				Barium	4.2E+03	MG/KG	4.9E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.8E-03	mg/kg/day	7.0E-02	mg/kg/day	5.5E-02
				Cadmium	4.1E+00	MG/KG	4.8E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	3.7E-06	mg/kg/day	1.0E-03	mg/kg/day	3.7E-03
				Chromium	9.0E+01	MG/KG	1.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	8.2E-05	mg/kg/day	3.0E-03	mg/kg/day	2.7E-02
				Copper	1.6E+02	MG/KG	1.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.4E-04	mg/kg/day	4.0E-02	mg/kg/day	3.5E-03
				Iron	1.9E+04	MG/KG	2.2E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.7E-02	mg/kg/day	3.0E-01	mg/kg/day	5.8E-02
				Lead	6.6E+02	MG/KG	7.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	6.0E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	3.4E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.7E-04	mg/kg/day	1.4E-01	mg/kg/day	1.9E-03
				Mercury	8.5E-01	MG/KG	1.0E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	7.8E-07	mg/kg/day	3.0E-04	mg/kg/day	2.6E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	1.0E-07	mg/kg/day	7.3E-01	NA	7.3E-08	7.8E-07	mg/kg/day	3.0E-02	mg/kg/day	2.6E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	4.4E-06	mg/kg/day	7.3E+00	NA	3.2E-05	3.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	4.0E-06	mg/kg/day	7.3E-01	NA	2.9E-06	3.1E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
				Benzo(k)fluoranthene	3.6E+01	MG/KG	4.1E-06	mg/kg/day	7.3E-02	NA	3.0E-07	3.2E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				Carbazole	2.3E+01	MG/KG	2.7E-06	mg/kg/day	2.0E-02	NA	5.4E-08	2.1E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	4.8E-06	mg/kg/day	7.3E-03	NA	3.5E-08	3.7E-05	mg/kg/day	3.0E-02	mg/kg/day	1.2E-03
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	9.3E-08	mg/kg/day	7.3E+00	NA	6.8E-07	7.3E-07	mg/kg/day	3.0E-02	mg/kg/day	2.4E-05
				Fluoranthene	8.0E+01	MG/KG	9.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	7.3E-05	mg/kg/day	4.0E-02	mg/kg/day	1.8E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	2.5E-06	mg/kg/day	7.3E-01	NA	1.8E-06	1.9E-05	mg/kg/day	5.0E-02	mg/kg/day	3.9E-04
				Phenanthrene	6.6E+01	MG/KG	7.7E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	6.0E-05	mg/kg/day	3.0E-02	mg/kg/day	2.0E-03
			Exp. Route Total								4.4E-05					2.6E-01
			Dermal													
				Aluminum	5.8E+03	MG/KG	6.3E-05	mg/kg/day	NA	NA	NA	4.9E-04	mg/kg/day	1.0E+00	mg/kg/day	4.9E-04
				Arsenic	3.2E+01	MG/KG	1.0E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.6E-06	8.1E-06	mg/kg/day	3.0E-04	mg/kg/day	2.7E-02
				Barium	4.2E+03	MG/KG	4.5E-05	mg/kg/day	NA	NA	NA	3.5E-04	mg/kg/day	4.9E-03	mg/kg/day	7.2E-02
				Cadmium	4.1E+00	MG/KG	4.4E-09	mg/kg/day	NA	NA	NA	3.4E-08	mg/kg/day	5.0E-05	mg/kg/day	6.8E-04
				Chromium	9.0E+01	MG/KG	9.7E-07	mg/kg/day	NA	NA	NA	7.5E-06	mg/kg/day	7.5E-05	mg/kg/day	1.0E-01
				Copper	1.6E+02	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	4.0E-02	mg/kg/day	3.3E-04
				Iron	1.9E+04	MG/KG	2.1E-04	mg/kg/day	NA	NA	NA	1.6E-03	mg/kg/day	3.0E-01	mg/kg/day	5.3E-03
				Lead	6.6E+02	MG/KG	7.1E-06	mg/kg/day	NA	NA	NA	5.5E-05	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	3.1E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	5.6E-03	mg/kg/day	4.4E-03
				Mercury	8.5E-01	MG/KG	9.2E-09	mg/kg/day	NA	NA	NA	7.1E-08	mg/kg/day	2.1E-05	mg/kg/day	3.4E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	1.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.7E-08	9.3E-07	mg/kg/day	3.0E-02	mg/kg/day	3.1E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	5.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.8E-05	4.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	4.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-06	3.7E-05	mg/kg/day	3.0E-02	mg/kg/day	1.2E-03
				Benzo(k)fluoranthene	3.6E+01	MG/KG	5.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.6E-07	3.9E-05	mg/kg/day	3.0E-02	mg/kg/day	1.3E-03
				Carbazole	2.3E+01	MG/KG	3.2E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	6.4E-08	2.5E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	5.7E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.2E-08	4.5E-05	mg/kg/day	3.0E-02	mg/kg/day	1.5E-03
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	1.1E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.2E-07	8.7E-07	mg/kg/day	3.0E-02	mg/kg/day	2.9E-05
				Fluoranthene	8.0E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	8.7E-05	mg/kg/day	3.6E-02	mg/kg/day	2.4E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	3.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-06	2.3E-05	mg/kg/day	5.0E-02	mg/kg/day	4.7E-04
				Phenanthrene	6.6E+01	MG/KG	9.2E-06	mg/kg/day	NA	NA	NA	7.1E-05	mg/kg/day	3.0E-02	mg/kg/day	2.4E-03
			Exp. Route Total								4.7E-05					2.2E-01
		Exposure Point Total									9.1E-05					4.9E-01
	Exposure Medium Total										9.1E-05					4.9E-01

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TABLE 7.14.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	1.1E-08	mg/kg/day	NA	NA	NA	8.6E-08	mg/kg/day	1.4E-03	mg/kg/day	6.0E-05
				Arsenic	3.2E-08	MG/M3	6.1E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	9.2E-10	4.8E-10	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	8.0E-09	mg/kg/day	NA	NA	NA	6.2E-08	mg/kg/day	1.4E-04	mg/kg/day	4.4E-04
				Cadmium	4.0E-09	MG/M3	7.8E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.9E-11	6.0E-11	mg/kg/day	5.7E-05	mg/kg/day	1.1E-06
				Chromium	8.8E-08	MG/M3	1.7E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	7.2E-09	1.3E-09	mg/kg/day	2.3E-06	mg/kg/day	5.8E-04
				Copper	1.5E-07	MG/M3	3.0E-10	mg/kg/day	NA	NA	NA	2.3E-09	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	3.6E-08	mg/kg/day	NA	NA	NA	2.8E-07	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	9.6E-09	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	5.6E-10	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	1.4E-05	mg/kg/day	3.0E-04
				Mercury	8.4E-10	MG/M3	1.6E-12	mg/kg/day	NA	NA	NA	1.3E-11	mg/kg/day	8.6E-05	mg/kg/day	1.5E-07
				Benzo(a)anthracene	8.4E-10	MG/M3	1.6E-12	mg/kg/day	NA	NA	NA	1.3E-11	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	7.2E-11	mg/kg/day	NA	NA	NA	5.6E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	6.5E-11	mg/kg/day	NA	NA	NA	5.1E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	6.8E-11	mg/kg/day	NA	NA	NA	5.3E-10	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	4.4E-11	mg/kg/day	NA	NA	NA	3.4E-10	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	7.8E-11	mg/kg/day	NA	NA	NA	6.1E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	1.5E-12	mg/kg/day	NA	NA	NA	1.2E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.2E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	4.1E-11	mg/kg/day	NA	NA	NA	3.2E-10	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	3.3E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	NA	NA	NA
			Exp. Route Total								8.2E-09					1.4E-03
		Exposure Point Total									8.2E-09					1.4E-03
	Exposure Medium Total										8.2E-09					1.4E-03
Surface Soil Total											9.1E-05					4.9E-01

NA = Not applicable.

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	2.7E-03	mg/kg/day	NA	NA	NA	8.0E-03	mg/kg/day	1.0E+00	mg/kg/day	8.0E-03
				Arsenic	3.2E+01	MG/KG	1.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.3E-05	4.4E-05	mg/kg/day	3.0E-04	mg/kg/day	1.5E-01
				Barium	4.2E+03	MG/KG	2.0E-03	mg/kg/day	NA	NA	NA	5.8E-03	mg/kg/day	7.0E-02	mg/kg/day	8.2E-02
				Cadmium	4.1E+00	MG/KG	1.9E-06	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	1.0E-03	mg/kg/day	5.6E-03
				Chromium	9.0E+01	MG/KG	4.2E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.0E-03	mg/kg/day	4.1E-02
				Copper	1.6E+02	MG/KG	7.3E-05	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	4.0E-02	mg/kg/day	5.3E-03
				Iron	1.9E+04	MG/KG	9.0E-03	mg/kg/day	NA	NA	NA	2.6E-02	mg/kg/day	3.0E-01	mg/kg/day	8.7E-02
				Lead	6.6E+02	MG/KG	3.1E-04	mg/kg/day	NA	NA	NA	9.1E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	4.0E-04	mg/kg/day	1.4E-01	mg/kg/day	2.9E-03
				Mercury	8.5E-01	MG/KG	4.0E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	3.0E-04	mg/kg/day	3.9E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	4.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-07	1.2E-06	mg/kg/day	3.0E-02	mg/kg/day	3.9E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	1.8E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.3E-04	5.2E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.6E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-05	4.7E-05	mg/kg/day	3.0E-02	mg/kg/day	1.6E-03
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.7E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.2E-06	4.9E-05	mg/kg/day	3.0E-02	mg/kg/day	1.6E-03
				Carbazole	2.3E+01	MG/KG	1.1E-05	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.2E-07	3.2E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.9E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.4E-07	5.6E-05	mg/kg/day	3.0E-02	mg/kg/day	1.9E-03
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	3.8E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.7E-06	1.1E-06	mg/kg/day	3.0E-02	mg/kg/day	3.7E-05
				Fluoranthene	8.0E+01	MG/KG	3.8E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	4.0E-02	mg/kg/day	2.7E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.0E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.4E-06	2.9E-05	mg/kg/day	5.0E-02	mg/kg/day	5.9E-04
				Phenanthrene	6.6E+01	MG/KG	3.1E-05	mg/kg/day	NA	NA	NA	9.0E-05	mg/kg/day	3.0E-02	mg/kg/day	3.0E-03
			Exp. Route Total								1.8E-04					4.0E-01
			Dermal													
				Aluminum	5.8E+03	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	3.2E-04	mg/kg/day	1.0E+00	mg/kg/day	3.2E-04
				Arsenic	3.2E+01	MG/KG	1.8E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.7E-06	5.3E-06	mg/kg/day	3.0E-04	mg/kg/day	1.8E-02
				Barium	4.2E+03	MG/KG	7.9E-05	mg/kg/day	NA	NA	NA	2.3E-04	mg/kg/day	4.9E-03	mg/kg/day	4.7E-02
				Cadmium	4.1E+00	MG/KG	7.7E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	5.0E-05	mg/kg/day	4.5E-04
				Chromium	9.0E+01	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	4.9E-06	mg/kg/day	7.5E-05	mg/kg/day	6.6E-02
				Copper	1.6E+02	MG/KG	2.9E-06	mg/kg/day	NA	NA	NA	8.5E-06	mg/kg/day	4.0E-02	mg/kg/day	2.1E-04
				Iron	1.9E+04	MG/KG	3.6E-04	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	3.0E-01	mg/kg/day	3.5E-03
				Lead	6.6E+02	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	3.6E-05	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	5.5E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	5.6E-03	mg/kg/day	2.9E-03
				Mercury	8.5E-01	MG/KG	1.6E-08	mg/kg/day	NA	NA	NA	4.7E-08	mg/kg/day	2.1E-05	mg/kg/day	2.2E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	2.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-07	6.1E-07	mg/kg/day	3.0E-02	mg/kg/day	2.0E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	9.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.7E-05	2.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	8.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.1E-06	2.4E-05	mg/kg/day	3.0E-02	mg/kg/day	8.1E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	8.7E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	6.3E-07	2.5E-05	mg/kg/day	3.0E-02	mg/kg/day	8.4E-04
				Carbazole	2.3E+01	MG/KG	5.6E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.1E-07	1.6E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.0E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	7.3E-08	2.9E-05	mg/kg/day	3.0E-02	mg/kg/day	9.7E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	1.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-06	5.7E-07	mg/kg/day	3.0E-02	mg/kg/day	1.9E-05
				Fluoranthene	8.0E+01	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	5.7E-05	mg/kg/day	3.6E-02	mg/kg/day	1.6E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	5.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.8E-06	1.5E-05	mg/kg/day	5.0E-02	mg/kg/day	3.0E-04
				Phenanthrene	6.6E+01	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	4.7E-05	mg/kg/day	3.0E-02	mg/kg/day	1.6E-03
			Exp. Route Total								8.2E-05					1.5E-01
		Exposure Point Total									2.6E-04					5.4E-01
	Exposure Medium Total										2.6E-04					5.4E-01

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	5.4E-07	mg/kg/day	NA	NA	NA	1.5E-15	mg/kg/day	1.4E-03	mg/kg/day	1.1E-12
				Arsenic	3.2E-08	MG/M3	3.0E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.5E-08	8.5E-18	mg/kg/day	NA	mg/kg/day	NA
				Barium	4.1E-06	MG/M3	3.9E-07	mg/kg/day	NA	NA	NA	1.1E-15	mg/kg/day	1.4E-04	mg/kg/day	7.9E-12
				Cadmium	4.0E-09	MG/M3	3.8E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.4E-09	1.1E-18	mg/kg/day	5.7E-05	mg/kg/day	1.9E-14
				Chromium	8.8E-08	MG/M3	8.3E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	3.5E-07	2.4E-17	mg/kg/day	2.3E-06	mg/kg/day	1.0E-11
				Copper	1.5E-07	MG/M3	1.4E-08	mg/kg/day	NA	NA	NA	4.1E-17	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	1.8E-06	mg/kg/day	NA	NA	NA	5.0E-15	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	6.1E-08	mg/kg/day	NA	NA	NA	1.7E-16	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	2.7E-08	mg/kg/day	NA	NA	NA	7.7E-17	mg/kg/day	1.4E-05	mg/kg/day	5.4E-12
				Mercury	8.4E-10	MG/M3	7.8E-11	mg/kg/day	NA	NA	NA	2.2E-19	mg/kg/day	8.6E-05	mg/kg/day	2.6E-15
				Benzo(a)anthracene	8.4E-10	MG/M3	7.8E-11	mg/kg/day	NA	NA	NA	2.2E-19	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	3.5E-09	mg/kg/day	NA	NA	NA	9.9E-18	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	3.2E-09	mg/kg/day	NA	NA	NA	9.0E-18	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	3.3E-09	mg/kg/day	NA	NA	NA	9.3E-18	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	2.1E-09	mg/kg/day	NA	NA	NA	6.0E-18	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	3.8E-09	mg/kg/day	NA	NA	NA	1.1E-17	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	7.3E-11	mg/kg/day	NA	NA	NA	2.1E-19	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	7.4E-09	mg/kg/day	NA	NA	NA	2.1E-17	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	2.0E-09	mg/kg/day	NA	NA	NA	5.6E-18	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	1.6E-05	mg/kg/day	NA	NA	NA	1.2E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								3.9E-07					2.5E-11
		Exposure Point Total									3.9E-07					2.5E-11
	Exposure Medium Total										3.9E-07					2.5E-11
Surface Soil Total											2.6E-04					5.4E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	2.4E-03	mg/kg/day	NA	NA	NA	7.0E-03	mg/kg/day	1.0E+00	mg/kg/day	7.0E-03
				Antimony	2.6E+00	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	3.6E-06	mg/kg/day	4.0E-04	mg/kg/day	9.1E-03
				Arsenic	9.6E+01	MG/KG	4.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.7E-05	1.3E-04	mg/kg/day	3.0E-04	mg/kg/day	4.4E-01
				Barium	5.6E+03	MG/KG	2.6E-03	mg/kg/day	NA	NA	NA	7.6E-03	mg/kg/day	7.0E-02	mg/kg/day	1.1E-01
				Cadmium	7.1E+01	MG/KG	3.3E-05	mg/kg/day	NA	NA	NA	9.8E-05	mg/kg/day	1.0E-03	mg/kg/day	9.8E-02
				Chromium	3.6E+01	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	4.9E-05	mg/kg/day	3.0E-03	mg/kg/day	1.6E-02
				Copper	1.3E+02	MG/KG	6.1E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	4.0E-02	mg/kg/day	4.5E-03
				Iron	2.0E+04	MG/KG	9.5E-03	mg/kg/day	NA	NA	NA	2.8E-02	mg/kg/day	3.0E-01	mg/kg/day	9.3E-02
				Lead	9.5E+02	MG/KG	4.5E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	3.1E-04	mg/kg/day	1.4E-01	mg/kg/day	2.2E-03
				Mercury	8.9E-01	MG/KG	4.2E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	3.0E-04	mg/kg/day	4.1E-03
				Zinc	2.5E+03	MG/KG	1.2E-03	mg/kg/day	NA	NA	NA	3.4E-03	mg/kg/day	3.0E-01	mg/kg/day	1.1E-02
				Benzo(a)anthracene	2.2E+01	MG/KG	1.1E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.7E-06	3.1E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
				Benzo(a)pyrene	1.8E+01	MG/KG	8.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.1E-05	2.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	9.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.3E-06	2.9E-05	mg/kg/day	3.0E-02	mg/kg/day	9.7E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	8.8E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	6.4E-07	2.6E-05	mg/kg/day	3.0E-02	mg/kg/day	8.5E-04
				Carbazole	1.5E+01	MG/KG	6.9E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.4E-07	2.0E-05	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	9.5E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	6.9E-08	2.8E-05	mg/kg/day	3.0E-02	mg/kg/day	9.2E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	6.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.7E-05	1.9E-05	mg/kg/day	3.0E-02	mg/kg/day	6.3E-04
				Dibenzofuran	1.4E+01	MG/KG	6.7E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	2.0E-03	mg/kg/day	9.8E-03

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	5.0E-05	mg/kg/day	4.0E-02	mg/kg/day	1.2E-03
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	6.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.6E-06	1.8E-05	mg/kg/day	5.0E-02	mg/kg/day	3.7E-04
				Naphthalene	1.5E+01	MG/KG	7.0E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	2.0E-02	mg/kg/day	1.0E-03
				Phenanthrene	3.8E+01	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	5.2E-05	mg/kg/day	3.0E-02	mg/kg/day	1.7E-03
				Pyrene	3.1E+01	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	3.0E-02	mg/kg/day	1.4E-03
				Benzene	3.0E-03	MG/KG	1.4E-09	mg/kg/day	5.5E-02	1/(mg/kg-day)	7.7E-11	4.1E-09	mg/kg/day	4.0E-03	mg/kg/day	1.0E-06
			Exp. Route Total								2.0E-04					8.1E-01
			Dermal													
				Aluminum	5.1E+03	MG/KG	9.6E-05	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	1.0E+00	mg/kg/day	2.8E-04
				Antimony	2.6E+00	MG/KG	5.0E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	6.0E-05	mg/kg/day	2.4E-03
				Arsenic	9.6E+01	MG/KG	5.4E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.1E-06	1.6E-05	mg/kg/day	3.0E-04	mg/kg/day	5.2E-02
				Barium	5.6E+03	MG/KG	1.0E-04	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	4.9E-03	mg/kg/day	6.2E-02
				Cadmium	7.1E+01	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	5.0E-05	mg/kg/day	7.8E-03
				Chromium	3.6E+01	MG/KG	6.7E-07	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	7.5E-05	mg/kg/day	2.6E-02
				Copper	1.3E+02	MG/KG	2.4E-06	mg/kg/day	NA	NA	NA	7.1E-06	mg/kg/day	4.0E-02	mg/kg/day	1.8E-04
				Iron	2.0E+04	MG/KG	3.8E-04	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	3.0E-01	mg/kg/day	3.7E-03
				Lead	9.5E+02	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	5.2E-05	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	4.2E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	5.6E-03	mg/kg/day	2.2E-03
				Mercury	8.9E-01	MG/KG	1.7E-08	mg/kg/day	NA	NA	NA	4.9E-08	mg/kg/day	2.1E-05	mg/kg/day	2.3E-03
				Zinc	2.5E+03	MG/KG	4.7E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	3.0E-01	mg/kg/day	4.6E-04
				Benzo(a)anthracene	2.2E+01	MG/KG	5.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.0E-06	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.3E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	4.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.2E-05	1.3E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	5.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.8E-06	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.0E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	4.6E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.3E-07	1.3E-05	mg/kg/day	3.0E-02	mg/kg/day	4.4E-04
				Carbazole	1.5E+01	MG/KG	3.6E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	7.1E-08	1.0E-05	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	4.9E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	3.6E-08	1.4E-05	mg/kg/day	3.0E-02	mg/kg/day	4.8E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	3.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.4E-05	9.7E-06	mg/kg/day	3.0E-02	mg/kg/day	3.2E-04
				Dibenzofuran	1.4E+01	MG/KG	3.5E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	2.0E-03	mg/kg/day	5.1E-03
				Fluoranthene	3.6E+01	MG/KG	8.8E-06	mg/kg/day	NA	NA	NA	2.6E-05	mg/kg/day	3.6E-02	mg/kg/day	7.2E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	3.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-06	9.5E-06	mg/kg/day	5.0E-02	mg/kg/day	1.9E-04
				Naphthalene	1.5E+01	MG/KG	3.6E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	2.0E-02	mg/kg/day	5.3E-04
				Phenanthrene	3.8E+01	MG/KG	9.3E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	3.0E-02	mg/kg/day	9.1E-04
				Pyrene	3.1E+01	MG/KG	7.6E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	3.0E-02	mg/kg/day	7.4E-04
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								7.5E-05					1.7E-01
		Exposure Point Total									2.7E-04					9.8E-01
	Exposure Medium Total										2.7E-04					9.8E-01

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation	Aluminum	5.0E-06	MG/M3	4.7E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	1.4E-03	mg/kg/day	9.5E-04
				Antimony	2.6E-09	MG/M3	2.4E-10	mg/kg/day	NA	NA	NA	7.1E-10	mg/kg/day	NA	NA	NA
				Arsenic	9.4E-08	MG/M3	8.8E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.3E-07	2.6E-08	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	5.1E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	1.4E-04	mg/kg/day	1.1E-02
				Cadmium	7.0E-08	MG/M3	6.5E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.1E-08	1.9E-08	mg/kg/day	5.7E-05	mg/kg/day	3.3E-04
				Chromium	3.5E-08	MG/M3	3.3E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.4E-07	9.6E-09	mg/kg/day	2.3E-06	mg/kg/day	4.2E-03
				Copper	1.3E-07	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	3.5E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	5.4E-06	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	8.7E-08	mg/kg/day	NA	NA	NA	2.5E-07	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	2.1E-08	mg/kg/day	NA	NA	NA	6.0E-08	mg/kg/day	1.4E-05	mg/kg/day	4.2E-03
				Mercury	8.7E-10	MG/M3	8.2E-11	mg/kg/day	NA	NA	NA	2.4E-10	mg/kg/day	8.6E-05	mg/kg/day	2.8E-06
				Zinc	2.5E-06	MG/M3	2.3E-07	mg/kg/day	NA	NA	NA	6.7E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	2.1E-09	mg/kg/day	NA	NA	NA	6.0E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	1.9E-09	mg/kg/day	NA	NA	NA	5.7E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	5.0E-09	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	3.9E-09	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	1.8E-09	mg/kg/day	NA	NA	NA	5.4E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	3.7E-09	mg/kg/day	NA	NA	NA
				Dibenzofuran	2.1E-05	MG/M3	2.0E-06	mg/kg/day	NA	NA	NA	5.7E-06	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	3.3E-09	mg/kg/day	NA	NA	NA	9.7E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	NA	NA	NA
				Naphthalene	3.3E-04	MG/M3	3.1E-05	mg/kg/day	NA	NA	NA	9.0E-05	mg/kg/day	8.6E-04	mg/kg/day	1.0E-01
				Phenanthrene	9.8E-05	MG/M3	9.1E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	2.9E-09	mg/kg/day	NA	NA	NA	8.4E-09	mg/kg/day	NA	NA	NA
				Benzene	1.0E-06	MG/M3	9.7E-08	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.6E-09	2.8E-07	mg/kg/day	8.6E-03	mg/kg/day	3.3E-05
			Exp. Route Total								3.1E-07					1.3E-01
		Exposure Point Total									3.1E-07					1.3E-01
	Exposure Medium Total										3.1E-07					1.3E-01
Subsurface Soil Total											2.7E-04					1.1E+00

NA = Not applicable.

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TABLE 7.16.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	6.4E-03	mg/kg/day	NA	NA	NA	7.5E-02	mg/kg/day	1.0E+00	mg/kg/day	7.5E-02
				Arsenic	3.2E+01	MG/KG	3.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.3E-05	4.1E-04	mg/kg/day	5.0E-03	mg/kg/day	8.3E-02
				Barium	4.2E+03	MG/KG	4.6E-03	mg/kg/day	NA	NA	NA	5.4E-02	mg/kg/day	7.0E-02	mg/kg/day	7.7E-01
				Cadmium	4.1E+00	MG/KG	4.5E-06	mg/kg/day	NA	NA	NA	5.2E-05	mg/kg/day	1.0E-03	mg/kg/day	5.2E-02
				Chromium	9.0E+01	MG/KG	9.9E-05	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	2.0E-02	mg/kg/day	5.8E-02
				Copper	1.6E+02	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	2.0E-03	mg/kg/day	4.0E-02	mg/kg/day	5.0E-02
				Iron	1.9E+04	MG/KG	2.1E-02	mg/kg/day	NA	NA	NA	2.4E-01	mg/kg/day	3.0E-01	mg/kg/day	8.2E-01
				Lead	6.6E+02	MG/KG	7.2E-04	mg/kg/day	NA	NA	NA	8.5E-03	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	3.2E-04	mg/kg/day	NA	NA	NA	3.7E-03	mg/kg/day	1.4E-01	mg/kg/day	2.7E-02
				Mercury	8.5E-01	MG/KG	9.4E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	3.0E-04	mg/kg/day	3.6E-02
				Benzo(a)anthracene	8.5E-01	MG/KG	9.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.8E-07	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.6E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	4.1E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.0E-04	4.8E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	3.8E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-05	4.4E-04	mg/kg/day	3.0E-01	mg/kg/day	1.5E-03
				Benzo(k)fluoranthene	3.6E+01	MG/KG	3.9E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.8E-06	4.5E-04	mg/kg/day	3.0E-01	mg/kg/day	1.5E-03
				Carbazole	2.3E+01	MG/KG	2.5E-05	mg/kg/day	2.0E-02	1/(mg/kg-day)	5.0E-07	2.9E-04	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	4.5E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	3.3E-07	5.2E-04	mg/kg/day	3.0E-01	mg/kg/day	1.7E-03
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	8.8E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.4E-06	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.4E-05
				Fluoranthene	8.0E+01	MG/KG	8.8E-05	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	4.0E-01	mg/kg/day	2.6E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	2.4E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-05	2.7E-04	mg/kg/day	6.0E-01	mg/kg/day	4.6E-04
				Phenanthrene	6.6E+01	MG/KG	7.2E-05	mg/kg/day	NA	NA	NA	8.4E-04	mg/kg/day	3.0E-01	mg/kg/day	2.8E-03
			Exp. Route Total								4.1E-04					2.0E+00
			Dermal													
				Aluminum	5.8E+03	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	1.0E+00	mg/kg/day	2.1E-03
				Arsenic	3.2E+01	MG/KG	3.0E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.5E-06	3.5E-05	mg/kg/day	5.0E-03	mg/kg/day	6.9E-03
				Barium	4.2E+03	MG/KG	1.3E-04	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	4.9E-03	mg/kg/day	3.1E-01
				Cadmium	4.1E+00	MG/KG	1.3E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	5.0E-05	mg/kg/day	2.9E-03
				Chromium	9.0E+01	MG/KG	2.8E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	5.0E-04	mg/kg/day	6.5E-02
				Copper	1.6E+02	MG/KG	4.8E-06	mg/kg/day	NA	NA	NA	5.6E-05	mg/kg/day	4.0E-02	mg/kg/day	1.4E-03
				Iron	1.9E+04	MG/KG	5.9E-04	mg/kg/day	NA	NA	NA	6.8E-03	mg/kg/day	3.0E-01	mg/kg/day	2.3E-02
				Lead	6.6E+02	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	9.0E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	5.6E-03	mg/kg/day	1.9E-02
				Mercury	8.5E-01	MG/KG	2.6E-08	mg/kg/day	NA	NA	NA	3.1E-07	mg/kg/day	2.1E-05	mg/kg/day	1.5E-02
				Benzo(a)anthracene	8.5E-01	MG/KG	3.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.5E-07	4.0E-06	mg/kg/day	3.0E-01	mg/kg/day	1.3E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	1.5E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-04	1.8E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.4E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-05	1.6E-04	mg/kg/day	3.0E-01	mg/kg/day	5.3E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.4E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.0E-06	1.7E-04	mg/kg/day	3.0E-01	mg/kg/day	5.5E-04
				Carbazole	2.3E+01	MG/KG	9.2E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.8E-07	1.1E-04	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.6E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.2E-07	1.9E-04	mg/kg/day	3.0E-01	mg/kg/day	6.4E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	3.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.3E-06	3.7E-06	mg/kg/day	3.0E-01	mg/kg/day	1.2E-05
				Fluoranthene	8.0E+01	MG/KG	3.2E-05	mg/kg/day	NA	NA	NA	3.7E-04	mg/kg/day	3.6E-01	mg/kg/day	1.0E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	8.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-06	1.0E-04	mg/kg/day	6.0E-01	mg/kg/day	1.7E-04
				Phenanthrene	6.6E+01	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	3.1E-04	mg/kg/day	3.0E-01	mg/kg/day	1.0E-03
			Exp. Route Total								1.3E-04					4.5E-01
		Exposure Point Total									5.4E-04					2.4E+00
	Exposure Medium Total										5.4E-04					2.4E+00

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TABLE 7.16.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	3.2E-07	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	1.4E-03	mg/kg/day	2.6E-03
				Arsenic	3.2E-08	MG/M3	1.7E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.6E-08	2.0E-08	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	2.3E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	1.4E-03	mg/kg/day	1.9E-03
				Cadmium	4.0E-09	MG/M3	2.2E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.4E-09	2.6E-09	mg/kg/day	2.6E-04	mg/kg/day	1.0E-05
				Chromium	8.8E-08	MG/M3	4.9E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.1E-07	5.7E-08	mg/kg/day	2.3E-06	mg/kg/day	2.5E-02
				Copper	1.5E-07	MG/M3	8.4E-09	mg/kg/day	NA	NA	NA	9.8E-08	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	1.0E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	3.6E-08	mg/kg/day	NA	NA	NA	4.2E-07	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	1.6E-08	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	1.4E-05	mg/kg/day	1.3E-02
				Mercury	8.4E-10	MG/M3	4.6E-11	mg/kg/day	NA	NA	NA	5.4E-10	mg/kg/day	8.6E-05	mg/kg/day	6.3E-06
				Benzo(a)anthracene	8.4E-10	MG/M3	4.6E-11	mg/kg/day	NA	NA	NA	5.4E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	2.0E-09	mg/kg/day	NA	NA	NA	2.4E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	1.9E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	1.9E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	2.2E-09	mg/kg/day	NA	NA	NA	2.6E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	4.3E-11	mg/kg/day	NA	NA	NA	5.1E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	4.3E-09	mg/kg/day	NA	NA	NA	5.1E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	9.3E-06	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	NA	NA	NA
			Exp. Route Total								2.3E-07					4.2E-02
		Exposure Point Total									2.3E-07					4.2E-02
	Exposure Medium Total										2.3E-07					4.2E-02
Surface Soil Total											5.4E-04					2.5E+00
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	5.6E-03	mg/kg/day	NA	NA	NA	6.5E-02	mg/kg/day	1.0E+00	mg/kg/day	6.5E-02
				Antimony	2.6E+00	MG/KG	2.9E-06	mg/kg/day	NA	NA	NA	3.4E-05	mg/kg/day	2.0E-04	mg/kg/day	1.7E-01
				Arsenic	9.6E+01	MG/KG	1.0E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.6E-04	1.2E-03	mg/kg/day	5.0E-03	mg/kg/day	2.4E-01
				Barium	5.6E+03	MG/KG	6.1E-03	mg/kg/day	NA	NA	NA	7.1E-02	mg/kg/day	7.0E-02	mg/kg/day	1.0E+00
				Cadmium	7.1E+01	MG/KG	7.8E-05	mg/kg/day	NA	NA	NA	9.1E-04	mg/kg/day	1.0E-03	mg/kg/day	9.1E-01
				Chromium	3.6E+01	MG/KG	3.9E-05	mg/kg/day	NA	NA	NA	4.6E-04	mg/kg/day	2.0E-02	mg/kg/day	2.3E-02
				Copper	1.3E+02	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	1.7E-03	mg/kg/day	4.0E-02	mg/kg/day	4.2E-02
				Iron	2.0E+04	MG/KG	2.2E-02	mg/kg/day	NA	NA	NA	2.6E-01	mg/kg/day	3.0E-01	mg/kg/day	8.7E-01
				Lead	9.5E+02	MG/KG	1.0E-03	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	2.5E-04	mg/kg/day	NA	NA	NA	2.9E-03	mg/kg/day	1.4E-01	mg/kg/day	2.1E-02
				Mercury	8.9E-01	MG/KG	9.8E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	3.0E-04	mg/kg/day	3.8E-02
				Zinc	2.5E+03	MG/KG	2.8E-03	mg/kg/day	NA	NA	NA	3.2E-02	mg/kg/day	3.0E-01	mg/kg/day	1.1E-01
				Benzo(a)anthracene	2.2E+01	MG/KG	2.5E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.8E-05	2.9E-04	mg/kg/day	3.0E-01	mg/kg/day	9.5E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	2.0E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-04	2.3E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	2.3E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-05	2.7E-04	mg/kg/day	3.0E-01	mg/kg/day	9.0E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	2.1E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.5E-06	2.4E-04	mg/kg/day	3.0E-01	mg/kg/day	8.0E-04
				Carbazole	1.5E+01	MG/KG	1.6E-05	mg/kg/day	2.0E-02	1/(mg/kg-day)	3.2E-07	1.9E-04	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	2.2E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.6E-07	2.6E-04	mg/kg/day	3.0E-01	mg/kg/day	8.6E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	1.5E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-04	1.8E-04	mg/kg/day	3.0E-01	mg/kg/day	5.8E-04
				Dibenzofuran	1.4E+01	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	2.0E-03	mg/kg/day	9.1E-02

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TABLE 7.16.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	4.0E-05	mg/kg/day	NA	NA	NA	4.6E-04	mg/kg/day	4.0E-01	mg/kg/day	1.2E-03
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	1.5E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-05	1.7E-04	mg/kg/day	6.0E-01	mg/kg/day	2.9E-04
				Naphthalene	1.5E+01	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.9E-04	mg/kg/day	2.0E-02	mg/kg/day	9.5E-03
				Phenanthrene	3.8E+01	MG/KG	4.2E-05	mg/kg/day	NA	NA	NA	4.9E-04	mg/kg/day	3.0E-01	mg/kg/day	1.6E-03
				Pyrene	3.1E+01	MG/KG	3.4E-05	mg/kg/day	NA	NA	NA	4.0E-04	mg/kg/day	3.0E-01	mg/kg/day	1.3E-03
				Benzene	3.0E-03	MG/KG	3.3E-09	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.8E-10	3.8E-08	mg/kg/day	3.0E-03	mg/kg/day	1.3E-05
			Exp. Route Total								4.6E-04					3.6E+00
			Dermal													
				Aluminum	5.1E+03	MG/KG	1.6E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	1.0E+00	mg/kg/day	1.8E-03
				Antimony	2.6E+00	MG/KG	8.1E-08	mg/kg/day	NA	NA	NA	9.5E-07	mg/kg/day	3.0E-05	mg/kg/day	3.2E-02
				Arsenic	9.6E+01	MG/KG	8.8E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.3E-05	1.0E-04	mg/kg/day	5.0E-03	mg/kg/day	2.1E-02
				Barium	5.6E+03	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	2.0E-03	mg/kg/day	4.9E-03	mg/kg/day	4.1E-01
				Cadmium	7.1E+01	MG/KG	2.2E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	5.0E-05	mg/kg/day	5.1E-02
				Chromium	3.6E+01	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	5.0E-04	mg/kg/day	2.6E-02
				Copper	1.3E+02	MG/KG	4.0E-06	mg/kg/day	NA	NA	NA	4.7E-05	mg/kg/day	4.0E-02	mg/kg/day	1.2E-03
				Iron	2.0E+04	MG/KG	6.2E-04	mg/kg/day	NA	NA	NA	7.3E-03	mg/kg/day	3.0E-01	mg/kg/day	2.4E-02
				Lead	9.5E+02	MG/KG	2.9E-05	mg/kg/day	NA	NA	NA	3.4E-04	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	6.9E-06	mg/kg/day	NA	NA	NA	8.1E-05	mg/kg/day	5.6E-03	mg/kg/day	1.4E-02
				Mercury	8.9E-01	MG/KG	2.7E-08	mg/kg/day	NA	NA	NA	3.2E-07	mg/kg/day	2.1E-05	mg/kg/day	1.5E-02
				Zinc	2.5E+03	MG/KG	7.7E-05	mg/kg/day	NA	NA	NA	9.0E-04	mg/kg/day	3.0E-01	mg/kg/day	3.0E-03
				Benzo(a)anthracene	2.2E+01	MG/KG	8.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.5E-06	1.0E-04	mg/kg/day	3.0E-01	mg/kg/day	3.5E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	7.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.2E-05	8.3E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	8.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-06	9.8E-05	mg/kg/day	3.0E-01	mg/kg/day	3.3E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	7.5E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.4E-07	8.7E-05	mg/kg/day	3.0E-01	mg/kg/day	2.9E-04
				Carbazole	1.5E+01	MG/KG	5.8E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.2E-07	6.8E-05	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	8.0E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.9E-08	9.4E-05	mg/kg/day	3.0E-01	NA	3.1E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	5.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.0E-05	6.4E-05	mg/kg/day	3.0E-01	mg/kg/day	2.1E-04
				Dibenzofuran	1.4E+01	MG/KG	5.7E-06	mg/kg/day	NA	NA	NA	6.6E-05	mg/kg/day	2.0E-03	mg/kg/day	3.3E-02
				Fluoranthene	3.6E+01	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	1.7E-04	mg/kg/day	3.6E-01	mg/kg/day	4.7E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	5.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.9E-06	6.2E-05	mg/kg/day	6.0E-01	mg/kg/day	1.0E-04
				Naphthalene	1.5E+01	MG/KG	5.9E-06	mg/kg/day	NA	NA	NA	6.9E-05	mg/kg/day	2.0E-02	mg/kg/day	3.5E-03
				Phenanthrene	3.8E+01	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	3.0E-01	mg/kg/day	5.9E-04
				Pyrene	3.1E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	4.9E-04
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								1.2E-04					6.3E-01
		Exposure Point Total									5.8E-04					4.2E+00
	Exposure Medium Total										5.8E-04					4.2E+00
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation													
				Aluminum	5.0E-06	MG/M3	2.8E-07	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	1.4E-03	mg/kg/day	2.3E-03
				Antimony	2.6E-09	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	1.1E-04	mg/kg/day	1.5E-05
				Arsenic	9.4E-08	MG/M3	5.2E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	7.8E-08	6.0E-08	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	3.0E-07	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	1.4E-03	mg/kg/day	2.5E-03
				Cadmium	7.0E-08	MG/M3	3.9E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.4E-08	4.5E-08	mg/kg/day	2.6E-04	mg/kg/day	1.7E-04
				Chromium	3.5E-08	MG/M3	1.9E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	8.2E-08	2.3E-08	mg/kg/day	2.3E-06	mg/kg/day	9.9E-03
				Copper	1.3E-07	MG/M3	7.1E-09	mg/kg/day	NA	NA	NA	8.2E-08	mg/kg/day	NA	NA	NA

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TABLE 7.16.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from South Jersey Port property Subsurface Soil (cont.)	Inhalation (cont.)	Iron	2.0E-05	MG/M3	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	5.1E-08	mg/kg/day	NA	NA	NA	6.0E-07	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	1.4E-05	mg/kg/day	1.0E-02
				Mercury	8.7E-10	MG/M3	4.8E-11	mg/kg/day	NA	NA	NA	5.6E-10	mg/kg/day	8.6E-05	mg/kg/day	6.6E-06
				Zinc	2.5E-06	MG/M3	1.4E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	9.7E-10	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	7.9E-10	mg/kg/day	NA	NA	NA	9.2E-09	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	7.4E-10	mg/kg/day	NA	NA	NA	8.7E-09	mg/kg/day	NA	NA	NA
				Dibenzofuran	2.1E-05	MG/M3	1.2E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	2.0E-09	mg/kg/day	NA	NA	NA	2.3E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	7.3E-10	mg/kg/day	NA	NA	NA	8.5E-09	mg/kg/day	NA	NA	NA
				Naphthalene	3.3E-04	MG/M3	1.8E-05	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	8.6E-04	mg/kg/day	2.5E-01
				Phenanthrene	9.8E-05	MG/M3	5.4E-06	mg/kg/day	NA	NA	NA	6.3E-05	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	2.0E-08	mg/kg/day	NA	NA	NA
				Benzene	1.0E-06	MG/M3	5.7E-08	mg/kg/day	2.7E-02	1/(mg/kg-day)	1.6E-09	6.7E-07	mg/kg/day	1.7E-02	mg/kg/day	3.9E-05
			Exp. Route Total								1.9E-07					2.7E-01
		Exposure Point Total									1.9E-07					2.7E-01
	Exposure Medium Total										1.9E-07					2.7E-01
Subsurface Soil Total											5.8E-04					4.5E+00

NA = Not applicable.

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	2.0E-03	mg/kg/day	NA	NA	NA	5.7E-03	mg/kg/day	1.0E+00	mg/kg/day	5.7E-03
				Arsenic	3.2E+01	MG/KG	1.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.7E-05	3.2E-05	mg/kg/day	3.0E-04	mg/kg/day	1.1E-01
				Barium	4.2E+03	MG/KG	1.5E-03	mg/kg/day	NA	NA	NA	4.1E-03	mg/kg/day	7.0E-02	mg/kg/day	5.9E-02
				Cadmium	4.1E+00	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	4.0E-06	mg/kg/day	1.0E-03	mg/kg/day	4.0E-03
				Chromium	9.0E+01	MG/KG	3.2E-05	mg/kg/day	NA	NA	NA	8.8E-05	mg/kg/day	3.0E-03	mg/kg/day	2.9E-02
				Copper	1.6E+02	MG/KG	5.4E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	4.0E-02	mg/kg/day	3.8E-03
				Iron	1.9E+04	MG/KG	6.7E-03	mg/kg/day	NA	NA	NA	1.9E-02	mg/kg/day	3.0E-01	mg/kg/day	6.2E-02
				Lead	6.6E+02	MG/KG	2.3E-04	mg/kg/day	NA	NA	NA	6.5E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.0E-04	mg/kg/day	NA	NA	NA	2.9E-04	mg/kg/day	1.4E-01	mg/kg/day	2.0E-03
				Mercury	8.5E-01	MG/KG	3.0E-07	mg/kg/day	NA	NA	NA	8.4E-07	mg/kg/day	3.0E-04	mg/kg/day	2.8E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	3.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-07	8.4E-07	mg/kg/day	3.0E-02	mg/kg/day	2.8E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	1.3E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.6E-05	3.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.2E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.8E-06	3.4E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.2E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	9.1E-07	3.5E-05	mg/kg/day	3.0E-02	mg/kg/day	1.2E-03
				Carbazole	2.3E+01	MG/KG	8.0E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.6E-07	2.3E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.4E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.0E-07	4.0E-05	mg/kg/day	3.0E-02	mg/kg/day	1.3E-03
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	2.8E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.0E-06	7.8E-07	mg/kg/day	3.0E-02	mg/kg/day	2.6E-05
				Fluoranthene	8.0E+01	MG/KG	2.8E-05	mg/kg/day	NA	NA	NA	7.8E-05	mg/kg/day	4.0E-02	mg/kg/day	2.0E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	7.5E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-06	2.1E-05	mg/kg/day	5.0E-02	mg/kg/day	4.2E-04
				Phenanthrene	6.6E+01	MG/KG	2.3E-05	mg/kg/day	NA	NA	NA	6.4E-05	mg/kg/day	3.0E-02	mg/kg/day	2.1E-03
			Exp. Route Total								1.3E-04					2.8E-01
			Dermal													
				Aluminum	5.8E+03	MG/KG	1.3E-04	mg/kg/day	NA	NA	NA	3.8E-04	mg/kg/day	1.0E+00	mg/kg/day	3.8E-04
				Arsenic	3.2E+01	MG/KG	2.2E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.4E-06	6.3E-06	mg/kg/day	3.0E-04	mg/kg/day	2.1E-02
				Barium	4.2E+03	MG/KG	9.7E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	4.9E-03	mg/kg/day	5.6E-02
				Cadmium	4.1E+00	MG/KG	9.4E-09	mg/kg/day	NA	NA	NA	2.6E-08	mg/kg/day	5.0E-05	mg/kg/day	5.3E-04
				Chromium	9.0E+01	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	5.8E-06	mg/kg/day	7.5E-05	mg/kg/day	7.8E-02
				Copper	1.6E+02	MG/KG	3.6E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	4.0E-02	mg/kg/day	2.5E-04
				Iron	1.9E+04	MG/KG	4.4E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	3.0E-01	mg/kg/day	4.1E-03
				Lead	6.6E+02	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	6.8E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	5.6E-03	mg/kg/day	3.4E-03
				Mercury	8.5E-01	MG/KG	2.0E-08	mg/kg/day	NA	NA	NA	5.5E-08	mg/kg/day	2.1E-05	mg/kg/day	2.6E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	2.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-07	7.2E-07	mg/kg/day	3.0E-02	mg/kg/day	2.4E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	1.1E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.3E-05	3.2E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.0E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.5E-06	2.9E-05	mg/kg/day	3.0E-02	mg/kg/day	9.6E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.1E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	7.8E-07	3.0E-05	mg/kg/day	3.0E-02	mg/kg/day	9.9E-04
				Carbazole	2.3E+01	MG/KG	6.9E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.4E-07	1.9E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.2E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	9.0E-08	3.4E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	2.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.8E-06	6.7E-07	mg/kg/day	3.0E-02	mg/kg/day	2.2E-05
				Fluoranthene	8.0E+01	MG/KG	2.4E-05	mg/kg/day	NA	NA	NA	6.7E-05	mg/kg/day	3.6E-02	mg/kg/day	1.9E-03
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	6.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-06	1.8E-05	mg/kg/day	5.0E-02	mg/kg/day	3.6E-04
				Phenanthrene	6.6E+01	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	5.5E-05	mg/kg/day	3.0E-02	mg/kg/day	1.8E-03
			Exp. Route Total								1.0E-04					1.7E-01
		Exposure Point Total									2.3E-04					4.6E-01
	Exposure Medium Total										2.3E-04					4.6E-01

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	4.0E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	1.4E-03	mg/kg/day	7.8E-04
				Arsenic	3.2E-08	MG/M3	2.2E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.3E-08	6.2E-09	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	2.9E-07	mg/kg/day	NA	NA	NA	8.1E-07	mg/kg/day	1.4E-04	mg/kg/day	5.8E-03
				Cadmium	4.0E-09	MG/M3	2.8E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.8E-09	7.8E-10	mg/kg/day	5.7E-05	mg/kg/day	1.4E-05
				Chromium	8.8E-08	MG/M3	6.2E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.6E-07	1.7E-08	mg/kg/day	2.3E-06	mg/kg/day	7.6E-03
				Copper	1.5E-07	MG/M3	1.1E-08	mg/kg/day	NA	NA	NA	3.0E-08	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	1.3E-06	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	4.5E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	2.0E-08	mg/kg/day	NA	NA	NA	5.6E-08	mg/kg/day	1.4E-05	mg/kg/day	3.9E-03
				Mercury	8.4E-10	MG/M3	5.9E-11	mg/kg/day	NA	NA	NA	1.6E-10	mg/kg/day	8.6E-05	mg/kg/day	1.9E-06
				Benzo(a)anthracene	8.4E-10	MG/M3	5.9E-11	mg/kg/day	NA	NA	NA	1.6E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	2.6E-09	mg/kg/day	NA	NA	NA	7.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	2.4E-09	mg/kg/day	NA	NA	NA	6.6E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	2.4E-09	mg/kg/day	NA	NA	NA	6.8E-09	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	4.4E-09	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	2.8E-09	mg/kg/day	NA	NA	NA	7.9E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	5.5E-11	mg/kg/day	NA	NA	NA	1.5E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	5.5E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	4.1E-09	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	1.2E-05	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	NA	NA	NA
			Exp. Route Total								2.9E-07					1.8E-02
		Exposure Point Total									2.9E-07					1.8E-02
	Exposure Medium Total										2.9E-07					1.8E-02
Surface Soil Total											2.3E-04					4.7E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	1.8E-03	mg/kg/day	NA	NA	NA	5.0E-03	mg/kg/day	1.0E+00	mg/kg/day	5.0E-03
				Antimony	2.6E+00	MG/KG	9.2E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	4.0E-04	mg/kg/day	6.5E-03
				Arsenic	9.6E+01	MG/KG	3.3E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.0E-05	9.4E-05	mg/kg/day	3.0E-04	mg/kg/day	3.1E-01
				Barium	5.6E+03	MG/KG	1.9E-03	mg/kg/day	NA	NA	NA	5.4E-03	mg/kg/day	7.0E-02	mg/kg/day	7.8E-02
				Cadmium	7.1E+01	MG/KG	2.5E-05	mg/kg/day	NA	NA	NA	7.0E-05	mg/kg/day	1.0E-03	mg/kg/day	7.0E-02
				Chromium	3.6E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	3.5E-05	mg/kg/day	3.0E-03	mg/kg/day	1.2E-02
				Copper	1.3E+02	MG/KG	4.6E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	4.0E-02	mg/kg/day	3.2E-03
				Iron	2.0E+04	MG/KG	7.1E-03	mg/kg/day	NA	NA	NA	2.0E-02	mg/kg/day	3.0E-01	mg/kg/day	6.6E-02
				Lead	9.5E+02	MG/KG	3.3E-04	mg/kg/day	NA	NA	NA	9.3E-04	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	7.9E-05	mg/kg/day	NA	NA	NA	2.2E-04	mg/kg/day	1.4E-01	mg/kg/day	1.6E-03
				Mercury	8.9E-01	MG/KG	3.1E-07	mg/kg/day	NA	NA	NA	8.7E-07	mg/kg/day	3.0E-04	mg/kg/day	2.9E-03
				Zinc	2.5E+03	MG/KG	8.8E-04	mg/kg/day	NA	NA	NA	2.5E-03	mg/kg/day	3.0E-01	mg/kg/day	8.2E-03
				Benzo(a)anthracene	2.2E+01	MG/KG	7.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.7E-06	2.2E-05	mg/kg/day	3.0E-02	mg/kg/day	7.3E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.6E-05	1.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	7.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.4E-06	2.1E-05	mg/kg/day	3.0E-02	mg/kg/day	6.9E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	6.5E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.8E-07	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	6.1E-04
				Carbazole	1.5E+01	MG/KG	5.1E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.0E-07	1.4E-05	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	7.0E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.1E-08	2.0E-05	mg/kg/day	3.0E-02	mg/kg/day	6.6E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	4.8E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.5E-05	1.3E-05	mg/kg/day	3.0E-02	mg/kg/day	4.5E-04
				Dibenzofuran	1.4E+01	MG/KG	5.0E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	2.0E-03	mg/kg/day	7.0E-03

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	3.5E-05	mg/kg/day	4.0E-02	mg/kg/day	8.9E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	4.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.4E-06	1.3E-05	mg/kg/day	5.0E-02	mg/kg/day	2.6E-04
				Naphthalene	1.5E+01	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	2.0E-02	mg/kg/day	7.3E-04
				Phenanthrene	3.8E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	3.0E-02	mg/kg/day	1.2E-03
				Pyrene	3.1E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
				Benzene	3.0E-03	MG/KG	1.0E-09	mg/kg/day	5.5E-02	1/(mg/kg-day)	5.8E-11	2.9E-09	mg/kg/day	4.0E-03	mg/kg/day	7.3E-07
			Exp. Route Total								1.5E-04					5.8E-01
			Dermal													
				Aluminum	5.1E+03	MG/KG	1.2E-04	mg/kg/day	NA	NA	NA	3.3E-04	mg/kg/day	1.0E+00	mg/kg/day	3.3E-04
				Antimony	2.6E+00	MG/KG	6.1E-08	mg/kg/day	NA	NA	NA	1.7E-07	mg/kg/day	6.0E-05	mg/kg/day	2.8E-03
				Arsenic	9.6E+01	MG/KG	6.6E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	9.9E-06	1.9E-05	mg/kg/day	3.0E-04	mg/kg/day	6.2E-02
				Barium	5.6E+03	MG/KG	1.3E-04	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	4.9E-03	mg/kg/day	7.3E-02
				Cadmium	7.1E+01	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	4.6E-07	mg/kg/day	5.0E-05	mg/kg/day	9.2E-03
				Chromium	3.6E+01	MG/KG	8.3E-07	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	7.5E-05	mg/kg/day	3.1E-02
				Copper	1.3E+02	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	8.4E-06	mg/kg/day	4.0E-02	mg/kg/day	2.1E-04
				Iron	2.0E+04	MG/KG	4.7E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	3.0E-01	mg/kg/day	4.4E-03
				Lead	9.5E+02	MG/KG	2.2E-05	mg/kg/day	NA	NA	NA	6.1E-05	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	5.6E-03	mg/kg/day	2.6E-03
				Mercury	8.9E-01	MG/KG	2.1E-08	mg/kg/day	NA	NA	NA	5.7E-08	mg/kg/day	2.1E-05	mg/kg/day	2.7E-03
				Zinc	2.5E+03	MG/KG	5.8E-05	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	3.0E-01	mg/kg/day	5.4E-04
				Benzo(a)anthracene	2.2E+01	MG/KG	6.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.9E-06	1.9E-05	mg/kg/day	3.0E-02	mg/kg/day	6.3E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	5.4E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.9E-05	1.5E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	6.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.6E-06	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	5.9E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	5.6E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.1E-07	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.2E-04
				Carbazole	1.5E+01	MG/KG	4.4E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	8.8E-08	1.2E-05	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	6.0E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.4E-08	1.7E-05	mg/kg/day	3.0E-02	NA	5.6E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	4.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.0E-05	1.2E-05	mg/kg/day	3.0E-02	mg/kg/day	3.8E-04
				Dibenzofuran	1.4E+01	MG/KG	4.3E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	2.0E-03	mg/kg/day	6.0E-03
				Fluoranthene	3.6E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.0E-05	mg/kg/day	3.6E-02	mg/kg/day	8.5E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	4.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-06	1.1E-05	mg/kg/day	5.0E-02	mg/kg/day	2.2E-04
				Naphthalene	1.5E+01	MG/KG	4.4E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	2.0E-02	mg/kg/day	6.2E-04
				Phenanthrene	3.8E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				Pyrene	3.1E+01	MG/KG	9.4E-06	mg/kg/day	NA	NA	NA	2.6E-05	mg/kg/day	3.0E-02	mg/kg/day	8.8E-04
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								9.2E-05					2.0E-01
		Exposure Point Total									2.4E-04					7.8E-01
	Exposure Medium Total										2.4E-04					7.8E-01
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation	Aluminum	5.0E-06	MG/M3	3.5E-07	mg/kg/day	NA	NA	NA	9.8E-07	mg/kg/day	1.4E-03	mg/kg/day	6.8E-04
				Antimony	2.6E-09	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	5.1E-10	mg/kg/day	NA	mg/kg/day	NA
				Arsenic	9.4E-08	MG/M3	6.6E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	9.9E-08	1.8E-08	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	3.8E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	1.4E-04	mg/kg/day	7.6E-03
				Cadmium	7.0E-08	MG/M3	4.9E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	3.1E-08	1.4E-08	mg/kg/day	5.7E-05	mg/kg/day	2.4E-04
				Chromium	3.5E-08	MG/M3	2.5E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.0E-07	6.9E-09	mg/kg/day	2.3E-06	mg/kg/day	3.0E-03
				Copper	1.3E-07	MG/M3	8.9E-09	mg/kg/day	NA	NA	NA	2.5E-08	mg/kg/day	NA	NA	NA

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TABLE 7.15.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from South Jersey Port property *Subsurface Soil (cont.)*	Inhalation (cont.)	Iron	2.0E-05	MG/M3	1.4E-06	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	6.5E-08	mg/kg/day	NA	NA	NA	1.8E-07	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	1.5E-08	mg/kg/day	NA	NA	NA	4.3E-08	mg/kg/day	1.4E-05	mg/kg/day	3.0E-03
				Mercury	8.7E-10	MG/M3	6.1E-11	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	8.6E-05	mg/kg/day	2.0E-06
				Zinc	2.5E-06	MG/M3	1.7E-07	mg/kg/day	NA	NA	NA	4.8E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	3.4E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	4.1E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	2.8E-09	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	3.9E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	9.4E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	NA	NA	NA
				Dibenzofuran	2.1E-05	MG/M3	1.5E-06	mg/kg/day	NA	NA	NA	4.1E-06	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	2.5E-09	mg/kg/day	NA	NA	NA	6.9E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	9.2E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	NA	NA	NA
				Naphthalene	3.3E-04	MG/M3	2.3E-05	mg/kg/day	NA	NA	NA	6.4E-05	mg/kg/day	8.6E-04	mg/kg/day	7.5E-02
				Phenanthrene	9.8E-05	MG/M3	6.8E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	2.2E-09	mg/kg/day	NA	NA	NA	6.0E-09	mg/kg/day	NA	NA	NA
				Benzene	1.0E-06	MG/M3	7.2E-08	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.0E-09	2.0E-07	mg/kg/day	8.6E-03	mg/kg/day	2.4E-05
			Exp. Route Total								2.3E-07					9.0E-02
		Exposure Point Total									2.3E-07					9.0E-02
	Exposure Medium Total										2.3E-07					9.0E-02
Subsurface Soil Total											2.4E-04					8.7E-01

NA = Not applicable.

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TABLE 7.17.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	1.9E-04	mg/kg/day	NA	NA	NA	1.4E-02	mg/kg/day	1.0E+00	mg/kg/day	1.4E-02
				Arsenic	3.2E+01	MG/KG	1.1E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.6E-06	7.5E-05	mg/kg/day	5.0E-03	mg/kg/day	1.5E-02
				Barium	4.2E+03	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	9.8E-03	mg/kg/day	7.0E-02	mg/kg/day	1.4E-01
				Cadmium	4.1E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	9.5E-06	mg/kg/day	1.0E-03	mg/kg/day	9.5E-03
				Chromium	9.0E+01	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	2.0E-02	mg/kg/day	1.0E-02
				Copper	1.6E+02	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	4.0E-02	mg/kg/day	9.1E-03
				Iron	1.9E+04	MG/KG	6.4E-04	mg/kg/day	NA	NA	NA	4.4E-02	mg/kg/day	3.0E-01	mg/kg/day	1.5E-01
				Lead	6.6E+02	MG/KG	2.2E-05	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	9.7E-06	mg/kg/day	NA	NA	NA	6.8E-04	mg/kg/day	1.4E-01	mg/kg/day	4.9E-03
				Mercury	8.5E-01	MG/KG	2.8E-08	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	3.0E-04	mg/kg/day	6.6E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	2.8E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.1E-08	2.0E-06	mg/kg/day	3.0E-01	mg/kg/day	6.6E-06
				Benzo(a)pyrene	3.8E+01	MG/KG	1.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.1E-06	8.8E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.3E-07	8.0E-05	mg/kg/day	3.0E-01	mg/kg/day	2.7E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	8.6E-08	8.3E-05	mg/kg/day	3.0E-01	mg/kg/day	2.8E-04
				Carbazole	2.3E+01	MG/KG	7.6E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.5E-08	5.3E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.4E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	9.9E-09	9.5E-05	mg/kg/day	3.0E-01	mg/kg/day	3.2E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	2.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.9E-07	1.9E-06	mg/kg/day	3.0E-01	mg/kg/day	6.2E-06
				Fluoranthene	8.0E+01	MG/KG	2.7E-06	mg/kg/day	NA	NA	NA	1.9E-04	mg/kg/day	4.0E-01	mg/kg/day	4.7E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	7.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.2E-07	5.0E-05	mg/kg/day	6.0E-01	mg/kg/day	8.3E-05
				Phenanthrene	6.6E+01	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	5.1E-04
			Exp. Route Total								1.2E-05					3.6E-01
			Dermal													
				Aluminum	5.8E+03	MG/KG	3.9E-06	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	1.0E+00	mg/kg/day	2.7E-04
				Arsenic	3.2E+01	MG/KG	6.4E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	9.7E-08	4.5E-06	mg/kg/day	5.0E-03	mg/kg/day	9.0E-04
				Barium	4.2E+03	MG/KG	2.8E-06	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	4.9E-03	mg/kg/day	4.0E-02
				Cadmium	4.1E+00	MG/KG	2.7E-10	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	5.0E-05	mg/kg/day	3.8E-04
				Chromium	9.0E+01	MG/KG	6.0E-08	mg/kg/day	NA	NA	NA	4.2E-06	mg/kg/day	5.0E-04	mg/kg/day	8.4E-03
				Copper	1.6E+02	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	7.2E-06	mg/kg/day	4.0E-02	mg/kg/day	1.8E-04
				Iron	1.9E+04	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	8.9E-04	mg/kg/day	3.0E-01	mg/kg/day	3.0E-03
				Lead	6.6E+02	MG/KG	4.4E-07	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.6E-03	mg/kg/day	2.4E-03
				Mercury	8.5E-01	MG/KG	5.7E-10	mg/kg/day	NA	NA	NA	4.0E-08	mg/kg/day	2.1E-05	mg/kg/day	1.9E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	7.4E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.4E-09	5.2E-07	mg/kg/day	3.0E-01	mg/kg/day	1.7E-06
				Benzo(a)pyrene	3.8E+01	MG/KG	3.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.4E-06	2.3E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	3.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-07	2.1E-05	mg/kg/day	3.0E-01	mg/kg/day	6.9E-05
				Benzo(k)fluoranthene	3.6E+01	MG/KG	3.1E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.2E-08	2.1E-05	mg/kg/day	3.0E-01	mg/kg/day	7.2E-05
				Carbazole	2.3E+01	MG/KG	2.0E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	4.0E-09	1.4E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	3.5E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.6E-09	2.5E-05	mg/kg/day	3.0E-01	mg/kg/day	8.3E-05
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	6.9E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.0E-08	4.8E-07	mg/kg/day	3.0E-01	mg/kg/day	1.6E-06
				Fluoranthene	8.0E+01	MG/KG	6.9E-07	mg/kg/day	NA	NA	NA	4.8E-05	mg/kg/day	3.6E-01	mg/kg/day	1.4E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.3E-05	mg/kg/day	6.0E-01	mg/kg/day	2.2E-05
				Phenanthrene	6.6E+01	MG/KG	5.7E-07	mg/kg/day	NA	NA	NA	4.0E-05	mg/kg/day	3.0E-01	mg/kg/day	1.3E-04
			Exp. Route Total								2.9E-06					5.8E-02
		Exposure Point Total									1.5E-05					4.2E-01
	Exposure Medium Total										1.5E-05					4.2E-01

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TABLE 7.17.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	9.7E-09	mg/kg/day	NA	NA	NA	6.8E-07	mg/kg/day	1.4E-03	mg/kg/day	4.7E-04
				Arsenic	3.2E-08	MG/M3	5.4E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	8.1E-10	3.7E-09	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	7.0E-09	mg/kg/day	NA	NA	NA	4.9E-07	mg/kg/day	1.4E-03	mg/kg/day	3.5E-04
				Cadmium	4.0E-09	MG/M3	6.8E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.3E-11	4.7E-10	mg/kg/day	2.6E-04	mg/kg/day	1.8E-06
				Chromium	8.8E-08	MG/M3	1.5E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	6.3E-09	1.0E-08	mg/kg/day	2.3E-06	mg/kg/day	4.6E-03
				Copper	1.5E-07	MG/M3	2.6E-10	mg/kg/day	NA	NA	NA	1.8E-08	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	3.2E-08	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	7.7E-08	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	4.9E-10	mg/kg/day	NA	NA	NA	3.4E-08	mg/kg/day	1.4E-05	mg/kg/day	2.4E-03
				Mercury	8.4E-10	MG/M3	1.4E-12	mg/kg/day	NA	NA	NA	9.9E-11	mg/kg/day	8.6E-05	mg/kg/day	1.2E-06
				Benzo(a)anthracene	8.4E-10	MG/M3	1.4E-12	mg/kg/day	NA	NA	NA	9.9E-11	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	6.2E-11	mg/kg/day	NA	NA	NA	4.4E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	5.7E-11	mg/kg/day	NA	NA	NA	4.0E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	5.9E-11	mg/kg/day	NA	NA	NA	4.1E-09	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	3.8E-11	mg/kg/day	NA	NA	NA	2.7E-09	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	6.8E-11	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	1.3E-12	mg/kg/day	NA	NA	NA	9.3E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	9.3E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	3.6E-11	mg/kg/day	NA	NA	NA	2.5E-09	mg/kg/day	NA	NA	NA
				Phenanthrene	4.9E-06	MG/M3	8.2E-09	mg/kg/day	NA	NA	NA	5.8E-07	mg/kg/day	NA	NA	NA
			Exp. Route Total								7.1E-09					7.8E-03
		Exposure Point Total									7.1E-09					7.8E-03
	Exposure Medium Total										7.1E-09					7.8E-03
Subsurface Soil Total											1.5E-05					4.3E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	1.0E+00	mg/kg/day	1.2E-02
				Antimony	2.6E+00	MG/KG	8.8E-08	mg/kg/day	NA	NA	NA	6.2E-06	mg/kg/day	2.0E-04	mg/kg/day	3.1E-02
				Arsenic	9.6E+01	MG/KG	3.2E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.8E-06	2.2E-04	mg/kg/day	5.0E-03	mg/kg/day	4.4E-02
				Barium	5.6E+03	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	7.0E-02	mg/kg/day	1.8E-01
				Cadmium	7.1E+01	MG/KG	2.4E-06	mg/kg/day	NA	NA	NA	1.7E-04	mg/kg/day	1.0E-03	mg/kg/day	1.7E-01
				Chromium	3.6E+01	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	8.4E-05	mg/kg/day	2.0E-02	mg/kg/day	4.2E-03
				Copper	1.3E+02	MG/KG	4.3E-06	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	4.0E-02	mg/kg/day	7.6E-03
				Iron	2.0E+04	MG/KG	6.7E-04	mg/kg/day	NA	NA	NA	4.7E-02	mg/kg/day	3.0E-01	mg/kg/day	1.6E-01
				Lead	9.5E+02	MG/KG	3.2E-05	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	7.5E-06	mg/kg/day	NA	NA	NA	5.3E-04	mg/kg/day	1.4E-01	mg/kg/day	3.8E-03
				Mercury	8.9E-01	MG/KG	3.0E-08	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	3.0E-04	mg/kg/day	6.9E-03
				Zinc	2.5E+03	MG/KG	8.3E-05	mg/kg/day	NA	NA	NA	5.8E-03	mg/kg/day	3.0E-01	mg/kg/day	1.9E-02
				Benzo(a)anthracene	2.2E+01	MG/KG	7.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.4E-07	5.2E-05	mg/kg/day	3.0E-01	mg/kg/day	1.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	5.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.3E-06	4.2E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	7.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.1E-07	4.9E-05	mg/kg/day	3.0E-01	mg/kg/day	1.6E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	6.2E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.5E-08	4.4E-05	mg/kg/day	3.0E-01	mg/kg/day	1.5E-04
				Carbazole	1.5E+01	MG/KG	4.8E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	9.7E-09	3.4E-05	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	6.7E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.9E-09	4.7E-05	mg/kg/day	3.0E-01	mg/kg/day	1.6E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	4.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.3E-06	3.2E-05	mg/kg/day	3.0E-01	mg/kg/day	1.1E-04
				Dibenzofuran	1.4E+01	MG/KG	4.7E-07	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	2.0E-03	mg/kg/day	1.7E-02

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TABLE 7.17.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	8.4E-05	mg/kg/day	4.0E-01	mg/kg/day	2.1E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	4.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.2E-07	3.1E-05	mg/kg/day	6.0E-01	mg/kg/day	5.2E-05
				Naphthalene	1.5E+01	MG/KG	4.9E-07	mg/kg/day	NA	NA	NA	3.4E-05	mg/kg/day	2.0E-02	mg/kg/day	1.7E-03
				Phenanthrene	3.8E+01	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	8.9E-05	mg/kg/day	3.0E-01	mg/kg/day	3.0E-04
				Pyrene	3.1E+01	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	7.3E-05	mg/kg/day	3.0E-01	mg/kg/day	2.4E-04
				Benzene	3.0E-03	MG/KG	1.0E-10	mg/kg/day	5.5E-02	1/(mg/kg-day)	5.5E-12	7.0E-09	mg/kg/day	3.0E-03	mg/kg/day	2.3E-06
			Exp. Route Total								1.4E-05					6.6E-01
			Dermal													
				Aluminum	5.1E+03	MG/KG	3.4E-06	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	1.0E+00	mg/kg/day	2.4E-04
				Antimony	2.6E+00	MG/KG	1.8E-09	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	2.0E-04	mg/kg/day	6.2E-04
				Arsenic	9.6E+01	MG/KG	1.9E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.9E-07	1.3E-05	mg/kg/day	5.0E-03	mg/kg/day	2.7E-03
				Barium	5.6E+03	MG/KG	3.7E-06	mg/kg/day	NA	NA	NA	2.6E-04	mg/kg/day	7.0E-02	mg/kg/day	3.7E-03
				Cadmium	7.1E+01	MG/KG	4.7E-09	mg/kg/day	NA	NA	NA	3.3E-07	mg/kg/day	1.0E-03	mg/kg/day	3.3E-04
				Chromium	3.6E+01	MG/KG	2.4E-08	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	2.0E-02	mg/kg/day	8.4E-05
				Copper	1.3E+02	MG/KG	8.7E-08	mg/kg/day	NA	NA	NA	6.1E-06	mg/kg/day	4.0E-02	mg/kg/day	1.5E-04
				Iron	2.0E+04	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	9.4E-04	mg/kg/day	3.0E-01	mg/kg/day	3.1E-03
				Lead	9.5E+02	MG/KG	6.3E-07	mg/kg/day	NA	NA	NA	4.4E-05	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	1.4E-01	mg/kg/day	7.5E-05
				Mercury	8.9E-01	MG/KG	5.9E-10	mg/kg/day	NA	NA	NA	4.1E-08	mg/kg/day	3.0E-04	mg/kg/day	1.4E-04
				Zinc	2.5E+03	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.0E-01	mg/kg/day	3.9E-04
				Benzo(a)anthracene	2.2E+01	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.4E-05	mg/kg/day	3.0E-01	mg/kg/day	4.5E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.5E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	1.8E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-07	1.3E-05	mg/kg/day	3.0E-01	mg/kg/day	4.3E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.2E-08	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.8E-05
				Carbazole	1.5E+01	MG/KG	1.3E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.5E-09	8.8E-06	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.3E-09	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	4.1E-05
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	1.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.6E-07	8.3E-06	mg/kg/day	3.0E-01	mg/kg/day	2.8E-05
				Dibenzofuran	1.4E+01	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	8.6E-06	mg/kg/day	2.0E-03	mg/kg/day	4.3E-03
				Fluoranthene	3.6E+01	MG/KG	3.1E-07	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	4.0E-01	mg/kg/day	5.5E-05
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	1.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.4E-08	8.1E-06	mg/kg/day	6.0E-01	mg/kg/day	1.3E-05
				Naphthalene	1.5E+01	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	9.0E-06	mg/kg/day	2.0E-02	mg/kg/day	4.5E-04
				Phenanthrene	3.8E+01	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	3.0E-01	mg/kg/day	7.7E-05
				Pyrene	3.1E+01	MG/KG	2.7E-07	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	3.0E-01	mg/kg/day	6.3E-05
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								2.7E-06					1.7E-02
		Exposure Point Total									1.7E-05					6.7E-01
	Exposure Medium Total										1.7E-05					6.7E-01
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation	Aluminum	5.0E-06	MG/M3	8.5E-09	mg/kg/day	NA	NA	NA	5.9E-07	mg/kg/day	1.4E-03	mg/kg/day	4.1E-04
				Antimony	2.6E-09	MG/M3	4.4E-12	mg/kg/day	NA	NA	NA	3.1E-10	mg/kg/day	1.1E-04	mg/kg/day	2.7E-06
				Arsenic	9.4E-08	MG/M3	1.6E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.4E-09	1.1E-08	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	9.2E-09	mg/kg/day	NA	NA	NA	6.5E-07	mg/kg/day	1.4E-03	mg/kg/day	4.6E-04
				Cadmium	7.0E-08	MG/M3	1.2E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	7.4E-10	8.3E-09	mg/kg/day	2.6E-04	mg/kg/day	3.2E-05
				Chromium	3.5E-08	MG/M3	6.0E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.5E-09	4.2E-09	mg/kg/day	2.3E-06	mg/kg/day	1.8E-03
				Copper	1.3E-07	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA

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TABLE 7.17.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from South Jersey Port property Subsurface Soil (cont.)	Inhalation (cont.)	Iron	2.0E-05	MG/M3	3.4E-08	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	3.7E-10	mg/kg/day	NA	NA	NA	2.6E-08	mg/kg/day	1.4E-05	mg/kg/day	1.8E-03
				Mercury	8.7E-10	MG/M3	1.5E-12	mg/kg/day	NA	NA	NA	1.0E-10	mg/kg/day	8.6E-05	mg/kg/day	1.2E-06
				Zinc	2.5E-06	MG/M3	4.2E-09	mg/kg/day	NA	NA	NA	2.9E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	3.7E-11	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.0E-11	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	3.5E-11	mg/kg/day	NA	NA	NA	2.5E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	3.1E-11	mg/kg/day	NA	NA	NA	2.2E-09	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	2.4E-11	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	3.3E-11	mg/kg/day	NA	NA	NA	2.3E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	2.3E-11	mg/kg/day	NA	NA	NA	1.6E-09	mg/kg/day	NA	NA	NA
				Dibenzofuran	5.9E-07	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	7.0E-08	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	6.0E-11	mg/kg/day	NA	NA	NA	4.2E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	2.2E-11	mg/kg/day	NA	NA	NA	1.6E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.4E-04	MG/M3	2.4E-07	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	8.6E-04	mg/kg/day	2.0E-02
				Phenanthrene	4.8E-06	MG/M3	8.2E-09	mg/kg/day	NA	NA	NA	5.7E-07	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	5.2E-11	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	NA	NA	NA
				Benzene	4.8E-06	MG/M3	8.1E-09	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.2E-10	5.7E-07	mg/kg/day	1.7E-02	mg/kg/day	3.3E-05
			Exp. Route Total								5.9E-09					2.4E-02
		Exposure Point Total									5.9E-09					2.4E-02
	Exposure Medium Total										5.9E-09					2.4E-02
Subsurface Soil Total											1.7E-05					7.0E-01

NA = Not applicable.

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TABLE 7.19.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Upper PRM Aquifer - Tap Water	Ingestion	Aluminum	1.03E+04	UG/L	9.7E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	2.8E-01	mg/kg/day	1.0E+00	mg/kg/day	2.8E-01
				Antimony	5.41E+00	UG/L	5.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-04	mg/kg/day	4.0E-04	mg/kg/day	3.7E-01
				Arsenic	3.62E+03	UG/L	3.4E-02	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.1E-02	9.9E-02	mg/kg/day	3.0E-04	mg/kg/day	3.3E+02
				Barium	9.65E+03	UG/L	9.1E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	2.6E-01	mg/kg/day	7.0E-02	mg/kg/day	3.8E+00
				Beryllium	3.87E+00	UG/L	3.6E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-04	mg/kg/day	2.0E-03	mg/kg/day	5.3E-02
				Cadmium	1.32E+01	UG/L	1.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.6E-04	mg/kg/day	5.0E-04	mg/kg/day	7.2E-01
				Chromium	4.45E+01	UG/L	4.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-03	mg/kg/day	3.0E-03	mg/kg/day	4.1E-01
				Copper	5.22E+01	UG/L	4.9E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.4E-03	mg/kg/day	4.0E-02	mg/kg/day	3.6E-02
				Iron	1.18E+05	UG/L	1.1E+00	mg/kg/day	NA	1/(mg/kg-day)	NA	3.2E+00	mg/kg/day	3.0E-01	mg/kg/day	1.1E+01
				Lead	2.85E+01	UG/L	2.7E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	7.8E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.98E+03	UG/L	1.9E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	5.4E-02	mg/kg/day	1.4E-01	mg/kg/day	3.9E-01
				Mercury	2.08E-01	UG/L	2.0E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	5.7E-06	mg/kg/day	3.0E-04	mg/kg/day	1.9E-02
				Nickel	2.95E+01	UG/L	2.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	8.1E-04	mg/kg/day	2.0E-02	mg/kg/day	4.0E-02
				Selenium	7.01E+00	UG/L	6.6E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-04	mg/kg/day	5.0E-03	mg/kg/day	3.8E-02
				Thallium	5.41E+00	UG/L	5.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-04	mg/kg/day	9.0E-05	mg/kg/day	1.6E+00
				Vanadium	5.82E+01	UG/L	5.5E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.6E-03	mg/kg/day	1.0E-03	mg/kg/day	1.6E+00
				Zinc	1.17E+03	UG/L	1.1E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	3.2E-02	mg/kg/day	3.0E-01	mg/kg/day	1.1E-01
				Chlordane - alpha	2.24E-02	UG/L	2.1E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.4E-08	6.1E-07	mg/kg/day	5.0E-04	mg/kg/day	1.2E-03
				Dieldrin	2.16E-02	UG/L	2.0E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.3E-06	5.9E-07	mg/kg/day	5.0E-05	mg/kg/day	1.2E-02
				Heptachlor Epoxide	9.87E-03	UG/L	9.3E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	8.4E-07	2.7E-07	mg/kg/day	1.3E-05	mg/kg/day	2.1E-02
				Cresol-o	5.09E+01	UG/L	4.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.4E-03	mg/kg/day	5.0E-02	mg/kg/day	2.8E-02
				Cresol-p	1.41E+02	UG/L	1.3E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	3.9E-03	mg/kg/day	5.0E-03	mg/kg/day	7.7E-01
				Ether, bis(2-chloroethyl)	1.50E+01	UG/L	1.4E-04	mg/kg/day	1.1E+00	1/(mg/kg-day)	1.5E-04	4.1E-04	mg/kg/day	NA	mg/kg/day	NA
				Naphthalene	3.60E+02	UG/L	3.4E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	9.9E-03	mg/kg/day	2.0E-02	mg/kg/day	4.9E-01
				Nitrosodiphenylamine-n	1.09E+01	UG/L	1.0E-04	mg/kg/day	4.9E-03	1/(mg/kg-day)	5.0E-07	3.0E-04	mg/kg/day	2.0E-02	mg/kg/day	1.5E-02
				Phenol	9.68E+02	UG/L	9.1E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	2.7E-02	mg/kg/day	3.0E-01	mg/kg/day	8.8E-02
				Benzene	3.39E+01	UG/L	3.2E-04	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.7E-05	9.3E-04	mg/kg/day	4.0E-03	mg/kg/day	2.3E-01
				Chloroethane	1.32E+00	UG/L	1.2E-05	mg/kg/day	2.9E-03	1/(mg/kg-day)	3.6E-08	3.6E-05	mg/kg/day	4.0E-01	mg/kg/day	9.0E-05
				Dichlorobenzene-1,3	6.60E-01	UG/L	6.2E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-05	mg/kg/day	9.0E-04	mg/kg/day	2.0E-02
				Dichlorobenzene-1,4	9.21E-01	UG/L	8.7E-06	mg/kg/day	2.4E-02	1/(mg/kg-day)	2.1E-07	2.5E-05	mg/kg/day	3.0E-02	mg/kg/day	8.4E-04
				Dichloroethane-1,1	1.95E+01	UG/L	1.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	5.4E-04	mg/kg/day	1.0E-01	mg/kg/day	5.4E-03
				Dichloroethane-1,2	9.51E-01	UG/L	8.9E-06	mg/kg/day	9.1E-02	1/(mg/kg-day)	8.1E-07	2.6E-05	mg/kg/day	2.0E-02	mg/kg/day	1.3E-03
				Dichloroethene-1,2 trans	4.97E+00	UG/L	4.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.4E-04	mg/kg/day	2.0E-02	mg/kg/day	6.8E-03
				Dichloroethylene-1,2 cis	1.19E+02	UG/L	1.1E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	3.3E-03	mg/kg/day	1.0E-02	mg/kg/day	3.3E-01
				Dichloropropane-1,2	8.64E-01	UG/L	8.1E-06	mg/kg/day	6.8E-02	1/(mg/kg-day)	5.5E-07	2.4E-05	mg/kg/day	2.0E-02	mg/kg/day	1.2E-03
				Ethylbenzene	1.18E+01	UG/L	1.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.2E-04	mg/kg/day	1.0E-01	mg/kg/day	3.2E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	UG/L	3.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	8.8E-04	mg/kg/day	8.0E-02	mg/kg/day	1.1E-02
				Methyl tertiary butyl ether (MTBE)	2.33E+01	UG/L	2.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	6.4E-04	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	8.05E-01	UG/L	7.6E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	4.1E-06	2.2E-05	mg/kg/day	1.0E-02	mg/kg/day	2.2E-03
				Trichloroethane-1,1,2	4.30E-01	UG/L	4.0E-06	mg/kg/day	5.7E-02	1/(mg/kg-day)	2.3E-07	1.2E-05	mg/kg/day	4.0E-03	mg/kg/day	2.9E-03
				Trichloroethylene	2.89E+00	UG/L	2.7E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.1E-05	7.9E-05	mg/kg/day	3.0E-04	mg/kg/day	2.6E-01
				Vinyl chloride	1.41E+01	UG/L	1.3E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.0E-04	3.9E-04	mg/kg/day	3.0E-03	mg/kg/day	1.3E-01
				Xylenes, total	1.88E+01	UG/L	1.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	5.2E-04	mg/kg/day	2.0E-01	mg/kg/day	2.6E-03
			Exp. Route Total								5.1E-02					3.5E+02
			Dermal	Aluminum	1.03E+04	UG/L	2.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	6.3E-04	mg/kg/day	1.0E+00	mg/kg/day	6.3E-04

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TABLE 7.19.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Antimony	5.41E+00	UG/L	1.1E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	3.3E-07	mg/kg/day	6.0E-05	mg/kg/day	5.6E-03
Groundwater	Groundwater	Upper PRM Aquifer	Dermal	Arsenic	3.62E+03	UG/L	7.6E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.1E-04	2.2E-04	mg/kg/day	3.0E-04	mg/kg/day	7.4E-01
(cont.)	(cont.)	- Tap Water (cont.)	(cont.)	Barium	9.65E+03	UG/L	2.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	5.9E-04	mg/kg/day	4.9E-03	mg/kg/day	1.2E-01
				Beryllium	3.87E+00	UG/L	8.2E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	2.4E-07	mg/kg/day	1.4E-05	mg/kg/day	1.7E-02
				Cadmium	1.32E+01	UG/L	2.8E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	8.1E-07	mg/kg/day	1.3E-05	mg/kg/day	6.5E-02
				Chromium	4.45E+01	UG/L	1.9E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	5.5E-06	mg/kg/day	7.5E-05	mg/kg/day	7.3E-02
				Copper	5.22E+01	UG/L	1.1E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	3.2E-06	mg/kg/day	4.0E-02	mg/kg/day	8.0E-05
				Iron	1.18E+05	UG/L	2.5E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	7.2E-03	mg/kg/day	3.0E-01	mg/kg/day	2.4E-02
				Lead	2.85E+01	UG/L	6.0E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-07	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.98E+03	UG/L	4.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-04	mg/kg/day	5.6E-03	mg/kg/day	2.2E-02
				Mercury	2.08E-01	UG/L	4.4E-09	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-08	mg/kg/day	2.1E-05	mg/kg/day	6.1E-04
				Nickel	2.95E+01	UG/L	1.2E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	3.6E-07	mg/kg/day	8.0E-04	mg/kg/day	4.6E-04
				Selenium	7.01E+00	UG/L	1.5E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	4.3E-07	mg/kg/day	5.0E-03	mg/kg/day	8.6E-05
				Thallium	*5.41E+00*	*UG/L*	1.1E-07	*mg/kg/day*	NA	*1/(mg/kg-day)*	NA	3.3E-07	*mg/kg/day*	*9.0E-05*	*mg/kg/day*	3.7E-03
				Vanadium	5.82E+01	UG/L	1.2E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	3.6E-06	mg/kg/day	2.6E-05	mg/kg/day	1.4E-01
				Zinc	1.17E+03	UG/L	1.5E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	4.3E-05	mg/kg/day	3.0E-01	mg/kg/day	1.4E-04
				Chlordane - alpha	2.24E-02	UG/L	2.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.0E-07	8.4E-07	mg/kg/day	5.0E-04	mg/kg/day	1.7E-03
				Dieldrin	2.16E-02	UG/L	9.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.5E-06	2.7E-07	mg/kg/day	5.0E-05	mg/kg/day	5.4E-03
				Heptachlor Epoxide	9.87E-03	UG/L	2.9E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.6E-07	8.4E-08	mg/kg/day	1.3E-05	mg/kg/day	6.5E-03
				Cresol-o	5.09E+01	UG/L	3.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	8.8E-05	mg/kg/day	5.0E-02	mg/kg/day	1.8E-03
				Cresol-p	1.41E+02	UG/L	8.3E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.4E-04	mg/kg/day	5.0E-03	mg/kg/day	4.9E-02
				Ether, bis(2-chloroethyl)	1.50E+01	UG/L	2.6E-06	mg/kg/day	1.1E+00	1/(mg/kg-day)	2.9E-06	7.6E-06	mg/kg/day	NA	mg/kg/day	NA
				Naphthalene	3.60E+02	UG/L	1.5E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	4.3E-03	mg/kg/day	2.0E-02	mg/kg/day	2.2E-01
				Nitrosodiphenylamine-n	1.09E+01	UG/L	2.2E-05	mg/kg/day	4.9E-03	1/(mg/kg-day)	1.1E-07	6.5E-05	mg/kg/day	2.0E-02	mg/kg/day	3.3E-03
				Phenol	9.68E+02	UG/L	2.9E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	8.5E-04	mg/kg/day	3.0E-01	mg/kg/day	2.8E-03
				Benzene	3.39E+01	UG/L	3.2E-05	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.8E-06	9.3E-05	mg/kg/day	4.0E-03	mg/kg/day	2.3E-02
				Chloroethane	1.32E+00	UG/L	4.6E-07	mg/kg/day	2.9E-03	1/(mg/kg-day)	1.3E-09	1.3E-06	mg/kg/day	4.0E-01	mg/kg/day	3.4E-06
				Dichlorobenzene-1,3	6.60E-01	UG/L	3.8E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-05	mg/kg/day	9.0E-04	mg/kg/day	1.2E-02
				Dichlorobenzene-1,4	9.21E-01	UG/L	3.8E-06	mg/kg/day	2.4E-02	1/(mg/kg-day)	9.1E-08	1.1E-05	mg/kg/day	3.0E-02	mg/kg/day	3.7E-04
				Dichloroethane-1,1	1.95E+01	UG/L	9.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	2.7E-05	mg/kg/day	1.0E-01	mg/kg/day	2.7E-04
				Dichloroethane-1,2	9.51E-01	UG/L	2.9E-07	mg/kg/day	9.1E-02	1/(mg/kg-day)	2.6E-08	8.4E-07	mg/kg/day	2.0E-02	mg/kg/day	4.2E-05
				Dichloroethene-1,2 trans	4.97E+00	UG/L	2.7E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	7.9E-06	mg/kg/day	2.0E-02	mg/kg/day	4.0E-04
				Dichloroethylene-1,2 cis	1.19E+02	UG/L	6.5E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-04	mg/kg/day	1.0E-02	mg/kg/day	1.9E-02
				Dichloropropane-1,2	8.64E-01	UG/L	5.3E-07	mg/kg/day	6.8E-02	1/(mg/kg-day)	3.6E-08	1.6E-06	mg/kg/day	2.0E-02	mg/kg/day	7.8E-05
				Ethylbenzene	1.18E+01	UG/L	4.4E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-04	mg/kg/day	1.0E-01	mg/kg/day	1.3E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	UG/L	6.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-05	mg/kg/day	8.0E-02	mg/kg/day	2.3E-04
				Methyl tertiary butyl ether (MTBE)	2.33E+01	UG/L	6.9E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	2.0E-05	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	8.05E-01	UG/L	3.0E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.6E-06	8.6E-06	mg/kg/day	1.0E-02	mg/kg/day	8.6E-04
				Trichloroethane-1,1,2	4.30E-01	UG/L	2.5E-07	mg/kg/day	5.7E-02	1/(mg/kg-day)	1.4E-08	7.3E-07	mg/kg/day	4.0E-03	mg/kg/day	1.8E-04
				Trichloroethylene	2.89E+00	UG/L	3.1E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.2E-06	9.0E-06	mg/kg/day	3.0E-04	mg/kg/day	3.0E-02
				Vinyl chloride	1.41E+01	UG/L	4.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.8E-06	1.3E-05	mg/kg/day	3.0E-03	mg/kg/day	4.4E-03
				Xylenes, total	*1.88E+01*	*UG/L*	7.5E-05	*mg/kg/day*	NA	1/(mg/kg-day)	NA	2.2E-04	mg/kg/day	2.0E-01	mg/kg/day	1.1E-03
			Exp. Route Total								1.3E-04					1.6E+00
		Exposure Point Total									5.1E-02					3.5E+02
	Exposure Medium Total										5.1E-02					3.5E+02
Groundwater	Air	Upper PRM Aquifer	Inhalation	Naphthalene	2.98E+00	mg/m3	8.1E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	2.4E-02	mg/kg/day	8.6E-04	mg/kg/day	2.8E+01
		- Water Vapors at Showerhead		Benzene	2.80E-01	mg/m3	7.6E-04	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.1E-05	2.2E-03	mg/kg/day	8.6E-03	mg/kg/day	2.6E-01

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TABLE 7.19.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater (cont.)	Air (cont.)	Upper PRM Aquifer - Water Vapors at Showerhead (cont.)	Inhalation (cont.)	Chloroethane	1.09E-02	mg/m3	3.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	8.7E-05	mg/kg/day	2.9E+00	mg/kg/day	3.0E-05
				Dichlorobenzene-1,3	5.46E-03	mg/m3	1.5E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	4.3E-05	mg/kg/day	NA	mg/kg/day	NA
				Dichlorobenzene-1,4	7.62E-03	mg/m3	2.1E-05	mg/kg/day	2.2E-02	1/(mg/kg-day)	4.6E-07	6.1E-05	mg/kg/day	2.3E-01	mg/kg/day	2.6E-04
				Dichloroethane-1,1	1.62E-01	mg/m3	4.4E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-03	mg/kg/day	1.4E-01	mg/kg/day	9.0E-03
				Dichloroethane-1,2	7.87E-03	mg/m3	2.1E-05	mg/kg/day	9.1E-02	1/(mg/kg-day)	2.0E-06	6.3E-05	mg/kg/day	1.4E-03	mg/kg/day	4.4E-02
				Dichloroethene-1,2 trans	4.12E-02	mg/m3	1.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.3E-04	mg/kg/day	NA	mg/kg/day	NA
				Dichloroethylene-1,2 cis	9.88E-01	mg/m3	2.7E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	7.8E-03	mg/kg/day	NA	mg/kg/day	NA
				Dichloropropane-1,2	7.15E-03	mg/m3	1.9E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	5.7E-05	mg/kg/day	1.1E-03	mg/kg/day	5.0E-02
				Ethylbenzene	9.74E-02	mg/m3	2.7E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	7.7E-04	mg/kg/day	2.9E-01	mg/kg/day	2.7E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	2.67E-01	mg/m3	7.3E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.1E-03	mg/kg/day	8.6E-01	mg/kg/day	2.5E-03
				Methyl tertiary butyl ether (MTBE)	1.93E-01	mg/m3	5.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-03	mg/kg/day	8.6E-01	mg/kg/day	1.8E-03
				Tetrachloroethylene	6.66E-03	mg/m3	1.8E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	3.8E-07	5.3E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethane-1,1,2	3.56E-03	mg/m3	9.7E-06	mg/kg/day	5.6E-02	1/(mg/kg-day)	5.4E-07	2.8E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethylene	2.40E-02	mg/m3	6.5E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	2.6E-05	1.9E-04	mg/kg/day	1.0E-02	mg/kg/day	1.9E-02
				Vinyl chloride	1.16E-01	mg/m3	3.2E-04	mg/kg/day	1.5E-02	1/(mg/kg-day)	4.9E-06	9.2E-04	mg/kg/day	2.9E-02	mg/kg/day	3.2E-02
				Xylenes, total	1.56E-01	mg/m3	4.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-03	mg/kg/day	2.9E-02	mg/kg/day	4.3E-02
			Exp. Route Total								5.5E-05					2.8E+01
		Exposure Point Total									5.5E-05					2.8E+01
	Exposure Medium Total										5.5E-05					2.8E+01
Upper PRM Aquifer Total											5.2E-02					3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer - Tap Water	Ingestion	Aluminum	3.67E+03	UG/L	3.4E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	1.0E-01	mg/kg/day	1.0E+00	mg/kg/day	1.0E-01
				Antimony	2.90E+00	UG/L	2.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	7.9E-05	mg/kg/day	4.0E-04	mg/kg/day	2.0E-01
				Arsenic	3.50E+00	UG/L	3.3E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.9E-05	9.6E-05	mg/kg/day	3.0E-04	mg/kg/day	3.2E-01
				Barium	2.94E+02	UG/L	2.8E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	8.1E-03	mg/kg/day	7.0E-02	mg/kg/day	1.2E-01
				Cadmium	2.70E+00	UG/L	2.5E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	7.4E-05	mg/kg/day	5.0E-04	mg/kg/day	1.5E-01
				Chromium	1.06E+01	UG/L	1.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.9E-04	mg/kg/day	3.0E-03	mg/kg/day	9.7E-02
				Cobalt	7.52E+01	UG/L	7.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.1E-03	mg/kg/day	2.0E-02	mg/kg/day	1.0E-01
				Copper	2.44E+02	UG/L	2.3E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	6.7E-03	mg/kg/day	4.0E-02	mg/kg/day	1.7E-01
				Iron	1.61E+05	UG/L	1.5E+00	mg/kg/day	NA	1/(mg/kg-day)	NA	4.4E+00	mg/kg/day	3.0E-01	mg/kg/day	1.5E+01
				Lead	1.66E+01	UG/L	1.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	4.5E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	3.44E+03	UG/L	3.2E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	9.4E-02	mg/kg/day	1.4E-01	mg/kg/day	6.7E-01
				Thallium	1.25E+01	UG/L	1.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.4E-04	mg/kg/day	9.0E-05	mg/kg/day	3.8E+00
				Benzene	3.30E-01	UG/L	3.1E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.7E-07	9.0E-06	mg/kg/day	4.0E-03	mg/kg/day	2.3E-03
				Dichloroethane-1,2	8.70E-01	UG/L	8.2E-06	mg/kg/day	9.1E-02	1/(mg/kg-day)	7.4E-07	2.4E-05	mg/kg/day	2.0E-02	mg/kg/day	1.2E-03
				Dichloroethylene-1,2 cis	3.20E+01	UG/L	3.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	8.8E-04	mg/kg/day	1.0E-02	mg/kg/day	8.8E-02
				Dichloropropane-1,2	7.40E-01	UG/L	7.0E-06	mg/kg/day	6.8E-02	1/(mg/kg-day)	4.7E-07	2.0E-05	mg/kg/day	2.0E-02	mg/kg/day	1.0E-03
				Tetrachloroethylene	1.00E+00	UG/L	9.4E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	5.1E-06	2.7E-05	mg/kg/day	1.0E-02	mg/kg/day	2.7E-03
				Trichloroethylene	1.50E+00	UG/L	1.4E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	5.6E-06	4.1E-05	mg/kg/day	3.0E-04	mg/kg/day	1.4E-01
				Vinyl chloride	9.00E+00	UG/L	8.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.3E-04	2.5E-04	mg/kg/day	3.0E-03	mg/kg/day	8.2E-02
			Exp. Route Total								1.9E-04					2.1E+01
Groundwater	Groundwater	Middle PRM Aquifer - Tap Water	Dermal	Aluminum	3.67E+03	UG/L	7.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.3E-04	mg/kg/day	1.0E+00	mg/kg/day	2.3E-04
				Antimony	2.90E+00	UG/L	6.1E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-07	mg/kg/day	6.0E-05	mg/kg/day	3.0E-03
				Arsenic	3.50E+00	UG/L	7.4E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.1E-07	2.2E-07	mg/kg/day	3.0E-04	mg/kg/day	7.2E-04

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TABLE 7.19.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer - Tap Water (cont.)	Dermal (cont.)	Barium	2.94E+02	UG/L	6.2E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-05	mg/kg/day	4.9E-03	mg/kg/day	3.7E-03
				Cadmium	2.70E+00	UG/L	5.7E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.7E-07	mg/kg/day	1.3E-05	mg/kg/day	1.3E-02
				Chromium	1.06E+01	UG/L	4.5E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-06	mg/kg/day	7.5E-05	mg/kg/day	1.7E-02
				Cobalt	7.52E+01	UG/L	6.4E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-06	mg/kg/day	2.0E-02	mg/kg/day	9.3E-05
				Copper	2.44E+02	UG/L	5.2E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-05	mg/kg/day	4.0E-02	mg/kg/day	3.8E-04
				Iron	1.61E+05	UG/L	3.4E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	9.9E-03	mg/kg/day	3.0E-01	mg/kg/day	3.3E-02
				Lead	1.66E+01	UG/L	3.5E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.0E-07	mg/kg/day	NA	mg/kg/day	NA
				Manganese	3.44E+03	UG/L	7.3E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.1E-04	mg/kg/day	5.6E-03	mg/kg/day	3.8E-02
				Thallium	1.25E+01	UG/L	2.6E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	7.7E-07	mg/kg/day	9.0E-05	mg/kg/day	8.6E-03
				Benzene	3.30E-01	UG/L	3.1E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.7E-08	9.1E-07	mg/kg/day	4.0E-03	mg/kg/day	2.3E-04
				Dichloroethane-1,2	8.70E-01	UG/L	2.6E-07	mg/kg/day	9.1E-02	1/(mg/kg-day)	2.4E-08	7.7E-07	mg/kg/day	2.0E-02	mg/kg/day	3.8E-05
				Dichloroethylene-1,2 cis	3.20E+01	UG/L	1.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	5.1E-05	mg/kg/day	1.0E-02	mg/kg/day	5.1E-03
				Dichloropropane-1,2	7.40E-01	UG/L	4.6E-07	mg/kg/day	6.8E-02	1/(mg/kg-day)	3.1E-08	1.3E-06	mg/kg/day	2.0E-02	mg/kg/day	6.7E-05
				Tetrachloroethylene	1.00E+00	UG/L	3.7E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	2.0E-06	1.1E-05	mg/kg/day	1.0E-02	mg/kg/day	1.1E-03
				Trichloroethylene	1.50E+00	UG/L	1.6E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	6.4E-07	4.7E-06	mg/kg/day	3.0E-04	mg/kg/day	1.6E-02
				Vinyl chloride	9.00E+00	UG/L	2.9E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.3E-06	8.4E-06	mg/kg/day	3.0E-03	mg/kg/day	2.8E-03
			Exp. Route Total								7.1E-06					1.4E-01
		Exposure Point Total									2.0E-04					2.1E+01
	Exposure Medium Total										2.0E-04					2.1E+01
Groundwater	Air	Middle PRM Aquifer - Water Vapors at Showerhead	Inhalation	Benzene	2.73E-03	mg/m3	7.4E-06	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.0E-07	2.2E-05	mg/kg/day	8.6E-03	mg/kg/day	2.5E-03
				Dichloroethane-1,2	7.20E-03	mg/m3	2.0E-05	mg/kg/day	9.1E-02	1/(mg/kg-day)	1.8E-06	5.7E-05	mg/kg/day	1.4E-03	mg/kg/day	4.0E-02
				Dichloroethylene-1,2 cis	2.65E-01	mg/m3	7.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.1E-03	mg/kg/day	NA	mg/kg/day	NA
				Dichloropropane-1,2	6.12E-03	mg/m3	1.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	4.9E-05	mg/kg/day	1.1E-03	mg/kg/day	4.3E-02
				Tetrachloroethylene	8.27E-03	mg/m3	2.3E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	4.7E-07	6.6E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethylene	1.24E-02	mg/m3	3.4E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.4E-05	9.9E-05	mg/kg/day	1.0E-02	mg/kg/day	9.9E-03
				Vinyl chloride	7.45E-02	mg/m3	2.0E-04	mg/kg/day	1.5E-02	1/(mg/kg-day)	3.1E-06	5.9E-04	mg/kg/day	2.9E-02	mg/kg/day	2.1E-02
			Exp. Route Total								1.9E-05					1.2E-01
		Exposure Point Total									1.9E-05					1.2E-01
	Exposure Medium Total										1.9E-05					1.2E-01
Middle PRM Aquifer Total											2.1E-04					2.1E+01

NA = Not applicable.

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Table 7.19.RME Supplement A
Calculation of DAevent
Residential Adult, Groundwater
Martin Aaron, Camden, NJ

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
Upper PRM Aquifer									
Aluminum	1.03E+04	1.0E-03	NA	NA	NA	NA	0.25	2.6E-06	1
Antimony	5.41E+00	1.0E-03	NA	NA	NA	NA	0.25	1.4E-09	1
Arsenic	3.62E+03	1.0E-03	NA	NA	NA	NA	0.25	9.0E-07	1
Barium	9.65E+03	1.0E-03	NA	NA	NA	NA	0.25	2.4E-06	1
Beryllium	3.87E+00	1.0E-03	NA	NA	NA	NA	0.25	9.7E-10	1
Cadmium	1.32E+01	1.0E-03	NA	NA	NA	NA	0.25	3.3E-09	1
Chromium	4.45E+01	2.0E-03	NA	NA	NA	NA	0.25	2.2E-08	1
Copper	5.22E+01	1.0E-03	NA	NA	NA	NA	0.25	1.3E-08	1
Iron	1.18E+05	1.0E-03	NA	NA	NA	NA	0.25	2.9E-05	1
Lead	2.85E+01	1.0E-04	NA	NA	NA	NA	0.25	7.1E-10	1
Manganese	1.98E+03	1.0E-03	NA	NA	NA	NA	0.25	5.0E-07	1
Mercury	2.08E-01	1.0E-03	NA	NA	NA	NA	0.25	5.2E-11	1
Nickel	2.95E+01	2.0E-04	NA	NA	NA	NA	0.25	1.5E-09	1
Selenium	7.01E+00	1.0E-03	NA	NA	NA	NA	0.25	1.8E-09	1
Thallium	5.41E+00	1.0E-03	NA	NA	NA	NA	0.25	1.4E-09	1
Vanadium	5.82E+01	1.0E-03	NA	NA	NA	NA	0.25	1.5E-08	1
Zinc	1.17E+03	6.0E-04	NA	NA	NA	NA	0.25	1.8E-07	1
Chlordane - alpha	2.24E-02	3.4E-02	3.0E-01	2.1E+01	5.1E+01	7.0E-01	0.25	3.4E-09	2
Dieldrin	2.16E-02	1.2E-02	1.0E-01	1.5E+01	3.5E+01	8.0E-01	0.25	1.1E-09	2
Heptachlor Epoxide	9.87E-03	8.6E-03	1.0E-01	1.3E+01	3.2E+01	8.0E-01	0.25	3.4E-10	2
Cresol-o	5.09E+01	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	0.25	3.5E-07	2
Cresol-p	1.41E+02	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	0.25	9.9E-07	2
Ether, bis(2-chloroethyl)	1.50E+01	1.8E-03	8.3E-03	6.8E-01	1.6E+00	1.0E+00	0.25	3.1E-08	2
Naphthalene	3.60E+02	4.7E-02	2.0E-01	5.6E-01	1.3E+00	1.0E+00	0.25	1.7E-05	2
Nitrosodiphenylamine-n	1.09E+01	1.5E-02	1.0E-01	1.4E+00	3.3E+00	1.0E+00	0.25	2.6E-07	2
Phenol	9.68E+02	4.3E-03	1.6E-02	3.6E-01	8.6E-01	1.0E+00	0.25	3.5E-06	2
Benzene	3.39E+01	1.5E-02	1.0E-01	2.9E-01	7.0E-01	1.0E+00	0.25	3.8E-07	2
Chloroethane	1.32E+00	6.1E-03	2.1E-02	2.4E-01	5.9E-01	1.0E+00	0.25	5.4E-09	2
Dichlorobenzene-1,3	6.60E-01	5.8E-02	3.0E-01	7.1E-01	1.7E+00	1.0E+00	0.25	4.5E-08	2
Dichlorobenzene-1,4	9.21E-01	4.2E-02	2.0E-01	7.1E-01	1.7E+00	1.0E+00	0.25	4.5E-08	2
Dichloroethane-1,1	1.95E+01	6.7E-03	2.6E-02	3.8E-01	9.2E-01	1.0E+00	0.25	1.1E-07	2
Dichloroethane-1,2	9.51E-01	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.25	3.4E-09	2
Dichloroethene-1,2 trans	4.97E+00	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.25	3.2E-08	2
Dichloroethylene-1,2 cis	1.19E+02	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.25	7.7E-07	2
Dichloropropane-1,2	8.64E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.25	6.3E-09	2
Ethylbenzene	1.18E+01	4.9E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	0.25	5.2E-07	2
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	2.7E-03	1.0E-02	3.9E-01	9.3E-01	1.0E+00	0.25	7.5E-08	2
Methyl tertiary butyl ether (MTBE)	2.33E+01	4.5E-03	1.6E-02	3.3E-01	7.9E-01	1.0E+00	0.25	8.2E-08	2
Tetrachloroethylene	8.05E-01	3.3E-02	2.0E-01	9.1E-01	2.2E+00	1.0E+00	0.25	3.5E-08	2
Trichloroethane-1,1,2	4.30E-01	6.4E-03	2.8E-02	6.0E-01	1.4E+00	1.0E+00	0.25	2.9E-09	2
Trichloroethylene	2.89E+00	1.2E-02	1.0E-01	5.8E-01	1.4E+00	1.0E+00	0.25	3.7E-08	2
Vinyl chloride	1.41E+01	5.6E-03	1.7E-02	2.4E-01	5.7E-01	1.0E+00	0.25	5.3E-08	2
Xylenes, total	1.88E+01	5.3E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	0.25	8.9E-07	2

Table 7.19.RME Supplement A
Calculation of DAevent
Residential Adult, Groundwater
Martin Aaron, Camden, NJ

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
Middle PRM Aquifer									
Aluminum	3.67E+03	1.0E-03	NA	NA	NA	NA	0.25	9.2E-07	1
Antimony	2.90E+00	1.0E-03	NA	NA	NA	NA	0.25	7.3E-10	1
Arsenic	3.50E+00	1.0E-03	NA	NA	NA	NA	0.25	8.8E-10	1
Barium	2.94E+02	1.0E-03	NA	NA	NA	NA	0.25	7.4E-08	1
Cadmium	2.70E+00	1.0E-03	NA	NA	NA	NA	0.25	6.8E-10	1
Chromium	1.06E+01	2.0E-03	NA	NA	NA	NA	0.25	5.3E-09	1
Cobalt	7.52E+01	4.0E-04	NA	NA	NA	NA	0.25	7.5E-09	1
Copper	2.44E+02	1.0E-03	NA	NA	NA	NA	0.25	6.1E-08	1
Iron	1.61E+05	1.0E-03	NA	NA	NA	NA	0.25	4.0E-05	1
Lead	1.66E+01	1.0E-04	NA	NA	NA	NA	0.25	4.2E-10	1
Manganese	3.44E+03	1.0E-03	NA	NA	NA	NA	0.25	8.6E-07	1
Thallium	1.25E+01	1.0E-03	NA	NA	NA	NA	0.25	3.1E-09	1
Benzene	3.30E-01	1.5E-02	1.0E-01	2.9E-01	7.0E-01	1.0E+00	0.25	3.7E-09	2
Dichloroethane-1,2	8.70E-01	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.25	3.1E-09	2
Dichloroethylene-1,2 cis	3.20E+01	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.25	2.1E-07	2
Dichloropropane-1,2	7.40E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.25	5.4E-09	2
Tetrachloroethylene	1.00E+00	3.3E-02	2.0E-01	9.1E-01	2.2E+00	1.0E+00	0.25	4.4E-08	2
Trichloroethylene	1.50E+00	1.2E-02	1.0E-01	5.8E-01	1.4E+00	1.0E+00	0.25	1.9E-08	2
Vinyl chloride	9.00E+00	5.6E-03	1.7E-02	2.4E-01	5.7E-01	1.0E+00	0.25	3.4E-08	2

Inorganics: DAevent (mg/cm2-event) =

Kp x CW x tevent x 0.001 mg/ug x 0.001 l/cm^3 (eq 1)

Organics: DAevent (mg/cm2-event) =

$$\text{If } t_{event} \le t^*, \text{then } DA_{event} = 2 \times FA \times K_p \times C_w \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}} \qquad \text{(eq 2)}$$

$$\text{If } t_{event} \ge t^*, \text{then } DA_{event} = FA \times K_p \times C_w \left[\frac{t_{event}}{1+B} + 2 \times \tau_{event} \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right] \qquad \text{(eq 3)}$$

Notes:

Permeability constants from EPA 2001, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment - Interim).* EPA/540/R/99/005. The default value of 0.001 was assigned to inorganics not listed in this document.

NA - not applicable.

Table 7.19.RME Supplement B
Shower Exposure Concentrations from Upper Glacial Aquifer Groundwater, Andelman Model, as Modified by Schaum
Martin Aaron, Camden, NJ

Chemical	Exposure Point Concentration Cwo (mg/l)	C_{amax} (mg/m^3)	C_a (mg/m^3)
Upper PRM Aquifer			
Naphthalene	3.6E-01	3.8E+00	3.0E+00
Benzene	3.4E-02	3.6E-01	2.8E-01
Chloroethane	1.3E-03	1.4E-02	1.1E-02
Dichlorobenzene-1,3	6.6E-04	7.0E-03	5.5E-03
Dichlorobenzene-1,4	9.2E-04	9.7E-03	7.6E-03
Dichloroethane-1,1	2.0E-02	2.1E-01	1.6E-01
Dichloroethane-1,2	9.5E-04	1.0E-02	7.9E-03
Dichloroethene-1,2 trans	5.0E-03	5.2E-02	4.1E-02
Dichloroethylene-1,2 cis	1.2E-01	1.3E+00	9.9E-01
Dichloropropane-1,2	8.6E-04	9.1E-03	7.2E-03
Ethylbenzene	1.2E-02	1.2E-01	9.7E-02
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.2E-02	3.4E-01	2.7E-01
Methyl tertiary butyl ether (MTBE)	2.3E-02	2.5E-01	1.9E-01
Tetrachloroethylene	8.0E-04	8.5E-03	6.7E-03
Trichloroethane-1,1,2	4.3E-04	4.5E-03	3.6E-03
Trichloroethylene	2.9E-03	3.1E-02	2.4E-02
Vinyl chloride	1.4E-02	1.5E-01	1.2E-01
Xylenes, total	1.9E-02	2.0E-01	1.6E-01
Middle PRM Aquifer			
Benzene	3.3E-04	3.5E-03	2.7E-03
Dichloroethane-1,2	8.7E-04	9.2E-03	7.2E-03
Dichloroethylene-1,2 cis	3.2E-02	3.4E-01	2.6E-01
Dichloropropane-1,2	7.4E-04	7.8E-03	6.1E-03
Tetrachloroethylene	1.0E-03	1.1E-02	8.3E-03
Trichloroethylene	1.5E-03	1.6E-02	1.2E-02
Vinyl chloride	9.0E-03	9.5E-02	7.4E-02

Variables	Units	Exposure Assumptions
Ca = concentration of chemical in air	mg/m^3	Solved by Eq 1
C_{amax} = maximum concentration of chemical in air	mg/m^3	Solved by Eq 2
t_1 = time in shower	hr	2.5E-01
t_2 = time in bathroom after shower	hr	3.3E-01
f = fraction volatilized for chemical	unitless	**9.0E-01**
F_w = shower water flow rate	L/hr	7.5E+02
V_a = bathroom volume	m^3	1.6E+01

Equation 1:	C_a =	$((C_{amax}/2) * t_1 + C_{amax} \cdot t_2) / (t_1 + t_2)$
Equation 2:	C_{amax} =	$(C_w * f * F_w * t_1) / V_a$

Equations and assumptions from Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment, edited by Rhoda G.M. Wang. Macel Dekker, Inc., New York. 1994. Exposure to Volatiles in Domestic Water, Schaum et al., Pages 307-320.

TABLE 7.20.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Upper PRM Aquifer - Tap Water	Ingestion	Aluminum	1.03E+04	UG/L	5.6E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	6.6E-01	mg/kg/day	1.0E+00	mg/kg/day	6.6E-01
				Antimony	5.41E+00	UG/L	3.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.5E-04	mg/kg/day	2.0E-04	mg/kg/day	1.7E+00
				Arsenic	3.62E+03	UG/L	2.0E-02	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.0E-02	2.3E-01	mg/kg/day	5.0E-03	mg/kg/day	4.6E+01
				Barium	9.65E+03	UG/L	5.3E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	6.2E-01	mg/kg/day	7.0E-02	mg/kg/day	8.8E+00
				Beryllium	3.87E+00	UG/L	2.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.5E-04	mg/kg/day	5.0E-03	mg/kg/day	5.0E-02
				Cadmium	1.32E+01	UG/L	7.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	8.4E-04	mg/kg/day	1.0E-03	mg/kg/day	8.4E-01
				Chromium	4.45E+01	UG/L	2.4E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.8E-03	mg/kg/day	2.0E-02	mg/kg/day	1.4E-01
				Copper	5.22E+01	UG/L	2.9E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.3E-03	mg/kg/day	4.0E-02	mg/kg/day	8.3E-02
				Iron	1.18E+05	UG/L	6.4E-01	mg/kg/day	NA	1/(mg/kg-day)	NA	7.5E+00	mg/kg/day	3.0E-01	mg/kg/day	2.5E+01
				Lead	2.85E+01	UG/L	1.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.98E+03	UG/L	1.1E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-01	mg/kg/day	1.4E-01	mg/kg/day	9.0E-01
				Mercury	2.08E-01	UG/L	1.1E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-05	mg/kg/day	3.0E-04	mg/kg/day	4.4E-02
				Nickel	2.95E+01	UG/L	1.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-03	mg/kg/day	2.0E-02	mg/kg/day	9.4E-02
				Selenium	7.01E+00	UG/L	3.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	4.5E-04	mg/kg/day	5.0E-03	mg/kg/day	9.0E-02
				Thallium	5.41E+00	UG/L	3.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.5E-04	mg/kg/day	9.0E-04	mg/kg/day	3.8E-01
				Vanadium	5.82E+01	UG/L	3.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.7E-03	mg/kg/day	7.0E-03	mg/kg/day	5.3E-01
				Zinc	1.17E+03	UG/L	6.4E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	7.5E-02	mg/kg/day	3.0E-01	mg/kg/day	2.5E-01
				Chlordane - alpha	2.24E-02	UG/L	1.2E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.3E-08	1.4E-06	mg/kg/day	6.0E-05	mg/kg/day	2.4E-02
				Dieldrin	2.16E-02	UG/L	1.2E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.9E-06	1.4E-06	mg/kg/day	5.0E-05	mg/kg/day	2.8E-02
				Heptachlor Epoxide	9.87E-03	UG/L	5.4E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	4.9E-07	6.3E-07	mg/kg/day	1.3E-05	mg/kg/day	4.9E-02
				Cresol-o	5.09E+01	UG/L	2.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.3E-03	mg/kg/day	5.0E-01	mg/kg/day	6.5E-03
				Cresol-p	1.41E+02	UG/L	7.7E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	9.0E-03	mg/kg/day	5.0E-03	mg/kg/day	1.8E+00
				Ether, bis(2-chloroethyl)	1.50E+01	UG/L	8.2E-05	mg/kg/day	1.1E+00	1/(mg/kg-day)	9.0E-05	9.6E-04	mg/kg/day	NA	mg/kg/day	NA
				Naphthalene	3.60E+02	UG/L	2.0E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	2.3E-02	mg/kg/day	2.0E-02	mg/kg/day	1.2E+00
				Nitrosodiphenylamine-n	1.09E+01	UG/L	6.0E-05	mg/kg/day	4.9E-03	1/(mg/kg-day)	2.9E-07	6.9E-04	mg/kg/day	2.0E-02	mg/kg/day	3.5E-02
				Phenol	9.68E+02	UG/L	5.3E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	6.2E-02	mg/kg/day	6.0E-01	mg/kg/day	1.0E-01
				Benzene	3.39E+01	UG/L	1.9E-04	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.0E-05	2.2E-03	mg/kg/day	3.0E-03	mg/kg/day	7.2E-01
				Chloroethane	1.32E+00	UG/L	7.2E-06	mg/kg/day	2.9E-03	1/(mg/kg-day)	2.1E-08	8.4E-05	mg/kg/day	4.0E-01	mg/kg/day	2.1E-04
				Dichlorobenzene-1,3	6.60E-01	UG/L	3.6E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	4.2E-05	mg/kg/day	9.0E-04	mg/kg/day	4.7E-02
				Dichlorobenzene-1,4	9.21E-01	UG/L	5.0E-06	mg/kg/day	2.4E-02	1/(mg/kg-day)	1.2E-07	5.9E-05	mg/kg/day	3.0E-02	mg/kg/day	2.0E-03
				Dichloroethane-1,1	1.95E+01	UG/L	1.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-03	mg/kg/day	1.0E+00	mg/kg/day	1.2E-03
				Dichloroethane-1,2	9.51E-01	UG/L	5.2E-06	mg/kg/day	9.1E-02	1/(mg/kg-day)	4.7E-07	6.1E-05	mg/kg/day	2.0E-02	mg/kg/day	3.0E-03
				Dichloroethene-1,2 trans	4.97E+00	UG/L	2.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.2E-04	mg/kg/day	2.0E-01	mg/kg/day	1.6E-03
				Dichloroethylene-1,2 cis	1.19E+02	UG/L	6.5E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	7.6E-03	mg/kg/day	1.0E-01	mg/kg/day	7.6E-02
				Dichloropropane-1,2	8.64E-01	UG/L	4.7E-06	mg/kg/day	6.8E-02	1/(mg/kg-day)	3.2E-07	5.5E-05	mg/kg/day	2.0E-02	mg/kg/day	2.8E-03
				Ethylbenzene	1.18E+01	UG/L	6.4E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	7.5E-04	mg/kg/day	1.0E-01	mg/kg/day	7.5E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	UG/L	1.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.1E-03	mg/kg/day	8.0E-01	mg/kg/day	2.6E-03
				Methyl tertiary butyl ether (MTBE)	2.33E+01	UG/L	1.3E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-03	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	8.05E-01	UG/L	4.4E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	2.4E-06	5.1E-05	mg/kg/day	1.0E-01	mg/kg/day	5.1E-04
				Trichloroethane-1,1,2	4.30E-01	UG/L	2.4E-06	mg/kg/day	5.7E-02	1/(mg/kg-day)	1.3E-07	2.7E-05	mg/kg/day	4.0E-02	mg/kg/day	6.9E-04
				Trichloroethylene	2.89E+00	UG/L	1.6E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	6.3E-06	1.9E-04	mg/kg/day	3.0E-04	mg/kg/day	6.2E-01
				Vinyl chloride	1.41E+01	UG/L	7.7E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.2E-04	9.0E-04	mg/kg/day	3.0E-03	mg/kg/day	3.0E-01
				Xylenes, total	1.88E+01	UG/L	1.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-03	mg/kg/day	2.0E-01	mg/kg/day	6.0E-03
			Exp. Route Total								3.0E-02					9.1E+01
			Dermal	Aluminum	1.03E+04	UG/L	1.7E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.0E-03	mg/kg/day	1.0E+00	mg/kg/day	2.0E-03

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TABLE 7.20.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer - Tap Water (cont.)	Dermal (cont.)	Antimony	5.41E+00	UG/L	8.8E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.0E-06	mg/kg/day	3.0E-05	mg/kg/day	3.4E-02
				Arsenic	3.62E+03	UG/L	5.9E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.8E-05	6.9E-04	mg/kg/day	5.0E-03	mg/kg/day	1.4E-01
				Barium	9.65E+03	UG/L	1.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-03	mg/kg/day	4.9E-03	mg/kg/day	3.7E-01
				Beryllium	3.87E+00	UG/L	6.3E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	7.4E-07	mg/kg/day	3.5E-05	mg/kg/day	2.1E-02
				Cadmium	1.32E+01	UG/L	2.1E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	2.5E-06	mg/kg/day	5.0E-05	mg/kg/day	5.0E-02
				Chromium	4.45E+01	UG/L	1.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.7E-05	mg/kg/day	5.0E-04	mg/kg/day	3.4E-02
				Copper	5.22E+01	UG/L	8.5E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	9.9E-06	mg/kg/day	4.0E-02	mg/kg/day	2.5E-04
				Iron	1.18E+05	UG/L	1.9E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	2.2E-02	mg/kg/day	3.0E-01	mg/kg/day	7.4E-02
				Lead	2.85E+01	UG/L	4.6E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	5.4E-07	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.98E+03	UG/L	3.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.8E-04	mg/kg/day	5.6E-03	mg/kg/day	6.7E-02
				Mercury	2.08E-01	UG/L	3.4E-09	mg/kg/day	NA	1/(mg/kg-day)	NA	3.9E-08	mg/kg/day	2.1E-05	mg/kg/day	1.9E-03
				Nickel	2.95E+01	UG/L	9.6E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-06	mg/kg/day	8.0E-04	mg/kg/day	1.4E-03
				Selenium	7.01E+00	UG/L	1.1E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-06	mg/kg/day	5.0E-03	mg/kg/day	2.7E-04
				Thallium	5.41E+00	UG/L	8.8E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.0E-06	mg/kg/day	9.0E-04	mg/kg/day	1.1E-03
				Vanadium	5.82E+01	UG/L	9.5E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-05	mg/kg/day	1.8E-04	mg/kg/day	6.1E-02
				Zinc	1.17E+03	UG/L	1.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-04	mg/kg/day	3.0E-01	mg/kg/day	4.4E-04
				Chlordane - alpha	2.24E-02	UG/L	1.6E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.8E-08	1.9E-06	mg/kg/day	6.0E-05	mg/kg/day	3.2E-02
				Dieldrin	2.16E-02	UG/L	5.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	8.5E-07	6.2E-07	mg/kg/day	5.0E-05	mg/kg/day	1.2E-02
				Heptachlor Epoxide	9.87E-03	UG/L	1.7E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.5E-07	1.9E-07	mg/kg/day	1.3E-05	mg/kg/day	1.5E-02
				Cresol-o	5.09E+01	UG/L	1.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.0E-04	mg/kg/day	5.0E-01	mg/kg/day	4.0E-04
				Cresol-p	1.41E+02	UG/L	4.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	5.6E-04	mg/kg/day	5.0E-03	mg/kg/day	1.1E-01
				Ether, bis(2-chloroethyl)	1.50E+01	UG/L	1.5E-06	mg/kg/day	1.1E+00	1/(mg/kg-day)	1.6E-06	1.7E-05	mg/kg/day	NA	mg/kg/day	NA
				Naphthalene	3.60E+02	UG/L	8.5E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	9.9E-03	mg/kg/day	2.0E-02	mg/kg/day	5.0E-01
				Nitrosodiphenylamine-n	1.09E+01	UG/L	1.3E-05	mg/kg/day	4.9E-03	1/(mg/kg-day)	6.3E-08	1.5E-04	mg/kg/day	2.0E-02	mg/kg/day	7.5E-03
				Phenol	9.68E+02	UG/L	1.7E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.0E-03	mg/kg/day	6.0E-01	mg/kg/day	3.3E-03
				Benzene	3.39E+01	UG/L	1.8E-05	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.0E-06	2.1E-04	mg/kg/day	3.0E-03	mg/kg/day	7.1E-02
				Chloroethane	1.32E+00	UG/L	2.6E-07	mg/kg/day	2.9E-03	1/(mg/kg-day)	7.6E-10	3.1E-06	mg/kg/day	4.0E-01	mg/kg/day	7.7E-06
				Dichlorobenzene-1,3	6.60E-01	UG/L	2.2E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	2.5E-05	mg/kg/day	9.0E-04	mg/kg/day	2.8E-02
				Dichlorobenzene-1,4	9.21E-01	UG/L	2.2E-06	mg/kg/day	2.4E-02	1/(mg/kg-day)	5.2E-08	2.6E-05	mg/kg/day	3.0E-02	mg/kg/day	8.5E-04
				Dichloroethane-1,1	1.95E+01	UG/L	5.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	6.3E-05	mg/kg/day	1.0E+00	mg/kg/day	6.3E-05
				Dichloroethane-1,2	9.51E-01	UG/L	1.7E-07	mg/kg/day	9.1E-02	1/(mg/kg-day)	1.5E-08	1.9E-06	mg/kg/day	2.0E-02	mg/kg/day	9.6E-05
				Dichloroethene-1,2 trans	4.97E+00	UG/L	1.6E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-05	mg/kg/day	2.0E-02	mg/kg/day	9.1E-04
				Dichloroethylene-1,2 cis	1.19E+02	UG/L	3.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	4.4E-04	mg/kg/day	1.0E-01	mg/kg/day	4.4E-03
				Dichloropropane-1,2	8.64E-01	UG/L	3.1E-07	mg/kg/day	6.8E-02	1/(mg/kg-day)	2.1E-08	3.6E-06	mg/kg/day	2.0E-02	mg/kg/day	1.8E-04
				Ethylbenzene	1.18E+01	UG/L	2.5E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.9E-04	mg/kg/day	1.0E-01	mg/kg/day	2.9E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	UG/L	3.6E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	4.3E-05	mg/kg/day	8.0E-01	mg/kg/day	5.3E-05
				Methyl tertiary butyl ether (MTBE)	2.33E+01	UG/L	4.0E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	4.7E-05	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	8.05E-01	UG/L	1.7E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	9.2E-07	2.0E-05	mg/kg/day	1.0E-01	mg/kg/day	2.0E-04
				Trichloroethane-1,1,2	4.30E-01	UG/L	1.4E-07	mg/kg/day	5.7E-02	1/(mg/kg-day)	8.1E-09	1.7E-06	mg/kg/day	4.0E-02	mg/kg/day	4.2E-05
				Trichloroethylene	2.89E+00	UG/L	1.8E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	7.1E-07	2.1E-05	mg/kg/day	3.0E-04	mg/kg/day	6.9E-02
				Vinyl chloride	1.41E+01	UG/L	2.6E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.9E-06	3.0E-05	mg/kg/day	3.0E-03	mg/kg/day	1.0E-02
				Xylenes, total	1.88E+01	UG/L	4.3E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	5.1E-04	mg/kg/day	2.0E-01	mg/kg/day	2.5E-03
			Exp. Route Total								9.8E-05					1.7E+00
		Exposure Point Total									3.0E-02					9.3E+01
	Exposure Medium Total										3.0E-02					9.3E+01
	Air	Upper PRM Aquifer - Water Vapors at Showerhead	Inhalation	Naphthalene	5.29E+00	mg/m3	2.9E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	3.4E-01	mg/kg/day	8.6E-04	mg/kg/day	3.9E+02
				Benzene	4.98E-01	mg/m3	2.7E-03	mg/kg/day	2.7E-02	1/(mg/kg-day)	7.5E-05	3.2E-02	mg/kg/day	1.7E-02	mg/kg/day	1.9E+00

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TABLE 7.20.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater (cont.)	Air (cont.)	Upper PRM Aquifer - Water Vapors at Showerhead (cont.)	Inhalation (cont.)	Chloroethane	1.94E-02	mg/m3	1.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-03	mg/kg/day	2.9E+00	mg/kg/day	4.3E-04
				Dichlorobenzene-1,3	9.71E-03	mg/m3	5.3E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	6.2E-04	mg/kg/day	NA	mg/kg/day	NA
				Dichlorobenzene-1,4	1.36E-02	mg/m3	7.4E-05	mg/kg/day	2.2E-02	1/(mg/kg-day)	1.6E-06	8.7E-04	mg/kg/day	2.3E-01	mg/kg/day	3.8E-03
				Dichloroethane-1,1	2.87E-01	mg/m3	1.6E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.6E-02	mg/kg/day	1.4E+00	mg/kg/day	1.3E-02
				Dichloroethane-1,2	1.40E-02	mg/m3	7.7E-05	mg/kg/day	9.1E-02	1/(mg/kg-day)	7.0E-06	8.9E-04	mg/kg/day	1.4E-03	mg/kg/day	6.3E-01
				Dichloroethene-1,2 trans	7.32E-02	mg/m3	4.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	4.7E-03	mg/kg/day	NA	mg/kg/day	NA
				Dichloroethylene-1,2 cis	1.76E+00	mg/m3	9.6E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-01	mg/kg/day	NA	mg/kg/day	NA
				Dichloropropane-1,2	1.27E-02	mg/m3	7.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	8.1E-04	mg/kg/day	3.7E-03	mg/kg/day	2.2E-01
				Ethylbenzene	1.73E-01	mg/m3	9.5E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-02	mg/kg/day	2.9E-01	mg/kg/day	3.9E-02
				Methyl isobutyl ketone (4-methyl-2-pentanone)	4.74E-01	mg/m3	2.6E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	3.0E-02	mg/kg/day	8.6E-01	mg/kg/day	3.5E-02
				Methyl tertiary butyl ether (MTBE)	3.42E-01	mg/m3	1.9E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	2.2E-02	mg/kg/day	8.6E-01	mg/kg/day	2.6E-02
				Tetrachloroethylene	1.18E-02	mg/m3	6.5E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.4E-06	7.6E-04	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethane-1,1,2	6.33E-03	mg/m3	3.5E-05	mg/kg/day	5.6E-02	1/(mg/kg-day)	1.9E-06	4.0E-04	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethylene	4.26E-02	mg/m3	2.3E-04	mg/kg/day	4.0E-01	1/(mg/kg-day)	9.3E-05	2.7E-03	mg/kg/day	1.0E-02	mg/kg/day	2.7E-01
				Vinyl chloride	2.07E-01	mg/m3	1.1E-03	mg/kg/day	1.5E-02	1/(mg/kg-day)	1.7E-05	1.3E-02	mg/kg/day	2.9E-02	mg/kg/day	4.6E-01
				Xylenes, total	2.77E-01	mg/m3	1.5E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-02	mg/kg/day	2.9E-02	mg/kg/day	6.2E-01
			Exp. Route Total								2.0E-04					4.0E+02
		Exposure Point Total									2.0E-04					4.0E+02
	Exposure Medium Total										2.0E-04					4.0E+02
Upper PRM Aquifer Total											3.0E-02					4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer - Tap Water	Ingestion	Aluminum	3.67E+03	UG/L	2.0E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	2.3E-01	mg/kg/day	1.0E+00	mg/kg/day	2.3E-01
				Antimony	2.90E+00	UG/L	1.6E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-04	mg/kg/day	2.0E-04	mg/kg/day	9.3E-01
				Arsenic	3.50E+00	UG/L	1.9E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.9E-05	2.2E-04	mg/kg/day	5.0E-03	mg/kg/day	4.5E-02
				Barium	2.94E+02	UG/L	1.6E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-02	mg/kg/day	7.0E-02	mg/kg/day	2.7E-01
				Cadmium	2.70E+00	UG/L	1.5E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.7E-04	mg/kg/day	1.0E-03	mg/kg/day	1.7E-01
				Chromium	1.06E+01	UG/L	5.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	6.8E-04	mg/kg/day	2.0E-02	mg/kg/day	3.4E-02
				Cobalt	7.52E+01	UG/L	4.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	4.8E-03	mg/kg/day	2.0E-02	mg/kg/day	2.4E-01
				Copper	2.44E+02	UG/L	1.3E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.6E-02	mg/kg/day	4.0E-02	mg/kg/day	3.9E-01
				Iron	1.61E+05	UG/L	8.8E-01	mg/kg/day	NA	1/(mg/kg-day)	NA	1.0E+01	mg/kg/day	3.0E-01	mg/kg/day	3.4E+01
				Lead	1.66E+01	UG/L	9.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	3.44E+03	UG/L	1.9E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	2.2E-01	mg/kg/day	1.4E-01	mg/kg/day	1.6E+00
				Thallium	1.25E+01	UG/L	6.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	8.0E-04	mg/kg/day	9.0E-04	mg/kg/day	8.9E-01
				Benzene	3.30E-01	UG/L	1.8E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	9.9E-08	2.1E-05	mg/kg/day	3.0E-03	mg/kg/day	7.0E-03
				Dichloroethane-1,2	8.70E-01	UG/L	4.8E-06	mg/kg/day	9.1E-02	1/(mg/kg-day)	4.3E-07	5.6E-05	mg/kg/day	2.0E-02	mg/kg/day	2.8E-03
				Dichloroethylene-1,2 cis	3.20E+01	UG/L	1.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.0E-03	mg/kg/day	1.0E-01	mg/kg/day	2.0E-02
				Dichloropropane-1,2	7.40E-01	UG/L	4.1E-06	mg/kg/day	6.8E-02	1/(mg/kg-day)	2.8E-07	4.7E-05	mg/kg/day	2.0E-02	mg/kg/day	2.4E-03
				Tetrachloroethylene	1.00E+00	UG/L	5.5E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	3.0E-06	6.4E-05	mg/kg/day	1.0E-01	mg/kg/day	6.4E-04
				Trichloroethylene	1.50E+00	UG/L	8.2E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.3E-06	9.6E-05	mg/kg/day	3.0E-04	mg/kg/day	3.2E-01
				Vinyl chloride	9.00E+00	UG/L	4.9E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	7.4E-05	5.8E-04	mg/kg/day	3.0E-03	mg/kg/day	1.9E-01
			Exp. Route Total								1.1E-04					4.0E+01
Groundwater	Groundwater	Middle PRM Aquifer - Tap Water	Dermal	Aluminum	3.67E+03	UG/L	6.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	7.0E-04	mg/kg/day	1.0E+00	mg/kg/day	7.0E-04
				Antimony	2.90E+00	UG/L	4.7E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	5.5E-07	mg/kg/day	3.0E-05	mg/kg/day	1.8E-02
				Arsenic	3.50E+00	UG/L	5.7E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.5E-08	6.6E-07	mg/kg/day	5.0E-03	mg/kg/day	1.3E-04

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TABLE 7.20.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer - Tap Water (cont.)	Dermal (cont.)	Barium	2.94E+02	UG/L	4.8E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	5.6E-05	mg/kg/day	4.9E-03	mg/kg/day	1.1E-02
				Cadmium	2.70E+00	UG/L	4.4E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	5.1E-07	mg/kg/day	5.0E-05	mg/kg/day	1.0E-02
				Chromium	1.06E+01	UG/L	3.5E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	4.0E-06	mg/kg/day	5.0E-04	mg/kg/day	8.1E-03
				Cobalt	7.52E+01	UG/L	4.9E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	5.7E-06	mg/kg/day	2.0E-02	mg/kg/day	2.9E-04
				Copper	2.44E+02	UG/L	4.0E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	4.6E-05	mg/kg/day	4.0E-02	mg/kg/day	1.2E-03
				Iron	1.61E+05	UG/L	2.6E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	3.1E-02	mg/kg/day	3.0E-01	mg/kg/day	1.0E-01
				Lead	1.66E+01	UG/L	2.7E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	3.2E-07	mg/kg/day	NA	mg/kg/day	NA
				Manganese	3.44E+03	UG/L	5.6E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	6.5E-04	mg/kg/day	5.6E-03	mg/kg/day	1.2E-01
				Thallium	1.25E+01	UG/L	2.0E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	2.4E-06	mg/kg/day	9.0E-04	mg/kg/day	2.6E-03
				Benzene	3.30E-01	UG/L	1.8E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	9.8E-09	2.1E-06	mg/kg/day	3.0E-03	mg/kg/day	7.0E-04
				Dichloroethane-1,2	8.70E-01	UG/L	1.5E-07	mg/kg/day	9.1E-02	1/(mg/kg-day)	1.4E-08	1.8E-06	mg/kg/day	2.0E-02	mg/kg/day	8.8E-05
				Dichloroethylene-1,2 cis	3.20E+01	UG/L	1.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-04	mg/kg/day	1.0E-01	mg/kg/day	1.2E-03
				Dichloropropane-1,2	7.40E-01	UG/L	2.6E-07	mg/kg/day	6.8E-02	1/(mg/kg-day)	1.8E-08	3.1E-06	mg/kg/day	2.0E-02	mg/kg/day	1.5E-04
				Tetrachloroethylene	1.00E+00	UG/L	2.1E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.1E-06	2.5E-05	mg/kg/day	1.0E-01	mg/kg/day	2.5E-04
				Trichloroethylene	1.50E+00	UG/L	9.2E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.7E-07	1.1E-05	mg/kg/day	3.0E-04	mg/kg/day	3.6E-02
				Vinyl chloride	9.00E+00	UG/L	1.7E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.5E-06	1.9E-05	mg/kg/day	3.0E-03	mg/kg/day	6.4E-03
			Exp. Route Total								4.1E-06					3.2E-01
		Exposure Point Total									1.1E-04					4.0E+01
	Exposure Medium Total										1.1E-04					4.0E+01
	Air	Middle PRM Aquifer - Water Vapors at Showerhead	Inhalation	Benzene	4.86E-03	mg/m3	2.7E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	7.3E-07	3.1E-04	mg/kg/day	1.7E-02	mg/kg/day	1.8E-02
				Dichloroethane-1,2	1.28E-02	mg/m3	7.0E-05	mg/kg/day	9.1E-02	1/(mg/kg-day)	6.4E-06	8.2E-04	mg/kg/day	1.4E-03	mg/kg/day	5.7E-01
				Dichloroethylene-1,2 cis	4.71E-01	mg/m3	2.6E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	3.0E-02	mg/kg/day	NA	mg/kg/day	NA
				Dichloropropane-1,2	1.09E-02	mg/m3	6.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	7.0E-04	mg/kg/day	3.7E-03	mg/kg/day	1.9E-01
				Tetrachloroethylene	1.47E-02	mg/m3	8.1E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.7E-06	9.4E-04	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethylene	2.21E-02	mg/m3	1.2E-04	mg/kg/day	4.0E-01	1/(mg/kg-day)	4.8E-05	1.4E-03	mg/kg/day	1.0E-02	mg/kg/day	1.4E-01
				Vinyl chloride	1.32E-01	mg/m3	7.3E-04	mg/kg/day	1.5E-02	1/(mg/kg-day)	1.1E-05	8.5E-03	mg/kg/day	2.9E-02	mg/kg/day	3.0E-01
			Exp. Route Total								6.8E-05					1.2E+00
		Exposure Point Total									6.8E-05					1.2E+00
	Exposure Medium Total										6.8E-05					1.2E+00
Middle PRM Aquifer Total											1.8E-04					4.1E+01

NA = Not applicable.

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Table 7.20.RME Supplement A
Calculation of DAevent
Residential Child, Groundwater
Martin Aaron, Camden, NJ

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
Upper PRM Aquifer									
Aluminum	1.03E+04	1.0E-03	NA	NA	NA	NA	0.45	4.6E-06	1
Antimony	5.41E+00	1.0E-03	NA	NA	NA	NA	0.45	2.4E-09	1
Arsenic	3.62E+03	1.0E-03	NA	NA	NA	NA	0.45	1.6E-06	1
Barium	9.65E+03	1.0E-03	NA	NA	NA	NA	0.45	4.3E-06	1
Beryllium	3.87E+00	1.0E-03	NA	NA	NA	NA	0.45	1.7E-09	1
Cadmium	1.32E+01	1.0E-03	NA	NA	NA	NA	0.45	5.9E-09	1
Chromium	4.45E+01	2.0E-03	NA	NA	NA	NA	0.45	4.0E-08	1
Copper	5.22E+01	1.0E-03	NA	NA	NA	NA	0.45	2.3E-08	1
Iron	1.18E+05	1.0E-03	NA	NA	NA	NA	0.45	5.3E-05	1
Lead	2.85E+01	1.0E-04	NA	NA	NA	NA	0.45	1.3E-09	1
Manganese	1.98E+03	1.0E-03	NA	NA	NA	NA	0.45	8.9E-07	1
Mercury	2.08E-01	1.0E-03	NA	NA	NA	NA	0.45	9.3E-11	1
Nickel	2.95E+01	2.0E-04	NA	NA	NA	NA	0.45	2.7E-09	1
Selenium	7.01E+00	1.0E-03	NA	NA	NA	NA	0.45	3.2E-09	1
Thallium	5.41E+00	1.0E-03	NA	NA	NA	NA	0.45	2.4E-09	1
Vanadium	5.82E+01	1.0E-03	NA	NA	NA	NA	0.45	2.6E-08	1
Zinc	1.17E+03	6.0E-04	NA	NA	NA	NA	0.45	3.2E-07	1
Chlordane - alpha	2.24E-02	3.4E-02	3.0E-01	2.1E+01	5.1E+01	7.0E-01	0.45	4.6E-09	2
Dieldrin	2.16E-02	1.2E-02	1.0E-01	1.5E+01	3.5E+01	8.0E-01	0.45	1.5E-09	2
Heptachlor Epoxide	9.87E-03	8.6E-03	1.0E-01	1.3E+01	3.2E+01	8.0E-01	0.45	4.6E-10	2
Cresol-o	5.09E+01	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	0.45	4.8E-07	2
Cresol-p	1.41E+02	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	0.45	1.3E-06	2
Ether, bis(2-chloroethyl)	1.50E+01	1.8E-03	8.3E-03	6.8E-01	1.6E+00	1.0E+00	0.45	4.1E-08	2
Naphthalene	3.60E+02	4.7E-02	2.0E-01	5.6E-01	1.3E+00	1.0E+00	0.45	2.3E-05	2
Nitrosodiphenylamine-n	1.09E+01	1.5E-02	1.0E-01	1.4E+00	3.3E+00	1.0E+00	0.45	3.6E-07	2
Phenol	9.68E+02	4.3E-03	1.6E-02	3.6E-01	8.6E-01	1.0E+00	0.45	4.6E-06	2
Benzene	3.39E+01	1.5E-02	1.0E-01	2.9E-01	7.0E-01	1.0E+00	0.45	5.1E-07	2
Chloroethane	1.32E+00	6.1E-03	2.1E-02	2.4E-01	5.9E-01	1.0E+00	0.45	7.3E-09	2
Dichlorobenzene-1,3	6.60E-01	5.8E-02	3.0E-01	7.1E-01	1.7E+00	1.0E+00	0.45	6.0E-08	2
Dichlorobenzene-1,4	9.21E-01	4.2E-02	2.0E-01	7.1E-01	1.7E+00	1.0E+00	0.45	6.0E-08	2
Dichloroethane-1,1	1.95E+01	6.7E-03	2.6E-02	3.8E-01	9.2E-01	1.0E+00	0.45	1.5E-07	2
Dichloroethane-1,2	9.51E-01	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.45	4.6E-09	2
Dichloroethene-1,2 trans	4.97E+00	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.45	4.3E-08	2
Dichloroethylene-1,2 cis	1.19E+02	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.45	1.0E-06	2
Dichloropropane-1,2	8.64E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.45	8.5E-09	2
Ethylbenzene	1.18E+01	4.9E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	0.45	6.9E-07	2
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	2.7E-03	1.0E-02	3.9E-01	9.3E-01	1.0E+00	0.45	1.0E-07	2
Methyl tertiary butyl ether (MTBE)	2.33E+01	4.5E-03	1.6E-02	3.3E-01	7.9E-01	1.0E+00	0.45	1.1E-07	2
Tetrachloroethylene	8.05E-01	3.3E-02	2.0E-01	9.1E-01	2.2E+00	1.0E+00	0.45	4.7E-08	2
Trichloroethane-1,1,2	4.30E-01	6.4E-03	2.8E-02	6.0E-01	1.4E+00	1.0E+00	0.45	4.0E-09	2
Trichloroethylene	2.89E+00	1.2E-02	1.0E-01	5.8E-01	1.4E+00	1.0E+00	0.45	4.9E-08	2
Vinyl chloride	1.41E+01	5.6E-03	1.7E-02	2.4E-01	5.7E-01	1.0E+00	0.45	7.155E-08	2
Xylenes, total	1.88E+01	5.3E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	0.45	1.2E-06	2

Table 7.20.RME Supplement A
Calculation of DAevent
Residential Child, Groundwater
Martin Aaron, Camden, NJ

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
Middle PRM Aquifer									
Aluminum	3.67E+03	1.0E-03	NA	NA	NA	NA	0.45	1.7E-06	1
Antimony	2.90E+00	1.0E-03	NA	NA	NA	NA	0.45	1.3E-09	1
Arsenic	3.50E+00	1.0E-03	NA	NA	NA	NA	0.45	1.6E-09	1
Barium	2.94E+02	1.0E-03	NA	NA	NA	NA	0.45	1.3E-07	1
Cadmium	2.70E+00	1.0E-03	NA	NA	NA	NA	0.45	1.2E-09	1
Chromium	1.06E+01	2.0E-03	NA	NA	NA	NA	0.45	9.5E-09	1
Cobalt	7.52E+01	4.0E-04	NA	NA	NA	NA	0.45	1.4E-08	1
Copper	2.44E+02	1.0E-03	NA	NA	NA	NA	0.45	1.1E-07	1
Iron	1.61E+05	1.0E-03	NA	NA	NA	NA	0.45	7.2E-05	1
Lead	1.66E+01	1.0E-04	NA	NA	NA	NA	0.45	7.5E-10	1
Manganese	3.44E+03	1.0E-03	NA	NA	NA	NA	0.45	1.5E-06	1
Thallium	1.25E+01	1.0E-03	NA	NA	NA	NA	0.45	5.6E-09	1
Benzene	3.30E-01	1.5E-02	1.0E-01	2.9E-01	7.0E-01	1.0E+00	0.45	4.9E-09	2
Dichloroethane-1,2	8.70E-01	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.45	4.2E-09	2
Dichloroethylene-1,2 cis	3.20E+01	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.45	2.8E-07	2
Dichloropropane-1,2	7.40E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.45	7.3E-09	2
Tetrachloroethylene	1.00E+00	3.3E-02	2.0E-01	9.1E-01	2.2E+00	1.0E+00	0.45	5.8E-08	2
Trichloroethylene	1.50E+00	1.2E-02	1.0E-01	5.8E-01	1.4E+00	1.0E+00	0.45	2.5E-08	2
Vinyl chloride	9.00E+00	5.6E-03	1.7E-02	2.4E-01	5.7E-01	1.0E+00	0.45	4.6E-08	2

Inorganics: DAevent (mg/cm2-event) =

Kp x CW x tevent x 0.001 mg/ug x 0.001 l/cm^3 (eq 1)

Organics: DAevent (mg/cm2-event) =

$$\text{If } t_{event} \le t^*, \text{then } DA_{event} = 2 \times FA \times K_p \times C_w \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}} \qquad \text{(eq 2)}$$

$$\text{If } t_{event} \ge t^*, \text{then } DA_{event} = FA \times K_p \times C_w \left[\frac{t_{event}}{1+B} + 2 \times \tau_{event} \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right] \qquad \text{(eq 3)}$$

Notes:

Permeability constants from EPA 2001, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment - Interim)*. EPA/540/R/99/005. The default value of 0.001 was assigned to inorganics not listed in this document.

NA - not applicable.

Table 7.20.RME Supplement B
Shower Exposure Concentrations from Upper Glacial Aquifer Groundwater, Andelman Model, as Modified by Schaum
Martin Aaron, Camden, NJ

Chemical	Exposure Point Concentration Cwo (mg/l)	C_{amax} (mg/m^3)	C_a (mg/m^3)
Upper PRM Aquifer			
Naphthalene	3.6E-01	6.8E+00	5.3E+00
Benzene	3.4E-02	6.4E-01	5.0E-01
Chloroethane	1.3E-03	2.5E-02	1.9E-02
Dichlorobenzene-1,3	6.6E-04	1.3E-02	9.7E-03
Dichlorobenzene-1,4	9.2E-04	1.7E-02	1.4E-02
Dichloroethane-1,1	2.0E-02	3.7E-01	2.9E-01
Dichloroethane-1,2	9.5E-04	1.8E-02	1.4E-02
Dichloroethene-1,2 trans	5.0E-03	9.4E-02	7.3E-02
Dichloroethylene-1,2 cis	1.2E-01	2.3E+00	1.8E+00
Dichloropropane-1,2	8.6E-04	1.6E-02	1.3E-02
Ethylbenzene	1.2E-02	2.2E-01	1.7E-01
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.2E-02	6.1E-01	4.7E-01
Methyl tertiary butyl ether (MTBE)	2.3E-02	4.4E-01	3.4E-01
Tetrachloroethylene	8.0E-04	1.5E-02	1.2E-02
Trichloroethane-1,1,2	4.3E-04	8.2E-03	6.3E-03
Trichloroethylene	2.9E-03	5.5E-02	4.3E-02
Vinyl chloride	1.4E-02	2.7E-01	2.1E-01
Xylenes, total	1.9E-02	3.6E-01	2.8E-01
Middle PRM Aquifer			
Benzene	3.3E-04	6.3E-03	4.9E-03
Dichloroethane-1,2	8.7E-04	1.7E-02	1.3E-02
Dichloroethylene-1,2 cis	3.2E-02	6.1E-01	4.7E-01
Dichloropropane-1,2	7.4E-04	1.4E-02	1.1E-02
Tetrachloroethylene	1.0E-03	1.9E-02	1.5E-02
Trichloroethylene	1.5E-03	2.8E-02	2.2E-02
Vinyl chloride	9.0E-03	1.7E-01	1.3E-01

Variables	Units	Exposure Assumptions
Ca = concentration of chemical in air	mg/m^3	Solved by Eq 1
C_{amax} = maximum concentration of chemical in air	mg/m^3	Solved by Eq 2
t_1 = time in shower	hr	4.5E-01
t_2 = time in bathroom after shower	hr	5.5E-01
f = fraction volatilized for chemical	unitless	**9.0E-01**
F_w = shower water flow rate	L/hr	7.5E+02
V_a = bathroom volume	m^3	1.6E+01

Equation 1:	C_a =	$((C_{amax}/2) * t_1 + C_{amax} \cdot t_2) / (t_1 + t_2)$
Equation 2:	C_{amax} =	$(C_w * f * F_w * t_1) / V_a$

Equations and assumptions from Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment, edited by Rhoda G.M. Wang. Macel Dekker, Inc., New York. 1994. Exposure to Volatiles in Domestic Water, Schaum et al., Pages

TABLE 7.21.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Upper PRM Aquifer - Tap Water	Ingestion	Aluminum	1.03E+04	UG/L	3.6E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	1.0E-01	mg/kg/day	1.0E+00	mg/kg/day	1.0E-01
				Antimony	5.41E+00	UG/L	1.9E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	5.3E-05	mg/kg/day	4.0E-04	mg/kg/day	1.3E-01
				Arsenic	3.62E+03	UG/L	1.3E-02	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.9E-02	3.5E-02	mg/kg/day	3.0E-04	mg/kg/day	1.2E+02
				Barium	9.65E+03	UG/L	3.4E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	9.4E-02	mg/kg/day	7.0E-02	mg/kg/day	1.3E+00
				Beryllium	3.87E+00	UG/L	1.4E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.8E-05	mg/kg/day	2.0E-03	mg/kg/day	1.9E-02
				Cadmium	1.32E+01	UG/L	4.6E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-04	mg/kg/day	5.0E-04	mg/kg/day	2.6E-01
				Chromium	4.45E+01	UG/L	1.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	4.4E-04	mg/kg/day	3.0E-03	mg/kg/day	1.5E-01
				Copper	5.22E+01	UG/L	1.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	5.1E-04	mg/kg/day	4.0E-02	mg/kg/day	1.3E-02
				Iron	1.18E+05	UG/L	4.1E-01	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E+00	mg/kg/day	3.0E-01	mg/kg/day	3.8E+00
				Lead	2.85E+01	UG/L	1.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.8E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.98E+03	UG/L	6.9E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-02	mg/kg/day	1.4E-01	mg/kg/day	1.4E-01
				Mercury	2.08E-01	UG/L	7.3E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	2.0E-06	mg/kg/day	3.0E-04	mg/kg/day	6.8E-03
				Nickel	2.95E+01	UG/L	1.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.9E-04	mg/kg/day	2.0E-02	mg/kg/day	1.4E-02
				Selenium	7.01E+00	UG/L	2.5E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	6.9E-05	mg/kg/day	5.0E-03	mg/kg/day	1.4E-02
				Thallium	5.41E+00	UG/L	1.9E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	5.3E-05	mg/kg/day	9.0E-05	mg/kg/day	5.9E-01
				Vanadium	5.82E+01	UG/L	2.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	5.7E-04	mg/kg/day	1.0E-03	mg/kg/day	5.7E-01
				Zinc	1.17E+03	UG/L	4.1E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-02	mg/kg/day	3.0E-01	mg/kg/day	3.8E-02
				Chlordane - alpha	2.24E-02	UG/L	7.8E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.7E-08	2.2E-07	mg/kg/day	5.0E-04	mg/kg/day	4.4E-04
				Dieldrin	2.16E-02	UG/L	7.6E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.2E-06	2.1E-07	mg/kg/day	5.0E-05	mg/kg/day	4.2E-03
				Heptachlor Epoxide	9.87E-03	UG/L	3.4E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	3.1E-07	9.7E-08	mg/kg/day	1.3E-05	mg/kg/day	7.4E-03
				Cresol-o	5.09E+01	UG/L	1.8E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	5.0E-04	mg/kg/day	5.0E-02	mg/kg/day	1.0E-02
				Cresol-p	1.41E+02	UG/L	4.9E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.4E-03	mg/kg/day	5.0E-03	mg/kg/day	2.8E-01
				Ether, bis(2-chloroethyl)	1.50E+01	UG/L	5.2E-05	mg/kg/day	1.1E+00	1/(mg/kg-day)	5.8E-05	1.5E-04	mg/kg/day	NA	mg/kg/day	NA
				Naphthalene	3.60E+02	UG/L	1.3E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	3.5E-03	mg/kg/day	2.0E-02	mg/kg/day	1.8E-01
				Nitrosodiphenylamine-n	1.09E+01	UG/L	3.8E-05	mg/kg/day	4.9E-03	1/(mg/kg-day)	1.9E-07	1.1E-04	mg/kg/day	2.0E-02	mg/kg/day	5.3E-03
				Phenol	9.68E+02	UG/L	3.4E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	9.5E-03	mg/kg/day	3.0E-01	mg/kg/day	3.2E-02
				Benzene	3.39E+01	UG/L	1.2E-04	mg/kg/day	5.5E-02	1/(mg/kg-day)	6.5E-06	3.3E-04	mg/kg/day	4.0E-03	mg/kg/day	8.3E-02
				Chloroethane	1.32E+00	UG/L	4.6E-06	mg/kg/day	2.9E-03	1/(mg/kg-day)	1.3E-08	1.3E-05	mg/kg/day	4.0E-01	mg/kg/day	3.2E-05
				Dichlorobenzene-1,3	6.60E-01	UG/L	2.3E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	6.5E-06	mg/kg/day	9.0E-04	mg/kg/day	7.2E-03
				Dichlorobenzene-1,4	9.21E-01	UG/L	3.2E-06	mg/kg/day	2.4E-02	1/(mg/kg-day)	7.7E-08	9.0E-06	mg/kg/day	3.0E-02	mg/kg/day	3.0E-04
				Dichloroethane-1,1	1.95E+01	UG/L	6.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-04	mg/kg/day	1.0E-01	mg/kg/day	1.9E-03
				Dichloroethane-1,2	9.51E-01	UG/L	3.3E-06	mg/kg/day	9.1E-02	1/(mg/kg-day)	3.0E-07	9.3E-06	mg/kg/day	2.0E-02	mg/kg/day	4.7E-04
				Dichloroethene-1,2 trans	4.97E+00	UG/L	1.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	4.9E-05	mg/kg/day	2.0E-02	mg/kg/day	2.4E-03
				Dichloroethylene-1,2 cis	1.19E+02	UG/L	4.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-03	mg/kg/day	1.0E-02	mg/kg/day	1.2E-01
				Dichloropropane-1,2	8.64E-01	UG/L	3.0E-06	mg/kg/day	6.8E-02	1/(mg/kg-day)	2.1E-07	8.5E-06	mg/kg/day	2.0E-02	mg/kg/day	4.2E-04
				Ethylbenzene	1.18E+01	UG/L	4.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-04	mg/kg/day	1.0E-01	mg/kg/day	1.2E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	UG/L	1.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.2E-04	mg/kg/day	8.0E-02	mg/kg/day	3.9E-03
				Methyl tertiary butyl ether (MTBE)	2.33E+01	UG/L	8.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.3E-04	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	8.05E-01	UG/L	2.8E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.5E-06	7.9E-06	mg/kg/day	1.0E-02	mg/kg/day	7.9E-04
				Trichloroethane-1,1,2	4.30E-01	UG/L	1.5E-06	mg/kg/day	5.7E-02	1/(mg/kg-day)	8.6E-08	4.2E-06	mg/kg/day	4.0E-03	mg/kg/day	1.1E-03
				Trichloroethylene	2.89E+00	UG/L	1.0E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	4.0E-06	2.8E-05	mg/kg/day	3.0E-04	mg/kg/day	9.4E-02
				Vinyl chloride	1.41E+01	UG/L	4.9E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	7.4E-05	1.4E-04	mg/kg/day	3.0E-03	mg/kg/day	4.6E-02
				Xylenes, total	1.88E+01	UG/L	6.6E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-04	mg/kg/day	2.0E-01	mg/kg/day	9.2E-04
			Exp. Route Total								1.9E-02					1.3E+02
Groundwater	Groundwater	Upper PRM Aquifer - Tap Water (cont.)	Dermal	Aluminum	1.03E+04	UG/L	1.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	4.5E-04	mg/kg/day	1.0E+00	mg/kg/day	4.5E-04

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TABLE 7.21.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Upper PRM Aquifer	Dermal	Antimony	5.41E+00	UG/L	8.5E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	2.4E-07	mg/kg/day	6.0E-05	mg/kg/day	4.0E-03
(cont.)	(cont.)	- Tap Water (cont.)	(cont.)	Arsenic	3.62E+03	UG/L	5.7E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.5E-05	1.6E-04	mg/kg/day	3.0E-04	mg/kg/day	5.3E-01
				Barium	9.65E+03	UG/L	1.5E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	4.2E-04	mg/kg/day	4.9E-03	mg/kg/day	8.7E-02
				Beryllium	3.87E+00	UG/L	6.1E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.7E-07	mg/kg/day	1.4E-05	mg/kg/day	1.2E-02
				Cadmium	1.32E+01	UG/L	2.1E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	5.8E-07	mg/kg/day	1.3E-05	mg/kg/day	4.6E-02
				Chromium	4.45E+01	UG/L	1.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	3.9E-06	mg/kg/day	7.5E-05	mg/kg/day	5.2E-02
				Copper	5.22E+01	UG/L	8.2E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	2.3E-06	mg/kg/day	4.0E-02	mg/kg/day	5.7E-05
				Iron	1.18E+05	UG/L	1.8E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	5.2E-03	mg/kg/day	3.0E-01	mg/kg/day	1.7E-02
				Lead	2.85E+01	UG/L	4.5E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-07	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.98E+03	UG/L	3.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	8.7E-05	mg/kg/day	5.6E-03	mg/kg/day	1.6E-02
				Mercury	2.08E-01	UG/L	3.3E-09	mg/kg/day	NA	1/(mg/kg-day)	NA	9.1E-09	mg/kg/day	2.1E-05	mg/kg/day	4.4E-04
				Nickel	2.95E+01	UG/L	9.3E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	2.6E-07	mg/kg/day	8.0E-04	mg/kg/day	3.3E-04
				Selenium	7.01E+00	UG/L	1.1E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	3.1E-07	mg/kg/day	5.0E-03	mg/kg/day	6.2E-05
				Thallium	5.41E+00	UG/L	8.5E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	2.4E-07	mg/kg/day	9.0E-05	mg/kg/day	2.6E-03
				Vanadium	5.82E+01	UG/L	9.1E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	2.6E-06	mg/kg/day	2.6E-05	mg/kg/day	9.9E-02
				Zinc	1.17E+03	UG/L	1.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.1E-05	mg/kg/day	3.0E-01	mg/kg/day	1.0E-04
				Chlordane - alpha	2.24E-02	UG/L	2.1E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.5E-08	6.0E-07	mg/kg/day	5.0E-04	mg/kg/day	1.2E-03
				Dieldrin	2.16E-02	UG/L	6.9E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.1E-06	1.9E-07	mg/kg/day	5.0E-05	mg/kg/day	3.9E-03
				Heptachlor Epoxide	9.87E-03	UG/L	2.2E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.0E-07	6.0E-08	mg/kg/day	1.3E-05	mg/kg/day	4.6E-03
				Cresol-o	5.09E+01	UG/L	2.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	6.3E-05	mg/kg/day	5.0E-02	mg/kg/day	1.3E-03
				Cresol-p	1.41E+02	UG/L	6.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.7E-04	mg/kg/day	5.0E-03	mg/kg/day	3.5E-02
				Ether, bis(2-chloroethyl)	1.50E+01	UG/L	1.9E-06	mg/kg/day	1.1E+00	1/(mg/kg-day)	2.1E-06	5.4E-06	mg/kg/day	NA	mg/kg/day	NA
				Naphthalene	3.60E+02	UG/L	1.1E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	3.1E-03	mg/kg/day	2.0E-02	mg/kg/day	1.5E-01
				Nitrosodiphenylamine-n	1.09E+01	UG/L	1.7E-05	mg/kg/day	4.9E-03	1/(mg/kg-day)	8.2E-08	4.7E-05	mg/kg/day	2.0E-02	mg/kg/day	2.3E-03
				Phenol	9.68E+02	UG/L	2.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	6.1E-04	mg/kg/day	3.0E-01	mg/kg/day	2.0E-03
				Benzene	3.39E+01	UG/L	2.4E-05	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.3E-06	6.7E-05	mg/kg/day	4.0E-03	mg/kg/day	1.7E-02
				Chloroethane	1.32E+00	UG/L	3.4E-07	mg/kg/day	2.9E-03	1/(mg/kg-day)	9.9E-10	9.6E-07	mg/kg/day	4.0E-01	mg/kg/day	2.4E-06
				Dichlorobenzene-1,3	6.60E-01	UG/L	2.8E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	7.9E-06	mg/kg/day	9.0E-04	mg/kg/day	8.7E-03
				Dichlorobenzene-1,4	9.21E-01	UG/L	2.8E-06	mg/kg/day	2.4E-02	1/(mg/kg-day)	6.8E-08	7.9E-06	mg/kg/day	3.0E-02	mg/kg/day	2.6E-04
				Dichloroethane-1,1	1.95E+01	UG/L	7.0E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	2.0E-05	mg/kg/day	1.0E-01	mg/kg/day	2.0E-04
				Dichloroethane-1,2	9.51E-01	UG/L	2.1E-07	mg/kg/day	9.1E-02	1/(mg/kg-day)	1.9E-08	6.0E-07	mg/kg/day	2.0E-02	mg/kg/day	3.0E-05
				Dichloroethene-1,2 trans	4.97E+00	UG/L	2.0E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	5.7E-06	mg/kg/day	2.0E-02	mg/kg/day	2.8E-04
				Dichloroethylene-1,2 cis	1.19E+02	UG/L	4.9E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.4E-04	mg/kg/day	1.0E-02	mg/kg/day	1.4E-02
				Dichloropropane-1,2	8.64E-01	UG/L	4.0E-07	mg/kg/day	6.8E-02	1/(mg/kg-day)	2.7E-08	1.1E-06	mg/kg/day	2.0E-02	mg/kg/day	5.6E-05
				Ethylbenzene	1.18E+01	UG/L	3.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	9.1E-05	mg/kg/day	1.0E-01	mg/kg/day	9.1E-04
				Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	UG/L	4.7E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-05	mg/kg/day	8.0E-02	mg/kg/day	1.7E-04
				Methyl tertiary butyl ether (MTBE)	2.33E+01	UG/L	5.2E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.4E-05	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	8.05E-01	UG/L	2.2E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.2E-06	6.2E-06	mg/kg/day	1.0E-02	mg/kg/day	6.2E-04
				Trichloroethane-1,1,2	4.30E-01	UG/L	1.9E-07	mg/kg/day	5.7E-02	1/(mg/kg-day)	1.1E-08	5.2E-07	mg/kg/day	4.0E-03	mg/kg/day	1.3E-04
				Trichloroethylene	2.89E+00	UG/L	2.3E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	9.2E-07	6.4E-06	mg/kg/day	3.0E-04	mg/kg/day	2.1E-02
				Vinyl chloride	1.41E+01	UG/L	3.4E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.0E-06	9.4E-06	mg/kg/day	3.0E-03	mg/kg/day	3.1E-03
				Xylenes, total	1.88E+01	UG/L	5.6E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.6E-04	mg/kg/day	2.0E-01	mg/kg/day	7.9E-04
			Exp. Route Total								9.7E-05					1.1E+00
		Exposure Point Total									1.9E-02					1.3E+02
	Exposure Medium Total										1.9E-02					1.3E+02
(cont.)	Air	Upper PRM Aquifer	Inhalation	Naphthalene	2.98E+00	mg/m3	6.0E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	1.7E-02	mg/kg/day	8.6E-04	mg/kg/day	2.0E+01
		- Water Vapors at Showerhead		Benzene	2.80E-01	mg/m3	5.7E-04	mg/kg/day	2.7E-02	1/(mg/kg-day)	1.5E-05	1.6E-03	mg/kg/day	8.6E-03	mg/kg/day	1.9E-01

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TABLE 7.21.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater (cont.)	Air (cont.)	Upper PRM Aquifer - Water Vapors at Showerhead (cont.)	Inhalation (cont.)	Chloroethane	1.09E-02	mg/m3	2.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	6.2E-05	mg/kg/day	2.9E+00	mg/kg/day	2.2E-05
				Dichlorobenzene-1,3	5.46E-03	mg/m3	1.1E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.1E-05	mg/kg/day	NA	mg/kg/day	NA
				Dichlorobenzene-1,4	7.62E-03	mg/m3	1.5E-05	mg/kg/day	2.2E-02	1/(mg/kg-day)	3.4E-07	4.3E-05	mg/kg/day	2.3E-01	mg/kg/day	1.9E-04
				Dichloroethane-1,1	1.62E-01	mg/m3	3.3E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	9.2E-04	mg/kg/day	1.4E-01	mg/kg/day	6.4E-03
				Dichloroethane-1,2	7.87E-03	mg/m3	1.6E-05	mg/kg/day	9.1E-02	1/(mg/kg-day)	1.5E-06	4.5E-05	mg/kg/day	1.4E-03	mg/kg/day	3.1E-02
				Dichloroethene-1,2 trans	4.12E-02	mg/m3	8.3E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.3E-04	mg/kg/day	NA	mg/kg/day	NA
				Dichloroethylene-1,2 cis	9.88E-01	mg/m3	2.0E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	5.6E-03	mg/kg/day	NA	mg/kg/day	NA
				Dichloropropane-1,2	7.15E-03	mg/m3	1.4E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	4.1E-05	mg/kg/day	1.1E-03	mg/kg/day	3.6E-02
				Ethylbenzene	9.74E-02	mg/m3	2.0E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	5.5E-04	mg/kg/day	2.9E-01	mg/kg/day	1.9E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	2.67E-01	mg/m3	5.4E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-03	mg/kg/day	8.6E-01	mg/kg/day	1.8E-03
				Methyl tertiary butyl ether (MTBE)	1.93E-01	mg/m3	3.9E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-03	mg/kg/day	8.6E-01	mg/kg/day	1.3E-03
				Tetrachloroethylene	6.66E-03	mg/m3	1.3E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	2.8E-07	3.8E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethane-1,1,2	3.56E-03	mg/m3	7.2E-06	mg/kg/day	5.6E-02	1/(mg/kg-day)	4.0E-07	2.0E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethylene	2.40E-02	mg/m3	4.9E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.9E-05	1.4E-04	mg/kg/day	1.0E-02	mg/kg/day	1.4E-02
				Vinyl chloride	1.16E-01	mg/m3	2.4E-04	mg/kg/day	1.5E-02	1/(mg/kg-day)	3.6E-06	6.6E-04	mg/kg/day	2.9E-02	mg/kg/day	2.3E-02
				Xylenes, total	1.56E-01	mg/m3	3.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	8.8E-04	mg/kg/day	2.9E-02	mg/kg/day	3.1E-02
			Exp. Route Total								4.1E-05					2.0E+01
		Exposure Point Total									4.1E-05					2.0E+01
	Exposure Medium Total										4.1E-05					2.0E+01
Upper PRM Aquifer Total											1.9E-02					1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer - Tap Water	Ingestion	Aluminum	3.67E+03	UG/L	1.3E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	3.6E-02	mg/kg/day	1.0E+00	mg/kg/day	3.6E-02
				Antimony	2.90E+00	UG/L	1.0E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	2.8E-05	mg/kg/day	4.0E-04	mg/kg/day	7.1E-02
				Arsenic	3.50E+00	UG/L	1.2E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.8E-05	3.4E-05	mg/kg/day	3.0E-04	mg/kg/day	1.1E-01
				Barium	2.94E+02	UG/L	1.0E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	2.9E-03	mg/kg/day	7.0E-02	mg/kg/day	4.1E-02
				Cadmium	2.70E+00	UG/L	9.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	2.6E-05	mg/kg/day	5.0E-04	mg/kg/day	5.3E-02
				Chromium	1.06E+01	UG/L	3.7E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.0E-04	mg/kg/day	3.0E-03	mg/kg/day	3.5E-02
				Cobalt	7.52E+01	UG/L	2.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	7.4E-04	mg/kg/day	2.0E-02	mg/kg/day	3.7E-02
				Copper	2.44E+02	UG/L	8.5E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	2.4E-03	mg/kg/day	4.0E-02	mg/kg/day	6.0E-02
				Iron	1.61E+05	UG/L	5.6E-01	mg/kg/day	NA	1/(mg/kg-day)	NA	1.6E+00	mg/kg/day	3.0E-01	mg/kg/day	5.3E+00
				Lead	1.66E+01	UG/L	5.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.6E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	3.44E+03	UG/L	1.2E-02	mg/kg/day	NA	1/(mg/kg-day)	NA	3.4E-02	mg/kg/day	1.4E-01	mg/kg/day	2.4E-01
				Thallium	1.25E+01	UG/L	4.4E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-04	mg/kg/day	9.0E-05	mg/kg/day	1.4E+00
				Benzene	3.30E-01	UG/L	1.2E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	6.3E-08	3.2E-06	mg/kg/day	4.0E-03	mg/kg/day	8.1E-04
				Dichloroethane-1,2	8.70E-01	UG/L	3.0E-06	mg/kg/day	9.1E-02	1/(mg/kg-day)	2.8E-07	8.5E-06	mg/kg/day	2.0E-02	mg/kg/day	4.3E-04
				Dichloroethylene-1,2 cis	3.20E+01	UG/L	1.1E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	3.1E-04	mg/kg/day	1.0E-02	mg/kg/day	3.1E-02
				Dichloropropane-1,2	7.40E-01	UG/L	2.6E-06	mg/kg/day	6.8E-02	1/(mg/kg-day)	1.8E-07	7.2E-06	mg/kg/day	2.0E-02	mg/kg/day	3.6E-04
				Tetrachloroethylene	1.00E+00	UG/L	3.5E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.9E-06	9.8E-06	mg/kg/day	1.0E-02	mg/kg/day	9.8E-04
				Trichloroethylene	1.50E+00	UG/L	5.2E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	2.1E-06	1.5E-05	mg/kg/day	3.0E-04	mg/kg/day	4.9E-02
				Vinyl chloride	9.00E+00	UG/L	3.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.7E-05	8.8E-05	mg/kg/day	3.0E-03	mg/kg/day	2.9E-02
			Exp. Route Total								7.0E-05					7.4E+00
				Aluminum	3.67E+03	UG/L	5.8E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.6E-04	mg/kg/day	1.0E+00	mg/kg/day	1.6E-04
				Antimony	2.90E+00	UG/L	4.6E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-07	mg/kg/day	6.0E-05	mg/kg/day	2.1E-03
				Arsenic	3.50E+00	UG/L	5.5E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.3E-08	1.5E-07	mg/kg/day	3.0E-04	mg/kg/day	5.1E-04

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TABLE 7.21.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer - Tap Water (cont.)	Dermal (cont.)	Barium	2.94E+02	UG/L	4.6E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-05	mg/kg/day	4.9E-03	mg/kg/day	2.6E-03
				Cadmium	2.70E+00	UG/L	4.2E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.2E-07	mg/kg/day	1.3E-05	mg/kg/day	9.5E-03
				Chromium	1.06E+01	UG/L	3.3E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	9.3E-07	mg/kg/day	7.5E-05	mg/kg/day	1.2E-02
				Cobalt	7.52E+01	UG/L	4.7E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	1.3E-06	mg/kg/day	2.0E-02	mg/kg/day	6.6E-05
				Copper	2.44E+02	UG/L	3.8E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.1E-05	mg/kg/day	4.0E-02	mg/kg/day	2.7E-04
				Iron	1.61E+05	UG/L	2.5E-03	mg/kg/day	NA	1/(mg/kg-day)	NA	7.1E-03	mg/kg/day	3.0E-01	mg/kg/day	2.4E-02
				Lead	1.66E+01	UG/L	2.6E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	7.3E-08	mg/kg/day	NA	mg/kg/day	NA
				Manganese	3.44E+03	UG/L	5.4E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-04	mg/kg/day	5.6E-03	mg/kg/day	2.7E-02
				Thallium	1.25E+01	UG/L	2.0E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	5.5E-07	mg/kg/day	9.0E-05	mg/kg/day	6.1E-03
				Benzene	3.30E-01	UG/L	2.3E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.3E-08	6.5E-07	mg/kg/day	4.0E-03	mg/kg/day	1.6E-04
				Dichloroethane-1,2	8.70E-01	UG/L	2.0E-07	mg/kg/day	9.1E-02	1/(mg/kg-day)	1.8E-08	5.5E-07	mg/kg/day	2.0E-02	mg/kg/day	2.7E-05
				Dichloroethylene-1,2 cis	3.20E+01	UG/L	1.3E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.6E-05	mg/kg/day	1.0E-02	mg/kg/day	3.6E-03
				Dichloropropane-1,2	7.40E-01	UG/L	3.4E-07	mg/kg/day	6.8E-02	1/(mg/kg-day)	2.3E-08	9.5E-07	mg/kg/day	2.0E-02	mg/kg/day	4.8E-05
				Tetrachloroethylene	1.00E+00	UG/L	2.7E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.5E-06	7.7E-06	mg/kg/day	1.0E-02	mg/kg/day	7.7E-04
				Trichloroethylene	1.50E+00	UG/L	1.2E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	4.8E-07	3.3E-06	mg/kg/day	3.0E-04	mg/kg/day	1.1E-02
				Vinyl chloride	9.00E+00	UG/L	2.1E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.2E-06	6.0E-06	mg/kg/day	3.0E-03	mg/kg/day	2.0E-03
			Exp. Route Total								5.3E-06					1.0E-01
		Exposure Point Total									7.5E-05					7.5E+00
	Exposure Medium Total										7.5E-05					7.5E+00
(cont.)	Air	Middle PRM Aquifer - Water Vapors at Showerhead	Inhalation	Benzene	2.73E-03	mg/m3	5.5E-06	mg/kg/day	2.7E-02	1/(mg/kg-day)	1.5E-07	1.5E-05	mg/kg/day	8.6E-03	mg/kg/day	1.8E-03
				Dichloroethane-1,2	7.20E-03	mg/m3	1.5E-05	mg/kg/day	9.1E-02	1/(mg/kg-day)	1.3E-06	4.1E-05	mg/kg/day	1.4E-03	mg/kg/day	2.9E-02
				Dichloroethylene-1,2 cis	2.65E-01	mg/m3	5.4E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-03	mg/kg/day	NA	mg/kg/day	NA
				Dichloropropane-1,2	6.12E-03	mg/m3	1.2E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	3.5E-05	mg/kg/day	1.1E-03	mg/kg/day	3.0E-02
				Tetrachloroethylene	8.27E-03	mg/m3	1.7E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	3.5E-07	4.7E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethylene	1.24E-02	mg/m3	2.5E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.0E-05	7.0E-05	mg/kg/day	1.0E-02	mg/kg/day	7.0E-03
				Vinyl chloride	7.45E-02	mg/m3	1.5E-04	mg/kg/day	1.5E-02	1/(mg/kg-day)	2.3E-06	4.2E-04	mg/kg/day	2.9E-02	mg/kg/day	1.5E-02
			Exp. Route Total								1.4E-05					8.3E-02
		Exposure Point Total									1.4E-05					8.3E-02
	Exposure Medium Total										1.4E-05					8.3E-02
Middle PRM Aquifer Total											9.0E-05					7.6E+00

NA = Not applicable.

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Table 7.21.RME Supplement A
Calculation of DAevent
Industrial Worker Adult, Groundwater
Martin Aaron, Camden, NJ

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
Upper PRM Aquifer									
Aluminum	1.03E+04	1.0E-03	NA	NA	NA	NA	0.25	2.6E-06	1
Antimony	5.41E+00	1.0E-03	NA	NA	NA	NA	0.25	1.4E-09	1
Arsenic	3.62E+03	1.0E-03	NA	NA	NA	NA	0.25	9.0E-07	1
Barium	9.65E+03	1.0E-03	NA	NA	NA	NA	0.25	2.4E-06	1
Beryllium	3.87E+00	1.0E-03	NA	NA	NA	NA	0.25	9.7E-10	1
Cadmium	1.32E+01	1.0E-03	NA	NA	NA	NA	0.25	3.3E-09	1
Chromium	4.45E+01	2.0E-03	NA	NA	NA	NA	0.25	2.2E-08	1
Copper	5.22E+01	1.0E-03	NA	NA	NA	NA	0.25	1.3E-08	1
Iron	1.18E+05	1.0E-03	NA	NA	NA	NA	0.25	2.9E-05	1
Lead	2.85E+01	1.0E-04	NA	NA	NA	NA	0.25	7.1E-10	1
Manganese	1.98E+03	1.0E-03	NA	NA	NA	NA	0.25	5.0E-07	1
Mercury	2.08E-01	1.0E-03	NA	NA	NA	NA	0.25	5.2E-11	1
Nickel	2.95E+01	2.0E-04	NA	NA	NA	NA	0.25	1.5E-09	1
Selenium	7.01E+00	1.0E-03	NA	NA	NA	NA	0.25	1.8E-09	1
Thallium	5.41E+00	1.0E-03	NA	NA	NA	NA	0.25	1.4E-09	1
Vanadium	5.82E+01	1.0E-03	NA	NA	NA	NA	0.25	1.5E-08	1
Zinc	1.17E+03	6.0E-04	NA	NA	NA	NA	0.25	1.8E-07	1
Chlordane - alpha	2.24E-02	3.4E-02	3.0E-01	2.1E+01	5.1E+01	7.0E-01	0.25	3.4E-09	2
Dieldrin	2.16E-02	1.2E-02	1.0E-01	1.5E+01	3.5E+01	8.0E-01	0.25	1.1E-09	2
Heptachlor Epoxide	9.87E-03	8.6E-03	1.0E-01	1.3E+01	3.2E+01	8.0E-01	0.25	3.4E-10	2
Cresol-o	5.09E+01	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	0.25	3.5E-07	2
Cresol-p	1.41E+02	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	0.25	9.9E-07	2
Ether, bis(2-chloroethyl)	1.50E+01	1.8E-03	8.3E-03	6.8E-01	1.6E+00	1.0E+00	0.25	3.1E-08	2
Naphthalene	3.60E+02	4.7E-02	2.0E-01	5.6E-01	1.3E+00	1.0E+00	0.25	1.7E-05	2
Nitrosodiphenylamine-n	1.09E+01	1.5E-02	1.0E-01	1.4E+00	3.3E+00	1.0E+00	0.25	2.6E-07	2
Phenol	9.68E+02	4.3E-03	1.6E-02	3.6E-01	8.6E-01	1.0E+00	0.25	3.5E-06	2
Benzene	3.39E+01	1.5E-02	1.0E-01	2.9E-01	7.0E-01	1.0E+00	0.25	3.8E-07	2
Chloroethane	1.32E+00	6.1E-03	2.1E-02	2.4E-01	5.9E-01	1.0E+00	0.25	5.4E-09	2
Dichlorobenzene-1,3	6.60E-01	5.8E-02	3.0E-01	7.1E-01	1.7E+00	1.0E+00	0.25	4.5E-08	2
Dichlorobenzene-1,4	9.21E-01	4.2E-02	2.0E-01	7.1E-01	1.7E+00	1.0E+00	0.25	4.5E-08	2
Dichloroethane-1,1	1.95E+01	6.7E-03	2.6E-02	3.8E-01	9.2E-01	1.0E+00	0.25	1.1E-07	2
Dichloroethane-1,2	9.51E-01	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.25	3.4E-09	2
Dichloroethene-1,2 trans	4.97E+00	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.25	3.2E-08	2
Dichloroethylene-1,2 cis	1.19E+02	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.25	7.7E-07	2
Dichloropropane-1,2	8.64E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.25	6.3E-09	2
Ethylbenzene	1.18E+01	4.9E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	0.25	5.2E-07	2
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	2.7E-03	1.0E-02	3.9E-01	9.3E-01	1.0E+00	0.25	7.5E-08	2
Methyl tertiary butyl ether (MTBE)	2.33E+01	4.5E-03	1.6E-02	3.3E-01	7.9E-01	1.0E+00	0.25	8.2E-08	2
Tetrachloroethylene	8.05E-01	3.3E-02	2.0E-01	9.1E-01	2.2E+00	1.0E+00	0.25	3.5E-08	2
Trichloroethane-1,1,2	4.30E-01	6.4E-03	2.8E-02	6.0E-01	1.4E+00	1.0E+00	0.25	2.9E-09	2
Trichloroethylene	2.89E+00	1.2E-02	1.0E-01	5.8E-01	1.4E+00	1.0E+00	0.25	3.7E-08	2
Vinyl chloride	1.41E+01	5.6E-03	1.7E-02	2.4E-01	5.7E-01	1.0E+00	0.25	5.3E-08	2
Xylenes, total	1.88E+01	5.3E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	0.25	8.9E-07	2

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Table 7.21.RME Supplement A
Calculation of DAevent
Industrial Worker Adult, Groundwater
Martin Aaron, Camden, NJ

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
Middle PRM Aquifer									
Aluminum	3.67E+03	1.0E-03	NA	NA	NA	NA	0.25	9.2E-07	1
Antimony	2.90E+00	1.0E-03	NA	NA	NA	NA	0.25	7.3E-10	1
Arsenic	3.50E+00	1.0E-03	NA	NA	NA	NA	0.25	8.8E-10	1
Barium	2.94E+02	1.0E-03	NA	NA	NA	NA	0.25	7.4E-08	1
Cadmium	2.70E+00	1.0E-03	NA	NA	NA	NA	0.25	6.8E-10	1
Chromium	1.06E+01	2.0E-03	NA	NA	NA	NA	0.25	5.3E-09	1
Cobalt	7.52E+01	4.0E-04	NA	NA	NA	NA	0.25	7.5E-09	1
Copper	2.44E+02	1.0E-03	NA	NA	NA	NA	0.25	6.1E-08	1
Iron	1.61E+05	1.0E-03	NA	NA	NA	NA	0.25	4.0E-05	1
Lead	1.66E+01	1.0E-04	NA	NA	NA	NA	0.25	4.2E-10	1
Manganese	3.44E+03	1.0E-03	NA	NA	NA	NA	0.25	8.6E-07	1
Thallium	1.25E+01	1.0E-03	NA	NA	NA	NA	0.25	3.1E-09	1
Benzene	3.30E-01	1.5E-02	1.0E-01	2.9E-01	7.0E-01	1.0E+00	0.25	3.7E-09	2
Dichloroethane-1,2	8.70E-01	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.25	3.1E-09	2
Dichloroethylene-1,2 cis	3.20E+01	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	0.25	2.1E-07	2
Dichloropropane-1,2	7.40E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.25	5.4E-09	2
Tetrachloroethylene	1.00E+00	3.3E-02	2.0E-01	9.1E-01	2.2E+00	1.0E+00	0.25	4.4E-08	2
Trichloroethylene	1.50E+00	1.2E-02	1.0E-01	5.8E-01	1.4E+00	1.0E+00	0.25	1.9E-08	2
Vinyl chloride	9.00E+00	5.6E-03	1.7E-02	2.4E-01	5.7E-01	1.0E+00	0.25	3.4E-08	2

Inorganics: DAevent (mg/cm2-event) =

Kp x CW x tevent x 0.001 mg/ug x 0.001 l/cm^3 (eq 1)

Organics: DAevent (mg/cm2-event) =

$$\text{If } t_{event} \le t^*, \text{then } DA_{event} = 2 \times FA \times K_p \times C_w \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}} \qquad \text{(eq 2)}$$

$$\text{If } t_{event} \ge t^*, \text{then } DA_{event} = FA \times K_p \times C_w \left[\frac{t_{event}}{1+B} + 2 \times \tau_{event} \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right] \qquad \text{(eq 3)}$$

Notes:

Permeability constants from EPA 2001, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment - Interim)*. EPA/540/R/99/005. The default value of 0.001 was assigned to inorganics not listed in this document.

NA - not applicable.

Table 7.21.RME Supplement B
Shower Exposure Concentrations from Upper Glacial Aquifer Groundwater, Andelman Model, as Modified by Schaum
Martin Aaron, Camden, NJ

Chemical	Exposure Point Concentration Cwo (mg/l)	C_{amax} (mg/m^3)	C_a (mg/m^3)
Upper PRM Aquifer			
Naphthalene	3.6E-01	3.8E+00	3.0E+00
Benzene	3.4E-02	3.6E-01	2.8E-01
Chloroethane	1.3E-03	1.4E-02	1.1E-02
Dichlorobenzene-1,3	6.6E-04	7.0E-03	5.5E-03
Dichlorobenzene-1,4	9.2E-04	9.7E-03	7.6E-03
Dichloroethane-1,1	2.0E-02	2.1E-01	1.6E-01
Dichloroethane-1,2	9.5E-04	1.0E-02	7.9E-03
Dichloroethene-1,2 trans	5.0E-03	5.2E-02	4.1E-02
Dichloroethylene-1,2 cis	1.2E-01	1.3E+00	9.9E-01
Dichloropropane-1,2	8.6E-04	9.1E-03	7.2E-03
Ethylbenzene	1.2E-02	1.2E-01	9.7E-02
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.2E-02	3.4E-01	2.7E-01
Methyl tertiary butyl ether (MTBE)	2.3E-02	2.5E-01	1.9E-01
Tetrachloroethylene	8.0E-04	8.5E-03	6.7E-03
Trichloroethane-1,1,2	4.3E-04	4.5E-03	3.6E-03
Trichloroethylene	2.9E-03	3.1E-02	2.4E-02
Vinyl chloride	1.4E-02	1.5E-01	1.2E-01
Xylenes, total	1.9E-02	2.0E-01	1.6E-01
Middle PRM Aquifer			
Benzene	3.3E-04	3.5E-03	2.7E-03
Dichloroethane-1,2	8.7E-04	9.2E-03	7.2E-03
Dichloroethylene-1,2 cis	3.2E-02	3.4E-01	2.6E-01
Dichloropropane-1,2	7.4E-04	7.8E-03	6.1E-03
Tetrachloroethylene	1.0E-03	1.1E-02	8.3E-03
Trichloroethylene	1.5E-03	1.6E-02	1.2E-02
Vinyl chloride	9.0E-03	9.5E-02	7.4E-02

Variables	**Units**	**Exposure Assumptions**
Ca = concentration of chemical in air	mg/m^3	Solved by Eq 1
C_{amax} = maximum concentration of chemical in air	mg/m^3	Solved by Eq 2
t_1 = time in shower	hr	2.5E-01
t_2 = time in bathroom after shower	hr	3.3E-01
f = fraction volatilized for chemical	unitless	**9.0E-01**
F_w = shower water flow rate	L/hr	7.5E+02
V_a = bathroom volume	m^3	1.6E+01

Equation 1:	C_a =	$((C_{amax}/2) * t_1 + C_{amax} \cdot t_2) / (t_1 + t_2)$
Equation 2:	C_{amax} =	$(C_w * f * F_w * t_1) / V_a$

Equations and assumptions from Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment, edited by Rhoda G.M. Wang. Macel Dekker, Inc., New York. 1994. Exposure to Volatiles in Domestic Water, Schaum et al., Pages

TABLE 7.22.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	Upper PRM Aquifer - Tap Water	Dermal	Aluminum	1.03E+04	UG/L	1.0E-05	mg/kg/day	NA	NA	NA	7.0E-04	mg/kg/day	1.0E+00	mg/kg/day	7.0E-04
				Antimony	5.41E+00	UG/L	5.3E-09	mg/kg/day	NA	NA	NA	3.7E-07	mg/kg/day	3.0E-05	mg/kg/day	1.2E-02
				Arsenic	3.62E+03	UG/L	3.5E-06	mg/kg/day	1.5E+00	NA	5.3E-06	2.5E-04	mg/kg/day	5.0E-03	mg/kg/day	4.9E-02
				Barium	9.65E+03	UG/L	9.4E-06	mg/kg/day	NA	NA	NA	6.6E-04	mg/kg/day	4.9E-03	mg/kg/day	1.3E-01
				Beryllium	3.87E+00	UG/L	3.8E-09	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	3.5E-05	mg/kg/day	7.5E-03
				Cadmium	1.32E+01	UG/L	1.3E-08	mg/kg/day	NA	NA	NA	9.0E-07	mg/kg/day	5.0E-05	mg/kg/day	1.8E-02
				Chromium	4.45E+01	UG/L	8.6E-08	mg/kg/day	NA	NA	NA	6.0E-06	mg/kg/day	5.0E-04	mg/kg/day	1.2E-02
				Copper	5.22E+01	UG/L	5.1E-08	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	4.0E-02	mg/kg/day	8.9E-05
				Iron	1.18E+05	UG/L	1.1E-04	mg/kg/day	NA	NA	NA	8.0E-03	mg/kg/day	3.0E-01	mg/kg/day	2.7E-02
				Lead	2.85E+01	UG/L	2.8E-09	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.98E+03	UG/L	1.9E-06	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	5.6E-03	mg/kg/day	2.4E-02
				Mercury	2.08E-01	UG/L	2.0E-10	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	2.1E-05	mg/kg/day	6.7E-04
				Nickel	2.95E+01	UG/L	5.7E-09	mg/kg/day	NA	NA	NA	4.0E-07	mg/kg/day	8.0E-04	mg/kg/day	5.0E-04
				Selenium	7.01E+00	UG/L	6.8E-09	mg/kg/day	NA	NA	NA	4.8E-07	mg/kg/day	5.0E-03	mg/kg/day	9.5E-05
				Thallium	5.41E+00	UG/L	5.3E-09	mg/kg/day	NA	NA	NA	3.7E-07	mg/kg/day	9.0E-04	mg/kg/day	4.1E-04
				Vanadium	5.82E+01	UG/L	5.7E-08	mg/kg/day	NA	NA	NA	4.0E-06	mg/kg/day	1.8E-04	mg/kg/day	2.2E-02
				Zinc	1.17E+03	UG/L	6.8E-07	mg/kg/day	NA	NA	NA	4.8E-05	mg/kg/day	3.0E-01	mg/kg/day	1.6E-04
				Chlordane - alpha	2.24E-02	UG/L	2.3E-09	mg/kg/day	3.5E-01	NA	8.2E-10	1.6E-07	mg/kg/day	6.0E-05	mg/kg/day	2.7E-03
				Dieldrin	2.16E-02	UG/L	7.5E-10	mg/kg/day	1.6E+01	NA	1.2E-08	5.3E-08	mg/kg/day	5.0E-05	mg/kg/day	1.1E-03
				Heptachlor Epoxide	9.87E-03	UG/L	2.3E-10	mg/kg/day	9.1E+00	NA	2.1E-09	1.6E-08	mg/kg/day	1.3E-05	mg/kg/day	1.3E-03
				Cresol-o	5.09E+01	UG/L	4.1E-07	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	5.0E-01	mg/kg/day	5.8E-05
				Cresol-p	1.41E+02	UG/L	1.1E-06	mg/kg/day	NA	NA	NA	8.0E-05	mg/kg/day	5.0E-03	mg/kg/day	1.6E-02
				Ether, bis(2-chloroethyl)	1.50E+01	UG/L	3.1E-08	mg/kg/day	1.1E+00	NA	3.4E-08	2.1E-06	mg/kg/day	NA	mg/kg/day	NA
				Naphthalene	3.60E+02	UG/L	1.6E-05	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	2.0E-02	mg/kg/day	5.8E-02
				Nitrosodiphenylamine-n	1.09E+01	UG/L	2.0E-07	mg/kg/day	4.9E-03	NA	1.0E-09	1.4E-05	mg/kg/day	2.0E-02	mg/kg/day	7.1E-04
				Phenol	9.68E+02	UG/L	4.3E-06	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	6.0E-01	mg/kg/day	5.1E-04
				Benzene	3.39E+01	UG/L	4.9E-07	mg/kg/day	5.5E-02	NA	2.7E-08	3.4E-05	mg/kg/day	3.0E-03	mg/kg/day	1.1E-02
				Chloroethane	1.32E+00	UG/L	8.1E-09	mg/kg/day	2.9E-03	NA	2.4E-11	5.7E-07	mg/kg/day	4.0E-01	mg/kg/day	1.4E-06
				Dichlorobenzene-1,3	6.60E-01	UG/L	3.7E-08	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	9.0E-04	mg/kg/day	2.9E-03
				Dichlorobenzene-1,4	9.21E-01	UG/L	3.9E-08	mg/kg/day	2.4E-02	NA	9.4E-10	2.7E-06	mg/kg/day	3.0E-02	mg/kg/day	9.2E-05
				Dichloroethane-1,1	1.95E+01	UG/L	1.4E-07	mg/kg/day	NA	NA	NA	9.5E-06	mg/kg/day	1.0E+00	mg/kg/day	9.5E-06
				Dichloroethane-1,2	9.51E-01	UG/L	4.2E-09	mg/kg/day	9.1E-02	NA	3.8E-10	2.9E-07	mg/kg/day	2.0E-02	mg/kg/day	1.5E-05
				Dichloroethene-1,2 trans	4.97E+00	UG/L	4.0E-08	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	2.0E-02	mg/kg/day	1.4E-04
				Dichloroethylene-1,2 cis	1.19E+02	UG/L	9.5E-07	mg/kg/day	NA	NA	NA	6.7E-05	mg/kg/day	1.0E-01	mg/kg/day	6.7E-04
				Dichloropropane-1,2	8.64E-01	UG/L	7.1E-09	mg/kg/day	6.8E-02	NA	4.8E-10	5.0E-07	mg/kg/day	2.0E-02	mg/kg/day	2.5E-05
				Ethylbenzene	1.18E+01	UG/L	5.4E-07	mg/kg/day	NA	NA	NA	3.8E-05	mg/kg/day	1.0E-01	mg/kg/day	3.8E-04
				Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	UG/L	9.2E-08	mg/kg/day	NA	NA	NA	6.4E-06	mg/kg/day	8.0E-01	mg/kg/day	8.1E-06
				Methyl tertiary butyl ether (MTBE)	2.33E+01	UG/L	1.1E-07	mg/kg/day	NA	NA	NA	7.5E-06	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	8.05E-01	UG/L	2.9E-08	mg/kg/day	5.4E-01	NA	1.5E-08	2.0E-06	mg/kg/day	1.0E-01	mg/kg/day	2.0E-05
				Trichloroethane-1,1,2	4.30E-01	UG/L	3.0E-09	mg/kg/day	5.7E-02	NA	1.7E-10	2.1E-07	mg/kg/day	4.0E-02	mg/kg/day	5.3E-06
				Trichloroethylene	2.89E+00	UG/L	3.6E-08	mg/kg/day	4.0E-01	NA	1.4E-08	2.5E-06	mg/kg/day	3.0E-04	mg/kg/day	8.4E-03
				Vinyl chloride	1.41E+01	UG/L	8.0E-08	mg/kg/day	1.5E+00	NA	1.2E-07	5.6E-06	mg/kg/day	3.0E-03	mg/kg/day	1.9E-03
				Xylenes, total	1.88E+01	UG/L	9.3E-07	mg/kg/day	NA	NA	NA	6.5E-05	mg/kg/day	2.0E-01	mg/kg/day	3.2E-04
			Exp. Route Total								5.5E-06					4.1E-01
		Exposure Point Total									5.5E-06					4.1E-01
	Exposure Medium Total										5.5E-06					4.1E-01
Groundwater	Air	Upper PRM Aquifer - Water Vapors at Showerhead	Inhalation	Naphthalene	9.41E-01	mg/m3	3.7E-04	mg/kg/day	NA	NA	NA	2.6E-02	mg/kg/day	8.6E-04	mg/kg/day	3.0E+01
				Benzene	1.12E-01	mg/m3	4.4E-05	mg/kg/day	2.7E-02	NA	1.2E-06	3.1E-03	mg/kg/day	1.7E-02	mg/kg/day	1.8E-01
				Chloroethane	4.92E-03	mg/m3	1.9E-06	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	2.9E+00	mg/kg/day	4.8E-05

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TABLE 7.22.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dichlorobenzene-1,3	1.87E-03	mg/m3	7.4E-07	mg/kg/day	NA	NA	NA	5.2E-05	mg/kg/day	NA	mg/kg/day	NA
				Dichlorobenzene-1,4	2.62E-03	mg/m3	1.0E-06	mg/kg/day	2.2E-02	NA	2.3E-08	7.2E-05	mg/kg/day	2.3E-01	mg/kg/day	3.2E-04
				Dichloroethane-1,1	6.75E-02	mg/m3	2.7E-05	mg/kg/day	NA	NA	NA	1.9E-03	mg/kg/day	1.4E+00	mg/kg/day	1.3E-03
				Dichloroethane-1,2	3.10E-03	mg/m3	1.2E-06	mg/kg/day	9.1E-02	NA	1.1E-07	8.6E-05	mg/kg/day	1.4E-03	mg/kg/day	6.0E-02
				Dichloroethene-1,2 trans	1.87E-02	mg/m3	7.4E-06	mg/kg/day	NA	NA	NA	5.2E-04	mg/kg/day	NA	mg/kg/day	NA
				Dichloroethylene-1,2 cis	4.32E-01	mg/m3	1.7E-04	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	NA	mg/kg/day	NA
				Dichloropropane-1,2	2.63E-03	mg/m3	1.0E-06	mg/kg/day	NA	NA	NA	7.3E-05	mg/kg/day	3.7E-03	mg/kg/day	2.0E-02
				Ethylbenzene	3.34E-02	mg/m3	1.3E-05	mg/kg/day	NA	NA	NA	9.2E-04	mg/kg/day	2.9E-01	mg/kg/day	3.2E-03
				Methyl isobutyl ketone (4-methyl-2-pentanone)	7.73E-02	mg/m3	3.0E-05	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	8.6E-01	mg/kg/day	2.5E-03
				Methyl tertiary butyl ether (MTBE)	7.75E-02	mg/m3	3.1E-05	mg/kg/day	NA	NA	NA	2.1E-03	mg/kg/day	8.6E-01	mg/kg/day	2.5E-03
				Tetrachloroethylene	2.37E-03	mg/m3	9.4E-07	mg/kg/day	2.1E-02	NA	2.0E-08	6.5E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethane-1,1,2	1.29E-03	mg/m3	5.1E-07	mg/kg/day	5.6E-02	NA	2.8E-08	3.6E-05	mg/kg/day	NA	mg/kg/day	NA
				Trichloroethylene	9.13E-03	mg/m3	3.6E-06	mg/kg/day	4.0E-01	NA	1.4E-06	2.5E-04	mg/kg/day	1.0E-02	mg/kg/day	2.5E-02
				Vinyl chloride	1.17E-02	mg/m3	4.6E-06	mg/kg/day	1.5E-02	NA	7.1E-08	3.2E-04	mg/kg/day	2.9E-02	mg/kg/day	1.1E-02
				Xylenes, total	6.30E-02	mg/m3	2.5E-05	mg/kg/day	NA	NA	NA	1.7E-03	mg/kg/day	2.9E-02	mg/kg/day	6.1E-02
			Exp. Route Total								2.9E-06					3.1E+01
		Exposure Point Total									2.9E-06					3.1E+01
	Exposure Medium Total										2.9E-06					3.1E+01
Upper PRM Aquifer Total											8.4E-06					3.1E+01

NA = Not applicable.

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Table 7.22.RME Supplement A
Calculation of DAevent
Construction Worker Adult, Groundwater
Martin Aaron, Camden, NJ

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
Upper PRM Aquifer									
Aluminum	1.03E+04	1.0E-03	NA	NA	NA	NA	8	8.2E-05	1
Antimony	5.41E+00	1.0E-03	NA	NA	NA	NA	8	4.3E-08	1
Arsenic	3.62E+03	1.0E-03	NA	NA	NA	NA	8	2.9E-05	1
Barium	9.65E+03	1.0E-03	NA	NA	NA	NA	8	7.7E-05	1
Beryllium	3.87E+00	1.0E-03	NA	NA	NA	NA	8	3.1E-08	1
Cadmium	1.32E+01	1.0E-03	NA	NA	NA	NA	8	1.1E-07	1
Chromium	4.45E+01	2.0E-03	NA	NA	NA	NA	8	7.1E-07	1
Copper	5.22E+01	1.0E-03	NA	NA	NA	NA	8	4.2E-07	1
Iron	1.18E+05	1.0E-03	NA	NA	NA	NA	8	9.4E-04	1
Lead	2.85E+01	1.0E-04	NA	NA	NA	NA	8	2.3E-08	1
Manganese	1.98E+03	1.0E-03	NA	NA	NA	NA	8	1.6E-05	1
Mercury	2.08E-01	1.0E-03	NA	NA	NA	NA	8	1.7E-09	1
Nickel	2.95E+01	2.0E-04	NA	NA	NA	NA	8	4.7E-08	1
Selenium	7.01E+00	1.0E-03	NA	NA	NA	NA	8	5.6E-08	1
Thallium	5.41E+00	1.0E-03	NA	NA	NA	NA	8	4.3E-08	1
Vanadium	5.82E+01	1.0E-03	NA	NA	NA	NA	8	4.7E-07	1
Zinc	1.17E+03	6.0E-04	NA	NA	NA	NA	8	5.6E-06	1
Chlordane - alpha	2.24E-02	3.4E-02	3.0E-01	2.1E+01	5.1E+01	7.0E-01	8	1.9E-08	2
Dieldrin	2.16E-02	1.2E-02	1.0E-01	1.5E+01	3.5E+01	8.0E-01	8	6.2E-09	2
Heptachlor Epoxide	9.87E-03	8.6E-03	1.0E-01	1.3E+01	3.2E+01	8.0E-01	8	1.9E-09	2
Cresol-o	5.09E+01	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	8	3.4E-06	3
Cresol-p	1.41E+02	7.7E-03	3.1E-02	4.3E-01	1.0E+00	1.0E+00	8	9.4E-06	3
Ether, bis(2-chloroethyl)	1.50E+01	1.8E-03	8.3E-03	6.8E-01	1.6E+00	1.0E+00	8	2.5E-07	3
Naphthalene	3.60E+02	4.7E-02	2.0E-01	5.6E-01	1.3E+00	1.0E+00	8	1.4E-04	3
Nitrosodiphenylamine-n	1.09E+01	1.5E-02	1.0E-01	1.4E+00	3.3E+00	1.0E+00	8	1.7E-06	3
Phenol	9.68E+02	4.3E-03	1.6E-02	3.6E-01	8.6E-01	1.0E+00	8	3.6E-05	3
Benzene	3.39E+01	1.5E-02	1.0E-01	2.9E-01	7.0E-01	1.0E+00	8	4.0E-06	3
Chloroethane	1.32E+00	6.1E-03	2.1E-02	2.4E-01	5.9E-01	1.0E+00	8	6.7E-08	3
Dichlorobenzene-1,3	6.60E-01	5.8E-02	3.0E-01	7.1E-01	1.7E+00	1.0E+00	8	3.1E-07	3
Dichlorobenzene-1,4	9.21E-01	4.2E-02	2.0E-01	7.1E-01	1.7E+00	1.0E+00	8	3.2E-07	3
Dichloroethane-1,1	1.95E+01	6.7E-03	2.6E-02	3.8E-01	9.2E-01	1.0E+00	8	1.1E-06	3
Dichloroethane-1,2	9.51E-01	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	8	3.5E-08	3
Dichloroethene-1,2 trans	4.97E+00	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	8	3.3E-07	3
Dichloroethylene-1,2 cis	1.19E+02	7.7E-03	2.9E-02	3.7E-01	8.9E-01	1.0E+00	8	7.8E-06	3
Dichloropropane-1,2	8.64E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	8	5.9E-08	3
Ethylbenzene	1.18E+01	4.9E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	8	4.4E-06	3
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	2.7E-03	1.0E-02	3.9E-01	9.3E-01	1.0E+00	8	7.6E-07	3
Methyl tertiary butyl ether (MTBE)	2.33E+01	4.5E-03	1.6E-02	3.3E-01	7.9E-01	1.0E+00	8	8.9E-07	3
Tetrachloroethylene	8.05E-01	3.3E-02	2.0E-01	9.1E-01	2.2E+00	1.0E+00	8	2.3E-07	3
Trichloroethane-1,1,2	4.30E-01	6.4E-03	2.8E-02	6.0E-01	1.4E+00	1.0E+00	8	2.5E-08	3
Trichloroethylene	2.89E+00	1.2E-02	1.0E-01	5.8E-01	1.4E+00	1.0E+00	8	3.0E-07	3
Vinyl chloride	1.41E+01	5.6E-03	1.7E-02	2.4E-01	5.7E-01	1.0E+00	8	6.6E-07	3
Xylenes, total	1.88E+01	5.3E-02	2.0E-01	4.2E-01	1.0E+00	1.0E+00	8	7.6E-06	3

Inorganics: DAevent (mg/cm2-event) =
Kp x CW x tevent x 0.001 mg/ug x 0.001 l/cm^3 (eq 1)

Organics: DAevent (mg/cm2-event) =

$$\text{If } t_{event} \le t^*, \text{then } DA_{event} = 2 \times FA \times K_p \times C_w \sqrt{\frac{6 \times \tau_{event} \times t_{event}}{\pi}} \qquad \text{(eq 2)}$$

$$\text{If } t_{event} \ge t^*, \text{then } DA_{event} = FA \times K_p \times C_w \left[\frac{t_{event}}{1+B} + 2 \times \tau_{event} \left(\frac{1+3B+3B^2}{(1+B)^2} \right) \right] \qquad \text{(eq 3)}$$

Notes:
Permeability constants from EPA 2001, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment - Interim).* EPA/540/R/99/005. The default value of 0.001 was assigned to inorganics not listed in this document.
NA - not applicable.

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Table 7.22.RME Supplement B
Calculation of Dermal Absorbed Parameters for Chemicals in Groundwater
Martin Aaron, Camden, NJ

Chemical	Molecular Weight	Log Kow	Log Kp	Kp	Dsc/Isc	Dsc (cm2/hr)	c	b	τ (hours)	t* (hours)	B	FA
Methyl tertiary butyl ether (MTBE)	88.15	1.4	-2.35	4.46E-03	5.09E-04	5.09E-07	3.44E-01	3.13E-01	3.28E-01	7.86E-01	1.61E-02	1.0

Estimation of Kp, B
Log Kp = -2.8 + 0.66 x Log Kow - 0.0056 x MW
B =(Kp x (MW)^0.5) / 2.6

Estimation of τ
Log (Dsc / Isc) = -2.80 - 0.0056 x MW
$\tau = ((Isc)^2) / (6 \times Dsc)$

Estimation of *t
If $B \leq 0.6$ $t^* = 24 \times \tau$

If $B > 0.6$ $t^* = 6 \times (b - ((b^2 - c^2)^{0.5})) \times \tau$

where: $b = (2 \times (1 + B)^2) / \pi - c$
$c = (1 + 3 \times B + 3 \times B^2) / (3 \times (1+B))$

Note:

MW	Molecular weight		(g/mol)
Kow	Octanol-water partition coefficient		
Kp	permeability coefficient		(cm/hr)
τ	Lag time per event (hours)		(hours)
t*	Time to reach steady-state		(hours)
B	Dimensionless coefficient		
Isc	Thickness of stratum corneum	0.001	(cm)
FA	Fraction absorbed determined from Exhibit A-5 of EPA, 2001 (1.0).		(unitless)

Reference:
Molecular weight and Kow were obtained from Superfund Chemical Data Matrix version 1.0 (EPA, 1997).

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TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	5.5E-03	NA	5.0E-04	6.0E-03
			Antimony	NA	NA	NA	NA	*Circulatory*	1.1E-02	NA	6.6E-03	1.7E-02
			Arsenic	5.0E-05	NA	1.4E-05	6.4E-05	Skin, Circulatory	8.6E-01	NA	2.4E-01	1.1E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.9E-01	NA	6.5E-01	1.1E+00
			Cadmium	NA	NA	NA	NA	Kidney	1.9E-02	NA	3.4E-03	2.2E-02
			Chromium	NA	NA	NA	NA	N/A	9.0E-02	NA	3.3E-01	4.2E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.3E-02	NA	1.2E-03	1.4E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.6E-01	NA	1.5E-02	1.7E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.3E-03	NA	7.7E-03	1.1E-02
			Mercury	NA	NA	NA	NA	Immune	2.8E-03	NA	3.6E-03	6.4E-03
			Nickel	NA	NA	NA	NA	Body Weight	3.4E-03	NA	7.9E-03	1.1E-02
			Silver	NA	NA	NA	NA	Skin	2.7E-03	NA	6.2E-03	8.9E-03
			Zinc	NA	NA	NA	NA	Circulatory	7.1E-03	NA	6.5E-04	7.7E-03
			Aldrin	8.3E-07	NA	7.6E-07	1.6E-06	Liver	1.3E-02	NA	1.2E-02	2.4E-02
			Chlordane - alpha	1.6E-07	NA	6.0E-08	2.2E-07	Liver	7.3E-03	NA	2.7E-03	9.9E-03
			Chlordane - gamma *(technical mixture)*	1.8E-07	NA	6.6E-08	2.5E-07	Liver	8.0E-03	NA	3.0E-03	1.1E-02
			DDE-4,4'	3.0E-07	NA	8.3E-08	3.8E-07	Reproductive, Fetotoxicity	2.3E-02	NA	6.3E-03	2.9E-02
			DDT-4,4'	6.3E-08	NA	1.7E-08	8.0E-08	Liver	2.9E-03	NA	7.9E-04	3.7E-03
			Dieldrin	2.4E-06	NA	2.2E-06	4.7E-06	Liver	2.4E-02	NA	2.2E-02	4.5E-02
			Heptachlor	5.0E-08	NA	4.6E-08	9.6E-08	Liver	1.7E-04	NA	1.6E-04	3.3E-04
			Pcb-Aroclor 1248	5.4E-08	NA	6.9E-08	1.2E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	2.5E-06	NA	3.2E-06	5.7E-06	Immune	4.9E-01	NA	6.3E-01	1.1E+00
			Pcb-Aroclor 1260	5.2E-07	NA	6.7E-07	1.2E-06	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	2.6E-05	NA	2.4E-05	5.1E-05
			Benzo(a)anthracene	5.6E-06	NA	6.7E-06	1.2E-05	Kidney	2.0E-03	NA	2.4E-03	4.4E-03
			Benzo(a)pyrene	5.3E-05	NA	6.3E-05	1.2E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	6.0E-06	NA	7.1E-06	1.3E-05	Kidney	2.1E-03	NA	2.5E-03	4.7E-03
			Benzo(k)fluoranthene	3.0E-07	NA	3.5E-07	6.5E-07	Kidney	1.0E-03	NA	1.3E-03	2.3E-03
			Chrysene	5.5E-08	NA	6.6E-08	1.2E-07	Kidney	1.9E-03	NA	2.3E-03	4.3E-03
			Dibenzo(a,h)anthracene	3.6E-06	NA	4.3E-06	8.0E-06	Kidney	1.3E-04	NA	1.5E-04	2.8E-04
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	3.4E-03	NA	4.5E-03	7.9E-03
			Indeno(1,2,3-cd)pyrene	1.4E-06	NA	1.7E-06	3.1E-06	Body Weight	3.0E-04	NA	3.6E-04	6.7E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	3.3E-04	NA	3.9E-04	7.2E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	NA	2.3E-08	4.7E-08	Liver	6.8E-04	NA	3.3E-03	4.0E-03
			Benzene	*2.5E-08*	NA	*0.0E+00*	*2.5E-08*	*Circulatory*	8.8E-04	NA	0.0E+00	8.8E-04
			Chloroform	NA	NA	NA	NA	Liver	1.3E-04	NA	0.0E+00	1.3E-04

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TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.0E-03	NA	0.0E+00	1.0E-03
			Tetrachloroethylene	7.6E-07	NA	0.0E+00	7.6E-07	Liver	1.1E-03	NA	0.0E+00	1.1E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	3.3E-04	NA	0.0E+00	3.3E-04
			Trichloroethylene	1.5E-07	NA	0.0E+00	1.5E-07	Liver, Kidney, Fetotoxicity	9.8E-03	NA	0.0E+00	9.8E-03
			Vinyl chloride	5.6E-08	NA	0.0E+00	5.6E-08	Liver	9.7E-05	NA	0.0E+00	9.7E-05
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.3E-04	NA	0.0E+00	1.3E-04
		Exposure Point Total		1.3E-04	NA	1.0E-04	2.3E-04		2.3E+00	NA	2.0E+00	4.2E+00
	Exposure Medium Total			1.3E-04	NA	1.0E-04	2.3E-04		2.3E+00	NA	2.0E+00	4.2E+00
	Ambient Air	Emissions from Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	6.2E-05	NA	6.2E-05
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	8.2E-09	NA	8.2E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.0E-03	NA	4.0E-03
			Cadmium	NA	2.4E-10	NA	2.4E-10	Kidney	NA	5.3E-06	NA	5.3E-06
			Chromium	NA	2.4E-08	NA	2.4E-08	Respiratory	NA	1.9E-03	NA	1.9E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	5.3E-04	NA	5.3E-04
			Mercury	NA	NA	NA	NA	CNS	NA	1.6E-07	NA	1.6E-07
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	7.7E-05	NA	7.7E-05
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.4E-11	NA	1.4E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	2.7E-12	NA	2.7E-12	Liver	NA	3.0E-07	NA	3.0E-07
			Chlordane - gamma (technical mixture)	NA	2.9E-12	NA	2.9E-12	Liver	NA	3.3E-07	NA	3.3E-07
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	1.0E-12	NA	1.0E-12	N/A	NA	NA	NA	NA
			Dieldrin	NA	4.0E-11	NA	4.0E-11	N/A	NA	NA	NA	NA
			Heptachlor	NA	8.2E-13	NA	8.2E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	1.5E-13	NA	1.5E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	7.1E-12	NA	7.1E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.5E-12	NA	1.5E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Surface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.8E-03	NA	2.8E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	7.1E-08	NA	7.1E-08	Circulatory	NA	2.3E-03	NA	2.3E-03
			Chloroform	NA	7.1E-08	NA	7.1E-08	Liver, Kidney, CNS	NA	4.8E-04	NA	4.8E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	1.5E-07	NA	1.5E-07	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	2.6E-03	NA	2.6E-03
			Trichloroethylene	NA	7.4E-07	NA	7.4E-07	CNS, Liver, Endocrine	NA	1.4E-03	NA	1.4E-03
			Vinyl chloride	NA	8.8E-09	NA	8.8E-09	Liver	NA	1.6E-04	NA	1.6E-04
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.4E-03	NA	3.4E-03
		Exposure Point Total		NA	1.1E-06	NA	1.1E-06		NA	2.0E-02	NA	2.0E-02
	Exposure Medium Total			NA	1.1E-06	NA	1.1E-06		NA	2.0E-02	NA	2.0E-02
Medium Total				1.3E-04	1.1E-06	1.0E-04	2.3E-04		2.3E+00	2.0E-02	2.0E+00	4.2E+00
Receptor Total				1.3E-04	1.1E-06	1.0E-04	2.3E-04		2.3E+00	2.0E-02	2.0E+00	4.2E+00

Total Body Weight HI Across Media =	1E-02
Total Circulatory HI Across Media =	**2E+00**
Total CNS HI Across Media =	3E-02
Total Fetotoxicity HI Across Media =	4E-02
Total Gastrointestinal HI Across Media =	2E-01
Total General HI Across Media =	5E-05
Total Immune HI Across Media =	1E+00
Total Kidney HI Across Media =	1E+00
Total Liver HI Across Media =	3E-01
Total Reproductive HI Across Media =	3E-02
Total Respiratory HI Across Media =	5E-03
Total Skin HI Across Media =	1E+00

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	5.9E-03	NA	3.9E-04	6.3E-03
			Antimony	NA	NA	NA	NA	Circulatory	1.2E-02	NA	5.1E-03	1.7E-02
			Arsenic	1.5E-04	NA	3.0E-05	1.8E-04	Skin, Circulatory	9.3E-01	NA	1.8E-01	1.1E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.3E-01	NA	5.0E-01	1.0E+00
			Cadmium	NA	NA	NA	NA	Kidney	2.0E-02	NA	2.6E-03	2.3E-02
			Chromium	NA	NA	NA	NA	N/A	9.7E-02	NA	2.6E-01	3.5E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.4E-02	NA	9.3E-04	1.5E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.7E-01	NA	1.1E-02	1.8E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.6E-03	NA	5.9E-03	9.5E-03
			Mercury	NA	NA	NA	NA	Immune	3.0E-03	NA	2.8E-03	5.8E-03
			Nickel	NA	NA	NA	NA	Body Weight	3.7E-03	NA	6.1E-03	9.8E-03
			Silver	NA	NA	NA	NA	Skin	2.9E-03	NA	4.8E-03	7.7E-03
			Zinc	NA	NA	NA	NA	Circulatory	7.6E-03	NA	5.0E-04	8.1E-03
			Aldrin	2.5E-06	NA	1.6E-06	4.1E-06	Liver	1.4E-02	NA	9.0E-03	2.3E-02
			Chlordane - alpha	4.9E-07	NA	1.3E-07	6.2E-07	Liver	7.8E-03	NA	2.1E-03	9.9E-03
			Chlordane - gamma (technical mixture)	5.4E-07	NA	1.4E-07	6.8E-07	Liver	8.6E-03	NA	2.3E-03	1.1E-02
			DDE-4,4'	9.0E-07	NA	1.8E-07	1.1E-06	Reproductive, Fetotoxicity	2.5E-02	NA	4.9E-03	3.0E-02
			DDT-4,4'	1.9E-07	NA	3.7E-08	2.2E-07	Liver	3.1E-03	NA	6.1E-04	3.7E-03
			Dieldrin	7.3E-06	NA	4.8E-06	1.2E-05	Liver	2.5E-02	NA	1.7E-02	4.2E-02
			Heptachlor	1.5E-07	NA	9.9E-08	2.5E-07	Liver	1.9E-04	NA	1.2E-04	3.1E-04
			Pcb-Aroclor 1248	1.6E-07	NA	1.5E-07	3.1E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	7.5E-06	NA	6.9E-06	1.4E-05	Immune	5.2E-01	NA	4.8E-01	1.0E+00
			Pcb-Aroclor 1260	1.6E-06	NA	1.4E-06	3.0E-06	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	2.8E-05	NA	1.9E-05	4.7E-05
			Benzo(a)anthracene	1.7E-05	NA	1.4E-05	3.1E-05	Kidney	2.1E-03	NA	1.8E-03	4.0E-03
			Benzo(a)pyrene	1.6E-04	NA	1.4E-04	3.0E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.8E-05	NA	1.5E-05	3.3E-05	Kidney	2.3E-03	NA	2.0E-03	4.2E-03
			Benzo(k)fluoranthene	8.8E-07	NA	7.6E-07	1.6E-06	Kidney	1.1E-03	NA	9.7E-04	2.1E-03
			Chrysene	1.6E-07	NA	1.4E-07	3.1E-07	Kidney	2.1E-03	NA	1.8E-03	3.9E-03
			Dibenzo(a,h)anthracene	1.1E-05	NA	9.3E-06	2.0E-05	Kidney	1.4E-04	NA	1.2E-04	2.6E-04
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	3.6E-03	NA	3.5E-03	7.1E-03
			Indeno(1,2,3-cd)pyrene	4.3E-06	NA	3.7E-06	7.9E-06	Body Weight	3.3E-04	NA	2.8E-04	6.1E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	3.5E-04	NA	3.0E-04	6.6E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	7.3E-08	NA	4.8E-08	1.2E-07	Liver	7.3E-04	NA	2.6E-03	3.3E-03
			Benzene	7.4E-08	NA	0.0E+00	7.4E-08	Circulatory	9.5E-04	NA	0.0E+00	9.5E-04
			Chloroform	NA	NA	NA	NA	Liver	1.4E-04	NA	0.0E+00	1.4E-04

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.1E-03	NA	0.0E+00	1.1E-03
			Tetrachloroethylene	2.3E-06	NA	0.0E+00	2.3E-06	Liver	1.2E-03	NA	0.0E+00	1.2E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	3.6E-04	NA	0.0E+00	3.6E-04
			Trichloroethylene	4.5E-07	NA	0.0E+00	4.5E-07	Liver, Kidney, Fetotoxicity	1.1E-02	NA	0.0E+00	1.1E-02
			Vinyl chloride	1.7E-07	NA	0.0E+00	1.7E-07	Liver	1.0E-04	NA	0.0E+00	1.0E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.4E-04	NA	0.0E+00	1.4E-04
		Exposure Point Total		3.8E-04	NA	2.3E-04	6.1E-04		2.4E+00	NA	1.5E+00	3.9E+00
	Exposure Medium Total			3.8E-04	NA	2.3E-04	6.1E-04		2.4E+00	NA	1.5E+00	3.9E+00
	Ambient Air	Emissions from Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	8.1E-04	NA	8.1E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	2.9E-07	NA	2.9E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	5.2E-02	NA	5.2E-02
			Cadmium	NA	8.8E-09	NA	8.8E-09	Kidney	NA	6.9E-05	NA	6.9E-05
			Chromium	NA	8.5E-07	NA	8.5E-07	Respiratory	NA	2.5E-02	NA	2.5E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	6.9E-03	NA	6.9E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.0E-06	NA	2.0E-06
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	1.0E-03	NA	1.0E-03
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	4.9E-10	NA	4.9E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	9.6E-11	NA	9.6E-11	Liver	NA	3.8E-06	NA	3.8E-06
			Chlordane - gamma (technical mixture)	NA	1.1E-10	NA	1.1E-10	Liver	NA	4.2E-06	NA	4.2E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	3.7E-11	NA	3.7E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.4E-09	NA	1.4E-09	N/A	NA	NA	NA	NA
			Heptachlor	NA	3.0E-11	NA	3.0E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	5.5E-12	NA	5.5E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	2.6E-10	NA	2.6E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	5.3E-11	NA	5.3E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Surface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.7E-02	NA	3.7E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.5E-06	NA	2.5E-06	Circulatory	NA	3.0E-02	NA	3.0E-02
			Chloroform	NA	2.6E-06	NA	2.6E-06	Liver, Kidney, CNS	NA	6.3E-03	NA	6.3E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	5.3E-06	NA	5.3E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	3.4E-02	NA	3.4E-02
			Trichloroethylene	NA	2.7E-05	NA	2.7E-05	CNS, Liver, Endocrine	NA	1.9E-02	NA	1.9E-02
			Vinyl chloride	NA	3.2E-07	NA	3.2E-07	Liver	NA	2.0E-03	NA	2.0E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	4.4E-02	NA	4.4E-02
		Exposure Point Total		NA	3.9E-05	NA	3.9E-05		NA	2.6E-01	NA	2.6E-01
	Exposure Medium Total			NA	3.9E-05	NA	3.9E-05		NA	2.6E-01	NA	2.6E-01
Medium Total				3.8E-04	3.9E-05	2.3E-04	6.5E-04		2.4E+00	2.6E-01	1.5E+00	4.2E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	6.0E-03	NA	3.9E-04	6.4E-03
			Antimony	NA	NA	NA	NA	Circulatory	2.5E-02	NA	1.1E-02	3.6E-02
			Arsenic	3.8E-04	NA	7.6E-05	4.6E-04	Skin, Circulatory	2.4E+00	NA	4.7E-01	2.9E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.0E-01	NA	2.8E-01	5.9E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.9E-02	NA	2.5E-03	2.1E-02
			Chromium	NA	NA	NA	NA	N/A	8.8E-01	NA	2.3E+00	3.2E+00
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.3E-02	NA	8.3E-04	1.3E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.7E-02	NA	5.7E-03	9.3E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.3E-03	NA	3.7E-03	6.0E-03
			Mercury	NA	NA	NA	NA	Immune	9.1E-02	NA	8.6E-02	1.8E-01
			Nickel	NA	NA	NA	NA	Body Weight	3.4E-03	NA	5.6E-03	9.0E-03
			Silver	NA	NA	NA	NA	Skin	1.2E-03	NA	1.9E-03	3.1E-03
			Thallium	NA	NA	NA	NA	Circulatory	1.6E-02	NA	1.0E-03	1.7E-02
			Vanadium	NA	NA	NA	NA	Kidney	2.3E-02	NA	5.9E-02	8.2E-02
			Zinc	NA	NA	NA	NA	Circulatory	6.3E-03	NA	4.1E-04	6.7E-03
			Aldrin	1.0E-06	NA	6.8E-07	1.7E-06	Liver	5.6E-03	NA	3.7E-03	9.3E-03

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Chlordane - alpha	1.9E-07	NA	5.1E-08	2.5E-07	Liver	3.1E-03	NA	8.2E-04	3.9E-03
			Chlordane - gamma (technical mixture)	2.3E-07	NA	6.1E-08	2.9E-07	Liver	3.7E-03	NA	9.8E-04	4.7E-03
			DDE-4,4'	5.8E-07	NA	1.1E-07	6.9E-07	Reproductive, Fetotoxicity	1.6E-02	NA	3.1E-03	1.9E-02
			DDT-4,4'	4.7E-08	NA	9.2E-09	5.6E-08	Liver	7.7E-04	NA	1.5E-04	9.2E-04
			Dieldrin	1.0E-06	NA	6.6E-07	1.7E-06	Liver	3.5E-03	NA	2.3E-03	5.8E-03
			Heptachlor	6.0E-08	NA	3.9E-08	9.9E-08	Liver	7.4E-05	NA	4.9E-05	1.2E-04
			Pcb-Aroclor 1248	6.5E-08	NA	6.0E-08	1.2E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	7.5E-06	NA	7.0E-06	1.4E-05	Immune	5.3E-01	NA	4.9E-01	1.0E+00
			Pcb-Aroclor 1260	1.6E-07	NA	1.5E-07	3.1E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	2.8E-05	NA	1.9E-05	4.7E-05
			Benzo(a)anthracene	5.0E-06	NA	4.3E-06	9.3E-06	Kidney	6.4E-04	NA	5.5E-04	1.2E-03
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.5E-06	NA	4.7E-06	1.0E-05	Kidney	7.1E-04	NA	6.1E-04	1.3E-03
			Benzo(k)fluoranthene	2.0E-07	NA	1.8E-07	3.8E-07	Kidney	2.6E-04	NA	2.2E-04	4.8E-04
			Chrysene	4.7E-08	NA	4.0E-08	8.7E-08	Kidney	6.0E-04	NA	5.1E-04	1.1E-03
			Dibenzo(a,h)anthracene	1.0E-05	NA	8.9E-06	1.9E-05	Kidney	1.3E-04	NA	1.1E-04	2.5E-04
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	9.2E-04	NA	8.9E-04	1.8E-03
			Indeno(1,2,3-cd)pyrene	2.5E-06	NA	2.1E-06	4.6E-06	Body Weight	1.9E-04	NA	1.6E-04	3.5E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	1.6E-03	NA	1.4E-03	2.9E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	1.3E-07	NA	8.3E-08	2.1E-07	Liver	1.3E-03	NA	4.4E-03	5.6E-03
			Benzene	1.1E-07	NA	0.0E+00	1.1E-07	Circulatory	1.4E-03	NA	0.0E+00	1.4E-03
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	3.6E-04	NA	0.0E+00	3.6E-04
			Chloroform	NA	NA	NA	NA	Liver	2.2E-04	NA	0.0E+00	2.2E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	5.5E-04	NA	0.0E+00	5.5E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	6.2E-05	NA	0.0E+00	6.2E-05
			Tetrachloroethylene	4.3E-06	NA	0.0E+00	4.3E-06	Liver	2.2E-03	NA	0.0E+00	2.2E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	1.5E-04	NA	0.0E+00	1.5E-04
			Trichloroethylene	1.6E-05	NA	0.0E+00	1.6E-05	Liver, Kidney, Fetotoxicity	3.7E-01	NA	0.0E+00	3.7E-01
			Vinyl chloride	2.5E-07	NA	0.0E+00	2.5E-07	Liver	1.6E-04	NA	0.0E+00	1.6E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	2.2E-04	NA	0.0E+00	2.2E-04
		Exposure Point Total		4.9E-04	NA	1.4E-04	6.3E-04		4.8E+00	NA	3.8E+00	8.6E+00
	Exposure Medium Total			4.9E-04	NA	1.4E-04	6.3E-04		4.8E+00	NA	3.8E+00	8.6E+00
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	8.2E-04	NA	8.2E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	7.6E-07	NA	7.6E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.0E-02	NA	3.0E-02

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Cadmium	NA	8.2E-09	NA	8.2E-09	Kidney	NA	6.4E-05	NA	6.4E-05
			Chromium	NA	7.8E-06	NA	7.8E-06	Respiratory	NA	2.3E-01	NA	2.3E-01
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	4.4E-03	NA	4.4E-03
			Mercury	NA	NA	NA	NA	CNS	NA	6.3E-05	NA	6.3E-05
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	4.0E-04	NA	4.0E-04
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	2.0E-10	NA	2.0E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	3.8E-11	NA	3.8E-11	Liver	NA	1.5E-06	NA	1.5E-06
			Chlordane - gamma (technical mixture)	NA	4.5E-11	NA	4.5E-11	Liver	NA	1.8E-06	NA	1.8E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	9.1E-12	NA	9.1E-12	N/A	NA	NA	NA	NA
			Dieldrin	NA	2.0E-10	NA	2.0E-10	N/A	NA	NA	NA	NA
			Heptachlor	NA	1.2E-11	NA	1.2E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	2.2E-12	NA	2.2E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	2.6E-10	NA	2.6E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	5.6E-12	NA	5.6E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.6E-01	NA	1.6E-01
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	3.9E-06	NA	3.9E-06	Circulatory	NA	4.6E-02	NA	4.6E-02
			Bromomethane	NA	NA	NA	NA	Respiratory	NA	3.8E-02	NA	3.8E-02
			Chloroform	NA	4.1E-06	NA	4.1E-06	Liver, Kidney, CNS	NA	1.0E-02	NA	1.0E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.0E-03	NA	1.0E-03

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Tetrachloroethylene	NA	1.0E-05	NA	1.0E-05	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	1.4E-02	NA	1.4E-02
			Trichloroethylene	NA	9.3E-04	NA	9.3E-04	CNS, Liver, Endocrine	NA	6.5E-01	NA	6.5E-01
			Vinyl chloride	NA	4.8E-07	NA	4.8E-07	Liver	NA	3.0E-03	NA	3.0E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.7E-02	NA	6.7E-02
		Exposure Point Total		NA	9.6E-04	NA	9.6E-04		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	9.6E-04	NA	9.6E-04		NA	1.3E+00	NA	1.3E+00
Medium Total				4.9E-04	9.6E-04	1.4E-04	1.6E-03		4.8E+00	1.3E+00	3.8E+00	9.8E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	4.5E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
			Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	1.9E-02	NA	1.2E-02	3.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium	NA	NA	NA	NA	N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.3E-02	NA	5.7E-05	1.3E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Mercury	NA	NA	NA	NA	Immune	6.8E-03	NA	4.4E-04	7.2E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.4E-02	NA	3.3E-04	1.5E-02
			Selenium	NA	NA	NA	NA	Skin	1.4E-02	NA	6.2E-05	1.4E-02
			Thallium	NA	NA	NA	NA	Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.8E-02	NA	1.0E-04	3.8E-02
			Chlordane - alpha	2.7E-08	NA	7.5E-08	1.0E-07	Liver	4.4E-04	NA	1.2E-03	1.6E-03
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06	Liver	4.2E-03	NA	3.9E-03	8.1E-03
			Heptachlor Epoxide	3.1E-07	NA	2.0E-07	5.1E-07	Liver	7.4E-03	NA	4.6E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.0E-02	NA	1.3E-03	1.1E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Nitrosodiphenylamine-n	1.9E-07	NA	8.2E-08	2.7E-07	Body Weight, Developmental, Reproductive	5.3E-03	NA	2.3E-03	7.6E-03
			Phenol	NA	NA	NA	NA	Body Weight	3.2E-02	NA	2.0E-03	3.4E-02
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06	Circulatory	8.3E-02	NA	1.7E-02	9.9E-02
			Chloroethane	1.3E-08	NA	9.9E-10	1.4E-08	Fetotoxicity	3.2E-05	NA	2.4E-06	3.5E-05

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	7.2E-03	NA	8.7E-03	1.6E-02
			Dichlorobenzene-1,4	7.7E-08	NA	6.8E-08	1.5E-07	Liver, Developmental	3.0E-04	NA	2.6E-04	5.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.9E-03	NA	2.0E-04	2.1E-03
			Dichloroethane-1,2	3.0E-07	NA	1.9E-08	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.7E-04	NA	3.0E-05	5.0E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.4E-03	NA	2.8E-04	2.7E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Dichloropropane-1,2	2.1E-07	NA	2.7E-08	2.3E-07	Kidney	4.2E-04	NA	5.6E-05	4.8E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.2E-03	NA	9.1E-04	2.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.9E-03	NA	1.7E-04	4.1E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06	Liver	7.9E-04	NA	6.2E-04	1.4E-03
			Trichloroethane-1,1,2	8.6E-08	NA	1.1E-08	9.6E-08	Circulatory	1.1E-03	NA	1.3E-04	1.2E-03
			Trichloroethylene	4.0E-06	NA	9.2E-07	5.0E-06	Liver, Kidney, Fetotoxicity	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05	Liver	4.6E-02	NA	3.1E-03	4.9E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	9.2E-04	NA	7.9E-04	1.7E-03
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.0E+01	NA	2.0E+01
			Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.2E-05	NA	2.2E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	3.4E-07	NA	3.4E-07	Liver	NA	1.9E-04	NA	1.9E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.4E-03	NA	6.4E-03
			Dichloroethane-1,2	NA	1.5E-06	NA	1.5E-06	Gastrointestinal, Liver, Kidney	NA	3.1E-02	NA	3.1E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.6E-02	NA	3.6E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.9E-03	NA	1.9E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.8E-03	NA	1.8E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.3E-03	NA	1.3E-03
			Tetrachloroethylene	NA	2.8E-07	NA	2.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	4.0E-07	NA	4.0E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05	CNS, Liver, Endocrine	NA	1.4E-02	NA	1.4E-02
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06	Liver	NA	2.3E-02	NA	2.3E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.1E-02	NA	3.1E-02

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TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	*Exposure* Medium	*Exposure* Point	*Chemical* of Potential Concern	*Carcinogenic Risk*				*Non-Carcinogenic Hazard Quotient*				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Air	Chemical Total		NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	4.1E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.6E-02	NA	1.6E-04	3.6E-02
			Antimony	NA	NA	NA	NA	Circulatory	7.1E-02	NA	2.1E-03	7.3E-02
			Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.1E-02	NA	2.6E-03	4.4E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.3E-02	NA	9.5E-03	6.2E-02
			Chromium	NA	NA	NA	NA	N/A	3.5E-02	NA	1.2E-02	4.7E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.7E-02	NA	6.6E-05	3.7E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.0E-02	NA	2.7E-04	6.0E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.4E-01	NA	2.7E-02	2.7E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Benzene	6.3E-08	NA	1.3E-08	7.6E-08	Circulatory	8.1E-04	NA	1.6E-04	9.7E-04
			Dichloroethane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.3E-04	NA	2.7E-05	4.5E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.1E-02	NA	3.6E-03	3.5E-02
			Dichloropropane-1,2	1.8E-07	NA	2.3E-08	2.0E-07	Kidney	3.6E-04	NA	4.8E-05	4.1E-04
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06	Liver	9.8E-04	NA	7.7E-04	1.7E-03
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06	Liver, Kidney, Fetotoxicity	4.9E-02	NA	1.1E-02	6.0E-02
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05	Liver	2.9E-02	NA	2.0E-03	3.1E-02
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	1.5E-07	NA	1.5E-07	Circulatory	NA	1.8E-03	NA	1.8E-03
			Dichloroethane-1,2	NA	1.3E-06	NA	1.3E-06	Gastrointestinal, Liver, Kidney	NA	2.9E-02	NA	2.9E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.0E-02	NA	3.0E-02
			Tetrachloroethylene	NA	3.5E-07	NA	3.5E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.0E-05	NA	1.0E-05	CNS, Liver, Endocrine	NA	7.0E-03	NA	7.0E-03
			Vinyl chloride	NA	2.3E-06	NA	2.3E-06	Liver	NA	1.5E-02	NA	1.5E-02
		Chemical Total		NA	1.4E-05	NA	1.4E-05		NA	8.3E-02	NA	8.3E-02
	Exposure Medium Total			NA	1.4E-05	NA	7.5E-05		NA	8.3E-02	NA	7.5E+00
Medium Total				7.0E-05	1.4E-05	5.3E-06	9.0E-05		7.4E+00	8.3E-02	1.0E-01	7.6E+00

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Table 9.2.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**3.8E-04**	3.9E-05	**2.3E-04**	**6.5E-04**	**2.4E+00**	2.6E-01	**1.5E+00**	**4.2E+00**
Subsurface Soil	**4.9E-04**	**9.6E-04**	1.4E-04	**1.6E-03**	**4.8E+00**	**1.3E+00**	**3.8E+00**	**9.8E+00**
Upper PRM Aquifer	**1.9E-02**	4.1E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.4E-05	5.3E-06	9.0E-05	**7.4E+00**	8.3E-02	1.0E-01	**7.6E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	8.0E-05	**3.2E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.7E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	**4.5E-04**	5.3E-05	**2.3E-04**	**7.4E-04**	**9.8E+00**	3.4E-01	**1.6E+00**	**1.2E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	**1.0E-03**	**2.4E-04**	**2.1E-02**	**1.3E+02**	**2.1E+01**	**4.9E+00**	**1.6E+02**
Subsurface Soil + Middle PRM Aquifer	**5.6E-04**	**9.7E-04**	**1.5E-04**	**1.7E-03**	**1.2E+01**	**1.3E+00**	**3.9E+00**	**1.7E+01**

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Table 9.2.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	1E-02	1E-02	7E-01	NA	7E-01	1E-02	7E-01	1E-02
Total Circulatory HI Across Media =	**2E+00**	**4E+00**	**1E+02**	**7E+00**	**1E+02**	**9E+00**	**1E+02**	**1E+01**
Total CNS HI Across Media =	2E-01	9E-01	**2E+01**	3E-01	**2E+01**	5E-01	**2E+01**	1E+00
Total Developmental HI Across Media =	NA	1E-03	1E-02	NA	1E-02	NA	1E-02	1E-03
Total Fetotoxicity HI Across Media =	9E-02	4E-01	1E-01	6E-02	2E-01	2E-01	5E-01	5E-01
Total Gastrointestinal HI Across Media =	2E-01	1E-01	**4E+00**	**5E+00**	**4E+00**	**6E+00**	**4E+00**	**5E+00**
Total General HI Across Media =	5E-05	5E-05	NA	NA	5E-05	5E-05	5E-05	5E-05
Total Heart HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Immune HI Across Media =	1E+00	1E+00	7E-03	NA	1E+00	1E+00	1E+00	1E+00
Total Kidney HI Across Media =	1E+00	1E+00	**3E+00**	3E-01	**4E+00**	1E+00	**4E+00**	1E+00
Total Liver HI Across Media =	3E-01	1E+00	**4E+00**	**5E+00**	**4E+00**	**6E+00**	**5E+00**	**7E+00**
Total Lungs HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Reproductive HI Across Media =	3E-02	2E-02	8E-03	NA	4E-02	3E-02	3E-02	2E-02
Total Respiratory HI Across Media =	6E-02	4E-01	**2E+01**	3E-02	**2E+01**	9E-02	**2E+01**	5E-01
Total Sensitizer HI Across Media =	NA	NA	NA	4E-02	NA	4E-02	NA	4E-02
Total Skin HI Across Media =	1E+00	**3E+00**	**1E+02**	1E-01	**1E+02**	1E+00	**1E+02**	**3E+00**
Total Thyroid HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Endocrine HI Across Media =	2E-02	7E-01	1E-02	7E-03	3E-02	3E-02	7E-01	7E-01

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	8.3E-03	NA	3.3E-04	8.6E-03
			Antimony	NA	NA	NA	NA	Circulatory	1.6E-02	NA	4.3E-03	2.0E-02
			Arsenic	2.0E-04	NA	2.4E-05	2.3E-04	Skin, Circulatory	1.3E+00	NA	1.6E-01	1.5E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	7.4E-01	NA	4.2E-01	1.2E+00
			Cadmium	NA	NA	NA	NA	Kidney	2.8E-02	NA	2.2E-03	3.0E-02
			Chromium	NA	NA	NA	NA	N/A	1.4E-01	NA	2.2E-01	3.5E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	2.0E-02	NA	7.9E-04	2.0E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.4E-01	NA	9.5E-03	2.5E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	5.0E-03	NA	5.0E-03	1.0E-02
			Mercury	NA	NA	NA	NA	Immune	4.2E-03	NA	2.4E-03	6.5E-03
			Nickel	NA	NA	NA	NA	Body Weight	5.2E-03	NA	5.2E-03	1.0E-02
			Silver	NA	NA	NA	NA	Skin	4.1E-03	NA	4.1E-03	8.2E-03
			Zinc	NA	NA	NA	NA	Circulatory	1.1E-02	NA	4.3E-04	1.1E-02
			Aldrin	3.3E-06	NA	1.3E-06	4.7E-06	Liver	1.9E-02	NA	7.6E-03	2.7E-02
			Chlordane - alpha	6.6E-07	NA	1.0E-07	7.6E-07	Liver	1.1E-02	NA	1.7E-03	1.3E-02
			Chlordane - gamma (technical mixture)	7.3E-07	NA	1.2E-07	8.4E-07	Liver	1.2E-02	NA	1.9E-03	1.4E-02
			DDE-4,4'	1.2E-06	NA	1.4E-07	1.4E-06	Reproductive, Fetotoxicity	3.5E-02	NA	4.1E-03	3.9E-02
			DDT-4,4'	2.5E-07	NA	3.0E-08	2.8E-07	Liver	4.3E-03	NA	5.2E-04	4.8E-03
			Dieldrin	9.8E-06	NA	3.9E-06	1.4E-05	Liver	3.6E-02	NA	1.4E-02	5.0E-02
			Heptachlor	2.0E-07	NA	8.0E-08	2.8E-07	Liver	2.6E-04	NA	1.0E-04	3.6E-04
			Pcb-Aroclor 1248	2.2E-07	NA	1.2E-07	3.4E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	1.0E-05	NA	5.6E-06	1.6E-05	Immune	7.3E-01	NA	4.1E-01	1.1E+00
			Pcb-Aroclor 1260	2.1E-06	NA	1.2E-06	3.3E-06	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	4.0E-05	NA	1.6E-05	5.6E-05
			Benzo(a)anthracene	2.3E-05	NA	1.2E-05	3.4E-05	Kidney	3.0E-03	NA	1.6E-03	4.6E-03
			Benzo(a)pyrene	2.1E-04	NA	1.1E-04	3.2E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	2.4E-05	NA	1.2E-05	3.6E-05	Kidney	3.2E-03	NA	1.7E-03	4.9E-03
			Benzo(k)fluoranthene	1.2E-06	NA	6.2E-07	1.8E-06	Kidney	1.6E-03	NA	8.2E-04	2.4E-03
			Chrysene	2.2E-07	NA	1.1E-07	3.4E-07	Kidney	2.9E-03	NA	1.5E-03	4.5E-03
			Dibenzo(a,h)anthracene	1.5E-05	NA	7.6E-06	2.2E-05	Kidney	1.9E-04	NA	1.0E-04	3.0E-04
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	5.1E-03	NA	3.0E-03	8.0E-03
			Indeno(1,2,3-cd)pyrene	5.7E-06	NA	3.0E-06	8.7E-06	Body Weight	4.6E-04	NA	2.4E-04	7.0E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	5.0E-04	NA	2.6E-04	7.5E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	9.9E-08	NA	3.9E-08	1.4E-07	Liver	1.0E-03	NA	2.2E-03	3.2E-03
			Benzene	1.0E-07	NA	0.0E+00	1.0E-07	Circulatory	1.3E-03	NA	0.0E+00	1.3E-03
			Chloroform	NA	NA	NA	NA	Liver	1.9E-04	NA	0.0E+00	1.9E-04
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.5E-03	NA	0.0E+00	1.5E-03
			Tetrachloroethylene	3.1E-06	NA	0.0E+00	3.1E-06	Liver	1.7E-03	NA	0.0E+00	1.7E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	5.0E-04	NA	0.0E+00	5.0E-04
			Trichloroethylene	6.1E-07	NA	0.0E+00	6.1E-07	Liver, Kidney, Fetotoxicity	1.5E-02	NA	0.0E+00	1.5E-02
			Vinyl chloride	2.3E-07	NA	0.0E+00	2.3E-07	Liver	1.5E-04	NA	0.0E+00	1.5E-04

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TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Xylenes, total	NA	NA	NA	NA	Body Weight	2.0E-04	NA	0.0E+00	2.0E-04
		Exposure Point Total		5.2E-04	NA	1.8E-04	7.0E-04		3.4E+00	NA	1.3E+00	4.7E+00
	Exposure Medium Total			5.2E-04	NA	1.8E-04	7.0E-04		3.4E+00	NA	1.3E+00	4.7E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	1.1E-03	NA	1.1E-03
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil	Arsenic	NA	3.9E-07	NA	3.9E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	7.2E-02	NA	7.2E-02
			Cadmium	NA	1.2E-08	NA	1.2E-08	Kidney	NA	9.6E-05	NA	9.6E-05
			Chromium	NA	1.1E-06	NA	1.1E-06	Respiratory	NA	3.5E-02	NA	3.5E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	9.6E-03	NA	9.6E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.8E-06	NA	2.8E-06
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	1.4E-03	NA	1.4E-03
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	6.6E-10	NA	6.6E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.3E-10	NA	1.3E-10	Liver	NA	5.4E-06	NA	5.4E-06
			Chlordane - gamma (technical mixture)	NA	1.4E-10	NA	1.4E-10	Liver	NA	5.9E-06	NA	5.9E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	4.9E-11	NA	4.9E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.9E-09	NA	1.9E-09	N/A	NA	NA	NA	NA
			Heptachlor	NA	4.0E-11	NA	4.0E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	7.4E-12	NA	7.4E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	3.4E-10	NA	3.4E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	7.1E-11	NA	7.1E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	Emissions from	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Martin Aaron property	Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	5.1E-02	NA	5.1E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	3.4E-06	NA	3.4E-06	Circulatory	NA	4.2E-02	NA	4.2E-02
			Chloroform	NA	3.4E-06	NA	3.4E-06	Liver, Kidney, CNS	NA	8.7E-03	NA	8.7E-03

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TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	7.2E-06	NA	7.2E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	4.7E-02	NA	4.7E-02
			Trichloroethylene	NA	3.6E-05	NA	3.6E-05	CNS, Liver, Endocrine	NA	2.6E-02	NA	2.6E-02
			Vinyl chloride	NA	4.3E-07	NA	4.3E-07	Liver	NA	2.8E-03	NA	2.8E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.2E-02	NA	6.2E-02
		Exposure Point Total		NA	5.2E-05	NA	5.2E-05		NA	3.6E-01	NA	3.6E-01
	Exposure Medium Total			NA	5.2E-05	NA	5.2E-05		NA	3.6E-01	NA	3.6E-01
Medium Total				5.2E-04	5.2E-05	1.8E-04	7.5E-04		3.4E+00	3.6E-01	1.3E+00	5.0E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	8.4E-03	NA	3.3E-04	8.7E-03
			Antimony	NA	NA	NA	NA	Circulatory	3.5E-02	NA	9.2E-03	4.4E-02
			Arsenic	5.2E-04	NA	6.2E-05	5.8E-04	Skin, Circulatory	3.4E+00	NA	4.0E-01	3.8E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.2E-01	NA	2.4E-01	6.6E-01
			Cadmium	NA	NA	NA	NA	Kidney	2.6E-02	NA	2.1E-03	2.8E-02
			Chromium	NA	NA	NA	NA	N/A	1.2E+00	NA	2.0E+00	3.2E+00
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.8E-02	NA	7.0E-04	1.8E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.2E-01	NA	4.9E-03	1.3E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.2E-03	NA	3.2E-03	6.3E-03
			Mercury	NA	NA	NA	NA	Immune	1.3E-01	NA	7.3E-02	2.0E-01
			Nickel	NA	NA	NA	NA	Body Weight	4.8E-03	NA	4.8E-03	9.5E-03
			Silver	NA	NA	NA	NA	Skin	1.6E-03	NA	1.6E-03	3.3E-03
			Thallium	NA	NA	NA	NA	Circulatory	2.2E-02	NA	8.8E-04	2.3E-02
			Vanadium	NA	NA	NA	NA	Kidney	3.3E-02	NA	5.0E-02	8.3E-02
			Zinc	NA	NA	NA	NA	Circulatory	8.8E-03	NA	3.5E-04	9.1E-03
			Aldrin	1.4E-06	NA	5.5E-07	1.9E-06	Liver	7.9E-03	NA	3.1E-03	1.1E-02
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Chlordane - alpha	2.6E-07	NA	4.2E-08	3.0E-07	Liver	4.3E-03	NA	6.9E-04	5.0E-03
			Chlordane - gamma (technical mixture)	3.1E-07	NA	5.0E-08	3.6E-07	Liver	5.2E-03	NA	8.3E-04	6.0E-03
			DDE-4,4'	7.8E-07	NA	9.3E-08	8.7E-07	Reproductive, Fetotoxicity	2.2E-02	NA	2.7E-03	2.5E-02
			DDT-4,4'	6.3E-08	NA	7.5E-09	7.0E-08	Liver	1.1E-03	NA	1.3E-04	1.2E-03
			Dieldrin	1.3E-06	NA	5.4E-07	1.9E-06	Liver	4.9E-03	NA	2.0E-03	6.9E-03
			Heptachlor	8.0E-08	NA	3.2E-08	1.1E-07	Liver	1.0E-04	NA	4.1E-05	1.5E-04
			Pcb-Aroclor 1248	8.7E-08	NA	4.8E-08	1.4E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	1.0E-05	NA	5.6E-06	1.6E-05	Immune	7.4E-01	NA	4.1E-01	1.1E+00
			Pcb-Aroclor 1260	2.2E-07	NA	1.2E-07	3.4E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	4.0E-05	NA	1.6E-05	5.6E-05
			Benzo(a)anthracene	6.7E-06	NA	3.5E-06	1.0E-05	Kidney	8.9E-04	NA	4.6E-04	1.4E-03
			Benzo(a)pyrene	6.2E-05	NA	3.2E-05	9.4E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	7.4E-06	NA	3.8E-06	1.1E-05	Kidney	9.9E-04	NA	5.1E-04	1.5E-03

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TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	2.7E-07	NA	1.4E-07	4.2E-07	Kidney	3.7E-04	NA	1.9E-04	5.5E-04
			Chrysene	6.3E-08	NA	3.3E-08	9.6E-08	Kidney	8.4E-04	NA	4.3E-04	1.3E-03
			Dibenzo(a,h)anthracene	1.4E-05	NA	7.2E-06	2.1E-05	Kidney	1.9E-04	NA	9.6E-05	2.8E-04
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.3E-03	NA	7.5E-04	2.0E-03
			Indeno(1,2,3-cd)pyrene	3.3E-06	NA	1.7E-06	5.1E-06	Body Weight	2.7E-04	NA	1.4E-04	4.1E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	2.2E-03	NA	1.1E-03	3.4E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	1.7E-07	NA	6.8E-08	2.4E-07	Liver	1.8E-03	NA	3.7E-03	5.5E-03
			Benzene	1.5E-07	NA	0.0E+00	1.5E-07	Circulatory	2.0E-03	NA	0.0E+00	2.0E-03
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	5.1E-04	NA	0.0E+00	5.1E-04
			Chloroform	NA	NA	NA	NA	Liver	3.1E-04	NA	0.0E+00	3.1E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	7.7E-04	NA	0.0E+00	7.7E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	8.7E-05	NA	0.0E+00	8.7E-05
			Tetrachloroethylene	5.8E-06	NA	0.0E+00	5.8E-06	Liver	3.1E-03	NA	0.0E+00	3.1E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	2.1E-04	NA	0.0E+00	2.1E-04
			Trichloroethylene	2.1E-05	NA	0.0E+00	2.1E-05	Liver, Kidney, Fetotoxicity	5.2E-01	NA	0.0E+00	5.2E-01
			Vinyl chloride	3.4E-07	NA	0.0E+00	3.4E-07	Liver	2.2E-04	NA	0.0E+00	2.2E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	3.0E-04	NA	0.0E+00	3.0E-04
		Exposure Point Total		6.5E-04	NA	1.2E-04	7.7E-04		6.7E+00	NA	3.2E+00	9.9E+00
	Exposure Medium Total			6.5E-04	NA	1.2E-04	7.7E-04		6.7E+00	NA	3.2E+00	9.9E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	1.1E-03	NA	1.1E-03
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Subsurface Soil	Arsenic	NA	1.0E-06	NA	1.0E-06	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.1E-02	NA	4.1E-02
Subsurface Soil	Ambient Air	Emissions from	Cadmium	NA	1.1E-08	NA	1.1E-08	Kidney	NA	8.9E-05	NA	8.9E-05
(cont.)	(cont.)	Martin Aaron property	Chromium	NA	1.0E-05	NA	1.0E-05	Respiratory	NA	3.2E-01	NA	3.2E-01
		Subsurface Soil (cont.)	Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	6.1E-03	NA	6.1E-03
			Mercury	NA	NA	NA	NA	CNS	NA	8.7E-05	NA	8.7E-05
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	5.6E-04	NA	5.6E-04
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	2.7E-10	NA	2.7E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	5.1E-11	NA	5.1E-11	Liver	NA	2.1E-06	NA	2.1E-06
			Chlordane - gamma (technical mixture)	NA	6.1E-11	NA	6.1E-11	Liver	NA	2.5E-06	NA	2.5E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	1.2E-11	NA	1.2E-11	N/A	NA	NA	NA	NA

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Dieldrin	NA	2.6E-10	NA	2.6E-10	N/A	NA	NA	NA	NA
			Heptachlor	NA	1.6E-11	NA	1.6E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	3.0E-12	NA	3.0E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	3.5E-10	NA	3.5E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	7.5E-12	NA	7.5E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.3E-01	NA	2.3E-01
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	5.2E-06	NA	5.2E-06	Circulatory	NA	6.5E-02	NA	6.5E-02
			Bromomethane	NA	NA	NA	NA	Respiratory	NA	5.3E-02	NA	5.3E-02
			Chloroform	NA	5.5E-06	NA	5.5E-06	Liver, Kidney, CNS	NA	1.4E-02	NA	1.4E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.4E-03	NA	1.4E-03
			Tetrachloroethylene	NA	1.3E-05	NA	1.3E-05	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	2.0E-02	NA	2.0E-02
			Trichloroethylene	NA	1.2E-03	NA	1.2E-03	CNS, Liver, Endocrine	NA	9.1E-01	NA	9.1E-01
			Vinyl chloride	NA	6.4E-07	NA	6.4E-07	Liver	NA	4.2E-03	NA	4.2E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	9.3E-02	NA	9.3E-02
		Exposure Point Total		NA	1.3E-03	NA	1.3E-03		NA	1.8E+00	NA	1.8E+00
	Exposure Medium Total			NA	1.3E-03	NA	1.3E-03		NA	1.8E+00	NA	1.8E+00
Medium Total				6.5E-04	1.3E-03	1.2E-04	2.1E-03		6.7E+00	1.8E+00	3.2E+00	1.2E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony	NA	NA	NA	NA	Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
			Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.8E+00	NA	1.2E-01	3.9E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	5.3E-02	NA	1.7E-02	7.0E-02
			Cadmium	NA	NA	NA	NA	Kidney	7.2E-01	NA	6.5E-02	7.9E-01
			Chromium	NA	NA	NA	NA	N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.6E-02	NA	8.0E-05	3.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.9E-01	NA	2.2E-02	4.1E-01

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TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Mercury	NA	NA	NA	NA	Immune	1.9E-02	NA	6.1E-04	2.0E-02
			Nickel	NA	NA	NA	NA	Body Weight	4.0E-02	NA	4.6E-04	4.1E-02
			Selenium	NA	NA	NA	NA	Skin	3.8E-02	NA	8.6E-05	3.9E-02
			Thallium	NA	NA	NA	NA	Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium	NA	NA	NA	NA	Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Zinc	NA	NA	NA	NA	Circulatory	1.1E-01	NA	1.4E-04	1.1E-01
			Chlordane - alpha	7.4E-08	NA	1.0E-07	1.7E-07	Liver	1.2E-03	NA	1.7E-03	2.9E-03
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06	Liver	1.2E-02	NA	5.4E-03	1.7E-02
			Heptachlor Epoxide	8.4E-07	NA	2.6E-07	1.1E-06	Liver	2.1E-02	NA	6.5E-03	2.7E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	2.8E-02	NA	1.8E-03	3.0E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	4.9E-01	NA	2.2E-01	7.1E-01
			Nitrosodiphenylamine-n	5.0E-07	NA	1.1E-07	6.1E-07	Body Weight, Developmental, Reproductive	1.5E-02	NA	3.3E-03	1.8E-02
			Phenol	NA	NA	NA	NA	Body Weight	8.8E-02	NA	2.8E-03	9.1E-02
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Chloroethane	3.6E-08	NA	1.3E-09	3.7E-08	Fetotoxicity	9.0E-05	NA	3.4E-06	9.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	2.0E-02	NA	1.2E-02	3.2E-02
			Dichlorobenzene-1,4	2.1E-07	NA	9.1E-08	3.0E-07	Liver, Developmental	8.4E-04	NA	3.7E-04	1.2E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	5.4E-03	NA	2.7E-04	5.6E-03
			Dichloroethane-1,2	8.1E-07	NA	2.6E-08	8.4E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.3E-03	NA	4.2E-05	1.3E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	6.8E-03	NA	4.0E-04	7.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Dichloropropane-1,2	5.5E-07	NA	3.6E-08	5.9E-07	Kidney	1.2E-03	NA	7.8E-05	1.3E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	3.2E-03	NA	1.3E-03	4.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.1E-02	NA	2.3E-04	1.1E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06	Liver	2.2E-03	NA	8.6E-04	3.1E-03
			Trichloroethane-1,1,2	2.3E-07	NA	1.4E-08	2.4E-07	Circulatory	2.9E-03	NA	1.8E-04	3.1E-03
			Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	2.6E-03	NA	1.1E-03	3.7E-03
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
	Exposure Medium Total			5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
			Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	3.0E-05	NA	3.0E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.6E-07	NA	4.6E-07	Liver	NA	2.6E-04	NA	2.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	9.0E-03	NA	9.0E-03

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TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06	Gastrointestinal, Liver, Kidney	NA	4.4E-02	NA	4.4E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	5.0E-02	NA	5.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	2.7E-03	NA	2.7E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.8E-03	NA	1.8E-03
			Tetrachloroethylene	NA	3.8E-07	NA	3.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.4E-07	NA	5.4E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05	CNS, Liver, Endocrine	NA	1.9E-02	NA	1.9E-02
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06	Liver	NA	3.2E-02	NA	3.2E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	4.3E-02	NA	4.3E-02
Groundwater	Air	Chemical Total		NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.5E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.6E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	2.3E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium	NA	NA	NA	NA	N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Cobalt	NA	NA	NA	NA	Sensitizer	1.0E-01	NA	9.3E-05	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.7E-01	NA	3.8E-02	7.1E-01
			Thallium	NA	NA	NA	NA	Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Benzene	1.7E-07	NA	1.7E-08	1.9E-07	Circulatory	2.3E-03	NA	2.3E-04	2.5E-03
			Dichloroethane-1,2	7.4E-07	NA	2.4E-08	7.7E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.2E-03	NA	3.8E-05	1.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	8.8E-02	NA	5.1E-03	9.3E-02
			Dichloropropane-1,2	4.7E-07	NA	3.1E-08	5.0E-07	Kidney	1.0E-03	NA	6.7E-05	1.1E-03
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06	Liver	2.7E-03	NA	1.1E-03	3.8E-03
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04	Liver	8.2E-02	NA	2.8E-03	8.5E-02
		Chemical Total		1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	2.0E-07	NA	2.0E-07	Circulatory	NA	2.5E-03	NA	2.5E-03
			Dichloroethane-1,2	NA	1.8E-06	NA	1.8E-06	Gastrointestinal, Liver, Kidney	NA	4.0E-02	NA	4.0E-02

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TABLE 9.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	4.3E-02	NA	4.3E-02
			Tetrachloroethylene	NA	4.7E-07	NA	4.7E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05	CNS, Liver, Endocrine	NA	9.9E-03	NA	9.9E-03
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06	Liver	NA	2.1E-02	NA	2.1E-02
		Chemical Total		NA	1.9E-05	NA	1.9E-05		NA	1.2E-01	NA	1.2E-01
	Exposure Medium Total			NA	1.9E-05	NA	2.0E-04		NA	1.2E-01	NA	2.1E+01
Medium Total				1.9E-04	1.9E-05	7.1E-06	2.1E-04		2.1E+01	1.2E-01	1.4E-01	2.1E+01

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Table 9.3.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**5.2E-04**	5.2E-05	**1.8E-04**	**7.5E-04**	**3.4E+00**	3.6E-01	**1.3E+00**	**5.0E+00**
Subsurface Soil	**6.5E-04**	**1.3E-03**	1.2E-04	**2.1E-03**	**6.7E+00**	**1.8E+00**	**3.2E+00**	**1.2E+01**
Upper PRM Aquifer	**5.1E-02**	5.5E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.6E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.9E-05	7.1E-06	**2.1E-04**	**2.1E+01**	1.2E-01	1.4E-01	**2.1E+01**
Surface Soil + Upper PRM Aquifer	**5.2E-02**	1.1E-04	**3.1E-04**	**5.2E-02**	**3.6E+02**	**2.8E+01**	**2.9E+00**	**3.9E+02**
Surface Soil + Middle PRM Aquifer	**7.0E-04**	7.1E-05	**1.9E-04**	**9.6E-04**	**2.4E+01**	4.8E-01	**1.4E+00**	**2.6E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	**1.3E-03**	**2.5E-04**	**5.4E-02**	**3.6E+02**	**3.0E+01**	**4.8E+00**	**3.9E+02**
Subsurface Soil + Middle PRM Aquifer	**8.4E-04**	**1.3E-03**	1.2E-04	**2.3E-03**	**2.7E+01**	**1.9E+00**	**3.3E+00**	**3.3E+01**

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Table 9.3.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	1E-02	1E-02	**2E+00**	NA	**2E+00**	1E-02	**2E+00**	1E-02
Total Circulatory HI Across Media =	**3E+00**	**5E+00**	**3E+02**	**2E+01**	**4E+02**	**2E+01**	**4E+02**	**2E+01**
Total CNS HI Across Media =	2E-01	1E+00	**3E+01**	8E-01	**3E+01**	1E+00	**3E+01**	**2E+00**
Total Developmental HI Across Media =	NA	1E-03	2E-02	NA	2E-02	NA	2E-02	1E-03
Total Fetotoxicity HI Across Media =	1E-01	6E-01	3E-01	2E-01	4E-01	3E-01	9E-01	7E-01
Total Gastrointestinal HI Across Media =	3E-01	1E-01	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total General HI Across Media =	6E-05	6E-05	NA	NA	6E-05	6E-05	6E-05	6E-05
Total Heart HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Immune HI Across Media =	1E+00	1E+00	2E-02	NA	1E+00	1E+00	1E+00	1E+00
Total Kidney HI Across Media =	1E+00	1E+00	**7E+00**	6E-01	**8E+00**	**2E+00**	**8E+00**	**2E+00**
Total Liver HI Across Media =	4E-01	**2E+00**	**1E+01**	**2E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Lungs HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Reproductive HI Across Media =	4E-02	2E-02	2E-02	NA	6E-02	4E-02	4E-02	2E-02
Total Respiratory HI Across Media =	9E-02	6E-01	**3E+01**	4E-02	**3E+01**	1E-01	**3E+01**	6E-01
Total Sensitizer HI Across Media =	NA	NA	NA	1E-01	NA	1E-01	NA	1E-01
Total Skin HI Across Media =	1E+00	**4E+00**	**3E+02**	3E-01	**3E+02**	**2E+00**	**3E+02**	**4E+00**
Total Thyroid HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Endocrine HI Across Media =	3E-02	9E-01	2E-02	1E-02	5E-02	4E-02	9E-01	9E-01

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	7.7E-02	NA	2.2E-03	7.9E-02
			Antimony	NA	NA	NA	NA	Body Weight	3.0E-01	NA	5.6E-02	3.6E-01
			Arsenic	4.7E-04	NA	3.9E-05	5.1E-04	Skin, Circulatory	7.3E-01	NA	6.1E-02	7.9E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	6.9E+00	NA	2.8E+00	9.7E+00
			Cadmium	NA	NA	NA	NA	Kidney	2.6E-01	NA	1.5E-02	2.8E-01
			Chromium	NA	NA	NA	NA	N/A	1.9E-01	NA	2.1E-01	4.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.8E-01	NA	5.1E-03	1.9E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.2E+00	NA	6.3E-02	2.3E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	4.7E-02	NA	3.3E-02	8.0E-02
			Mercury	NA	NA	NA	NA	Immune	3.9E-02	NA	1.6E-02	5.4E-02
			Nickel	NA	NA	NA	NA	Body Weight	4.8E-02	NA	3.4E-02	8.2E-02
			Silver	NA	NA	NA	NA	Skin	3.8E-02	NA	2.7E-02	6.5E-02
			Zinc	NA	NA	NA	NA	Circulatory	1.0E-01	NA	2.8E-03	1.0E-01
			Aldrin	7.8E-06	NA	2.2E-06	1.0E-05	Liver	1.8E-01	NA	5.0E-02	2.3E-01
			Chlordane - alpha	1.5E-06	NA	1.7E-07	1.7E-06	Liver	8.5E-01	NA	9.6E-02	9.5E-01
			Chlordane - gamma (technical mixture)	1.7E-06	NA	1.9E-07	1.9E-06	Liver	9.4E-01	NA	1.1E-01	1.0E+00
			DDE-4,4'	2.8E-06	NA	2.4E-07	3.1E-06	Reproductive, Fetotoxicity	3.2E-01	NA	2.7E-02	3.5E-01
			DDT-4,4'	5.9E-07	NA	4.9E-08	6.4E-07	Liver	4.0E-02	NA	3.4E-03	4.4E-02
			Dieldrin	2.3E-05	NA	6.4E-06	2.9E-05	Liver	3.3E-01	NA	9.3E-02	4.3E-01
			Heptachlor	4.7E-07	NA	1.3E-07	6.0E-07	Liver	2.4E-03	NA	6.8E-04	3.1E-03
			Pcb-Aroclor 1248	5.0E-07	NA	2.0E-07	7.0E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	2.3E-05	NA	9.2E-06	3.3E-05	Immune	2.7E+00	NA	1.1E+00	3.8E+00
			Pcb-Aroclor 1260	4.9E-06	NA	1.9E-06	6.8E-06	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	3.7E-05	NA	1.0E-05	4.7E-05
			Benzo(a)anthracene	5.3E-05	NA	1.9E-05	7.2E-05	Kidney	2.8E-03	NA	1.0E-03	3.8E-03
			Benzo(a)pyrene	5.0E-04	NA	1.8E-04	6.8E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.6E-05	NA	2.0E-05	7.6E-05	Kidney	3.0E-03	NA	1.1E-03	4.1E-03
			Benzo(k)fluoranthene	2.8E-06	NA	1.0E-06	3.8E-06	Kidney	1.5E-03	NA	5.4E-04	2.0E-03
			Chrysene	5.2E-07	NA	1.9E-07	7.0E-07	Kidney	2.7E-03	NA	1.0E-03	3.7E-03
			Dibenzo(a,h)anthracene	3.4E-05	NA	1.2E-05	4.7E-05	Kidney	1.8E-04	NA	6.6E-05	2.5E-04
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	4.7E-03	NA	1.9E-03	6.7E-03
			Indeno(1,2,3-cd)pyrene	1.3E-05	NA	4.9E-06	1.8E-05	Body Weight	3.6E-04	NA	1.3E-04	4.9E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	4.6E-03	NA	1.7E-03	6.3E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	2.3E-07	NA	6.5E-08	2.9E-07	Liver	9.6E-03	NA	1.4E-02	2.4E-02
			Benzene	2.3E-07	NA	0.0E+00	2.3E-07	Circulatory, Immune	1.6E-02	NA	0.0E+00	1.6E-02
			Chloroform	NA	NA	NA	NA	Liver	1.8E-03	NA	0.0E+00	1.8E-03
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.4E-03	NA	0.0E+00	1.4E-03
			Tetrachloroethylene	7.2E-06	NA	0.0E+00	7.2E-06	Liver	1.5E-03	NA	0.0E+00	1.5E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	4.7E-04	NA	0.0E+00	4.7E-04
			Trichloroethylene	1.4E-06	NA	0.0E+00	1.4E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	0.0E+00	1.4E-01
			Vinyl chloride	2.6E-07	NA	0.0E+00	2.6E-07	Liver	1.4E-03	NA	0.0E+00	1.4E-03
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.9E-03	NA	0.0E+00	1.9E-03

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TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	*Chemical* of Potential Concern	*Carcinogenic Risk*				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		1.2E-03	NA	3.0E-04	1.5E-03		1.7E+01	NA	4.8E+00	2.2E+01
	Exposure Medium Total			1.2E-03	NA	3.0E-04	1.5E-03		1.7E+01	NA	4.8E+00	2.2E+01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	2.7E-03	NA	2.7E-03
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	2.6E-05	NA	2.6E-05
		Surface Soil	Arsenic	NA	2.3E-07	NA	2.3E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.7E-02	NA	1.7E-02
			Cadmium	NA	7.0E-09	NA	7.0E-09	Kidney	NA	5.0E-05	NA	5.0E-05
			Chromium	NA	6.8E-07	NA	6.8E-07	Respiratory	NA	8.2E-02	NA	8.2E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.3E-02	NA	2.3E-02
			Mercury	NA	NA	NA	NA	CNS	NA	6.7E-06	NA	6.7E-06
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	3.3E-03	NA	3.3E-03
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	3.9E-10	NA	3.9E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	7.6E-11	NA	7.6E-11	Liver	NA	1.3E-05	NA	1.3E-05
			Chlordane - gamma (technical mixture)	NA	8.4E-11	NA	8.4E-11	Liver	NA	1.4E-05	NA	1.4E-05
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	2.9E-11	NA	2.9E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.1E-09	NA	1.1E-09	N/A	NA	NA	NA	NA
			Heptachlor	NA	2.3E-11	NA	2.3E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	4.4E-12	NA	4.4E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	2.0E-10	NA	2.0E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	4.2E-11	NA	4.2E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	Emissions from	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Martin Aaron property	Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E-01	NA	1.2E-01
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.0E-06	NA	2.0E-06	Circulatory	NA	5.0E-02	NA	5.0E-02
			Chloroform	NA	2.0E-06	NA	2.0E-06	Liver, Kidney, CNS	NA	2.1E-02	NA	2.1E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	4.2E-06	NA	4.2E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	1.1E-01	NA	1.1E-01
			Trichloroethylene	NA	2.1E-05	NA	2.1E-05	CNS, Liver, Endocrine	NA	6.1E-02	NA	6.1E-02

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TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Vinyl chloride	NA	5.0E-07	NA	5.0E-07	Liver	NA	6.7E-03	NA	6.7E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.5E-01	NA	1.5E-01
		Exposure Point Total		NA	3.1E-05	NA	3.1E-05		NA	6.4E-01	NA	6.4E-01
	Exposure Medium Total			NA	3.1E-05	NA	3.1E-05		NA	6.4E-01	NA	6.4E-01
Medium Total				1.2E-03	3.1E-05	3.0E-04	1.5E-03		1.7E+01	6.4E-01	4.8E+00	2.2E+01
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	7.8E-02	NA	2.2E-03	8.0E-02
			Antimony	NA	NA	NA	NA	Body Weight	6.5E-01	NA	1.2E-01	7.7E-01
			Arsenic	1.2E-03	NA	1.0E-04	1.3E-03	Skin, Circulatory	1.9E+00	NA	1.6E-01	2.0E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.9E+00	NA	1.6E+00	5.5E+00
			Cadmium	NA	NA	NA	NA	Kidney	2.4E-01	NA	1.4E-02	2.6E-01
			Chromium	NA	NA	NA	NA	N/A	1.7E+00	NA	1.9E+00	3.7E+00
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.6E-01	NA	4.6E-03	1.7E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.1E+00	NA	3.2E-02	1.2E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.0E-02	NA	2.1E-02	5.0E-02
			Mercury	NA	NA	NA	NA	Immune	1.2E+00	NA	4.8E-01	1.7E+00
			Nickel	NA	NA	NA	NA	Body Weight	4.4E-02	NA	3.1E-02	7.6E-02
			Silver	NA	NA	NA	NA	Skin	1.5E-02	NA	1.1E-02	2.6E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	2.1E-02	NA	5.7E-04	2.1E-02
			Vanadium	NA	NA	NA	NA	Kidney	4.4E-02	NA	4.7E-02	9.0E-02
			Zinc	NA	NA	NA	NA	Circulatory	8.2E-02	NA	2.3E-03	8.4E-02
			Aldrin	3.2E-06	NA	9.0E-07	4.1E-06	Liver	7.3E-02	NA	2.1E-02	9.4E-02
Subsurface Soil	Subsurface Soil	Martin Aaron property	Chlordane - alpha	6.1E-07	NA	6.8E-08	6.8E-07	Liver	3.4E-01	NA	3.8E-02	3.8E-01
(cont.)	(cont.)	Subsurface Soil (cont.)	Chlordane - gamma (technical mixture)	7.3E-07	NA	8.1E-08	8.1E-07	Liver	4.0E-01	NA	4.5E-02	4.5E-01
			DDE-4,4'	1.8E-06	NA	1.5E-07	2.0E-06	Reproductive, Fetotoxicity	2.1E-01	NA	1.7E-02	2.2E-01
			DDT-4,4'	1.5E-07	NA	1.2E-08	1.6E-07	Liver	1.0E-02	NA	8.4E-04	1.1E-02
			Dieldrin	3.1E-06	NA	8.8E-07	4.0E-06	Liver	4.6E-02	NA	1.3E-02	5.9E-02
			Heptachlor	1.9E-07	NA	5.2E-08	2.4E-07	Liver	9.7E-04	NA	2.7E-04	1.2E-03
			Pcb-Aroclor 1248	2.0E-07	NA	7.9E-08	2.8E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	2.4E-05	NA	9.3E-06	3.3E-05	Immune	2.8E+00	NA	1.1E+00	3.8E+00
			Pcb-Aroclor 1260	5.1E-07	NA	2.0E-07	7.1E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	3.7E-05	NA	1.0E-05	4.7E-05
			Benzo(a)anthracene	1.6E-05	NA	5.7E-06	2.1E-05	Kidney	8.3E-04	NA	3.0E-04	1.1E-03
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.7E-05	NA	6.3E-06	2.4E-05	Kidney	9.2E-04	NA	3.4E-04	1.3E-03
			Benzo(k)fluoranthene	6.4E-07	NA	2.3E-07	8.7E-07	Kidney	3.4E-04	NA	1.2E-04	4.6E-04
			Chrysene	1.5E-07	NA	5.3E-08	2.0E-07	Kidney	7.8E-04	NA	2.8E-04	1.1E-03
			Dibenzo(a,h)anthracene	3.2E-05	NA	1.2E-05	4.4E-05	Kidney	1.7E-04	NA	6.3E-05	2.4E-04
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.2E-03	NA	4.9E-04	1.7E-03
			Indeno(1,2,3-cd)pyrene	7.8E-06	NA	2.8E-06	1.1E-05	Body Weight	2.1E-04	NA	7.6E-05	2.8E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	2.1E-02	NA	7.5E-03	2.8E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	3.9E-07	NA	1.1E-07	5.1E-07	Liver	1.6E-02	NA	2.4E-02	4.1E-02

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TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzene	3.5E-07	NA	0.0E+00	3.5E-07	Circulatory, Immune	2.5E-02	NA	0.0E+00	2.5E-02
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	1.3E-03	NA	0.0E+00	1.3E-03
			Chloroform	NA	NA	NA	NA	Liver	2.9E-03	NA	0.0E+00	2.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	7.2E-04	NA	0.0E+00	7.2E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	8.1E-04	NA	0.0E+00	8.1E-04
			Tetrachloroethylene	1.4E-05	NA	0.0E+00	1.4E-05	Liver	2.9E-03	NA	0.0E+00	2.9E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	1.9E-04	NA	0.0E+00	1.9E-04
			Trichloroethylene	5.0E-05	NA	0.0E+00	5.0E-05	Liver, Kidney, Fetotoxicity	4.8E+00	NA	0.0E+00	4.8E+00
			Vinyl chloride	3.9E-07	NA	0.0E+00	3.9E-07	Liver	2.0E-03	NA	0.0E+00	2.0E-03
			Xylenes, total	NA	NA	NA	NA	Body Weight	2.8E-03	NA	0.0E+00	2.8E-03
		Exposure Point Total		1.5E-03	NA	1.9E-04	1.7E-03		2.0E+01	NA	5.7E+00	2.6E+01
	Exposure Medium Total			1.5E-03	NA	1.9E-04	1.7E-03		2.0E+01	NA	5.7E+00	2.6E+01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	2.7E-03	NA	2.7E-03
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	5.6E-05	NA	5.6E-05
		Subsurface Soil	Arsenic	NA	6.0E-07	NA	6.0E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	9.7E-03	NA	9.7E-03
Subsurface Soil	Ambient Air	Emissions from	Cadmium	NA	6.5E-09	NA	6.5E-09	Kidney	NA	4.7E-05	NA	4.7E-05
(cont.)	(cont.)	Martin Aaron property	Chromium	NA	6.2E-06	NA	6.2E-06	Respiratory	NA	7.5E-01	NA	7.5E-01
		Subsurface Soil (cont.)	Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.4E-02	NA	1.4E-02
			Mercury	NA	NA	NA	NA	CNS	NA	2.1E-04	NA	2.1E-04
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	1.3E-03	NA	1.3E-03
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.6E-10	NA	1.6E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	3.0E-11	NA	3.0E-11	Liver	NA	5.0E-06	NA	5.0E-06
			Chlordane - gamma (technical mixture)	NA	3.6E-11	NA	3.6E-11	Liver	NA	6.0E-06	NA	6.0E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	7.2E-12	NA	7.2E-12	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.6E-10	NA	1.6E-10	N/A	NA	NA	NA	NA
			Heptachlor	NA	9.3E-12	NA	9.3E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	1.7E-12	NA	1.7E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	2.0E-10	NA	2.0E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	4.4E-12	NA	4.4E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	5.4E-01	NA	5.4E-01
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	3.1E-06	NA	3.1E-06	Circulatory	NA	7.6E-02	NA	7.6E-02
			Bromomethane	NA	NA	NA	NA	Respiratory	NA	1.2E-01	NA	1.2E-01
			Chloroform	NA	3.2E-06	NA	3.2E-06	Liver, Kidney, CNS	NA	3.3E-02	NA	3.3E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.3E-03	NA	3.3E-03
			Tetrachloroethylene	NA	8.0E-06	NA	8.0E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	4.6E-02	NA	4.6E-02
			Trichloroethylene	NA	7.4E-04	NA	7.4E-04	CNS, Liver, Endocrine	NA	2.1E+00	NA	2.1E+00
			Vinyl chloride	NA	7.5E-07	NA	7.5E-07	Liver	NA	1.0E-02	NA	1.0E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	2.2E-01	NA	2.2E-01
		Exposure Point Total		NA	7.6E-04	NA	7.6E-04		NA	4.0E+00	NA	4.0E+00
	Exposure Medium Total			NA	7.6E-04	NA	7.6E-04		NA	4.0E+00	NA	4.0E+00
Medium Total				1.5E-03	7.6E-04	1.9E-04	2.5E-03		2.0E+01	4.0E+00	5.7E+00	3.0E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
			Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	5.0E-02	NA	2.1E-02	7.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium	NA	NA	NA	NA	N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	8.3E-02	NA	2.5E-04	8.4E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Mercury	NA	NA	NA	NA	Immune	4.4E-02	NA	1.9E-03	4.6E-02
			Nickel	NA	NA	NA	NA	Body Weight	9.4E-02	NA	1.4E-03	9.6E-02
			Selenium	NA	NA	NA	NA	Skin	9.0E-02	NA	2.7E-04	9.0E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc	NA	NA	NA	NA	Circulatory	2.5E-01	NA	4.4E-04	2.5E-01
			Chlordane - alpha	4.3E-08	NA	5.8E-08	1.0E-07	Liver	2.4E-02	NA	3.2E-02	5.6E-02
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06	Liver	2.8E-02	NA	1.2E-02	4.0E-02
			Heptachlor Epoxide	4.9E-07	NA	1.5E-07	6.4E-07	Liver	4.9E-02	NA	1.5E-02	6.3E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	6.5E-03	NA	4.0E-04	6.9E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00

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TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Nitrosodiphenylamine-n	2.9E-07	NA	6.3E-08	3.5E-07	Body Weight, Developmental, Reproductive	3.5E-02	NA	7.5E-03	4.2E-02
			Phenol	NA	NA	NA	NA	Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Chloroethane	2.1E-08	NA	7.6E-10	2.2E-08	Fetotoxicity	2.1E-04	NA	7.7E-06	2.2E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	4.7E-02	NA	2.8E-02	7.5E-02
			Dichlorobenzene-1,4	1.2E-07	NA	5.2E-08	1.7E-07	Liver, Developmental	2.0E-03	NA	8.5E-04	2.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.2E-03	NA	6.3E-05	1.3E-03
			Dichloroethane-1,2	4.7E-07	NA	1.5E-08	4.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.0E-03	NA	9.6E-05	3.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.6E-03	NA	9.1E-04	2.5E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	7.6E-02	NA	4.4E-03	8.1E-02
			Dichloropropane-1,2	3.2E-07	NA	2.1E-08	3.4E-07	Kidney	2.8E-03	NA	1.8E-04	2.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	7.5E-03	NA	2.9E-03	1.0E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	2.6E-03	NA	5.3E-05	2.6E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06	Liver	5.1E-04	NA	2.0E-04	7.1E-04
			Trichloroethane-1,1,2	1.3E-07	NA	6.1E-09	1.4E-07	Circulatory	6.9E-04	NA	4.2E-05	7.3E-04
			Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	6.0E-03	NA	2.5E-03	8.5E-03
		Exposure Point Total		3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
	Exposure Medium Total			3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
			Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.3E-04	NA	4.3E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06	Liver	NA	3.8E-03	NA	3.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-02	NA	1.3E-02
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-01	NA	2.2E-01
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.9E-02	NA	3.9E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	3.5E-02	NA	3.5E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.6E-02	NA	2.6E-02
			Tetrachloroethylene	NA	1.4E-06	NA	1.4E-06	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.2E-01	NA	6.2E-01

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TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Air	Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.8E-05	3.0E-02		9.1E+01	4.0E+02	1.7E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.3E-01	NA	7.0E-04	2.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05	Skin, Circulatory	4.5E-02	NA	1.3E-04	4.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Chromium	NA	NA	NA	NA	N/A	3.4E-02	NA	8.1E-03	4.2E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.6E+00	NA	1.2E-01	1.7E+00
			Thallium	NA	NA	NA	NA	Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Benzene	9.9E-08	NA	9.8E-09	1.1E-07	Circulatory, Immune	7.0E-03	NA	7.0E-04	7.7E-03
			Dichloroethane-1,2	4.3E-07	NA	1.4E-08	4.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.8E-03	NA	8.8E-05	2.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.0E-02	NA	1.2E-03	2.2E-02
			Dichloropropane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Kidney	2.4E-03	NA	1.5E-04	2.5E-03
			Tetrachloroethylene	3.0E-06	NA	1.1E-06	4.1E-06	Liver	6.4E-04	NA	2.5E-04	8.9E-04
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	7.3E-07	NA	7.3E-07	Circulatory	NA	1.8E-02	NA	1.8E-02
			Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	4.0E+01
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.2E-01	4.1E+01

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Table 9.4.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**1.2E-03**	3.1E-05	**3.0E-04**	**1.5E-03**	**1.7E+01**	6.4E-01	**4.8E+00**	**2.2E+01**
Subsurface Soil	**1.5E-03**	**7.6E-04**	**1.9E-04**	**2.5E-03**	**2.0E+01**	**4.0E+00**	**5.7E+00**	**3.0E+01**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.8E-05	**3.0E-02**	**9.1E+01**	**4.0E+02**	**1.7E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.2E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.1E-02**	**2.3E-04**	**4.0E-04**	**3.2E-02**	**1.1E+02**	**4.0E+02**	**6.5E+00**	**5.1E+02**
Surface Soil + Middle PRM Aquifer	**1.3E-03**	9.9E-05	**3.0E-04**	**1.7E-03**	**5.6E+01**	**1.9E+00**	**5.1E+00**	**6.3E+01**
Subsurface Soil + Upper PRM Aquifer	**3.1E-02**	**9.6E-04**	**2.9E-04**	**3.3E-02**	**1.1E+02**	**4.0E+02**	**7.4E+00**	**5.2E+02**
Subsurface Soil + Middle PRM Aquifer	**1.6E-03**	**8.3E-04**	**2.0E-04**	**2.7E-03**	**6.0E+01**	**5.2E+00**	**6.0E+00**	**7.1E+01**

Table 9.4.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	4E-01	9E-01	**6E+00**	9E-01	**6E+00**	1E+00	**6E+00**	**2E+00**
Total Circulatory HI Across Media =	**1E+01**	**9E+00**	**8E+01**	**4E+01**	**1E+02**	**5E+01**	**9E+01**	**4E+01**
Total CNS HI Across Media =	6E-01	**3E+00**	**4E+02**	**2E+00**	**4E+02**	**3E+00**	**4E+02**	**5E+00**
Total Developmental HI Across Media =	NA	3E-03	8E-02	NA	8E-02	NA	9E-02	3E-03
Total Fetotoxicity HI Across Media =	5E-01	**5E+00**	7E-01	4E-01	1E+00	9E-01	**6E+00**	**5E+00**
Total Gastrointestinal HI Across Media =	**2E+00**	1E+00	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total General HI Across Media =	5E-05	5E-05	NA	NA	5E-05	5E-05	5E-05	5E-05
Total Heart HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Immune HI Across Media =	**4E+00**	**6E+00**	8E-01	8E-03	**5E+00**	**4E+00**	**6E+00**	**6E+00**
Total Kidney HI Across Media =	**1E+01**	**1E+01**	**1E+01**	**2E+00**	**2E+01**	**1E+01**	**2E+01**	**1E+01**
Total Liver HI Across Media =	**5E+00**	**9E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**4E+01**	**5E+01**
Total Lungs HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Reproductive HI Across Media =	3E-01	2E-01	4E-02	NA	4E-01	3E-01	3E-01	2E-01
Total Respiratory HI Across Media =	2E-01	1E+00	**4E+02**	2E-01	**4E+02**	4E-01	**4E+02**	**2E+00**
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	9E-01	**2E+00**	**5E+01**	4E-02	**5E+01**	9E-01	**5E+01**	**2E+00**
Total Thyroid HI Across Media =	NA	NA	7E-02	NA	7E-02	NA	7E-02	NA
Total Endocrine HI Across Media =	6E-02	**2E+00**	3E-01	1E-01	3E-01	2E-01	**2E+00**	**2E+00**

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	1.4E-02	NA	2.8E-04	1.4E-02
			Antimony	NA	NA	NA	NA	Body Weight	5.5E-02	NA	7.3E-03	6.2E-02
			Arsenic	1.4E-05	NA	8.5E-07	1.5E-05	Skin, Circulatory	1.3E-01	NA	8.0E-03	1.4E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.3E+00	NA	3.6E-01	1.6E+00
			Cadmium	NA	NA	NA	NA	Kidney	4.7E-02	NA	1.9E-03	4.9E-02
			Chromium	NA	NA	NA	NA	N/A	3.5E-02	NA	2.8E-02	6.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.3E-02	NA	6.7E-04	3.4E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.1E-01	NA	8.1E-03	4.1E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.5E-03	NA	4.3E-03	1.3E-02
			Mercury	NA	NA	NA	NA	Immune	7.1E-03	NA	2.0E-03	9.1E-03
			Nickel	NA	NA	NA	NA	Body Weight	8.8E-03	NA	4.4E-03	1.3E-02
			Silver	NA	NA	NA	NA	Skin	6.9E-03	NA	3.5E-03	1.0E-02
			Zinc	NA	NA	NA	NA	Circulatory	1.8E-02	NA	3.6E-04	1.8E-02
			Aldrin	2.4E-07	NA	4.7E-08	2.8E-07	Liver	3.2E-02	NA	6.5E-03	3.9E-02
			Chlordane - alpha	4.7E-08	NA	3.7E-09	5.0E-08	Liver	1.6E-01	NA	1.2E-02	1.7E-01
			Chlordane - gamma (technical mixture)	5.1E-08	NA	4.1E-09	5.5E-08	Liver	1.7E-01	NA	1.4E-02	1.8E-01
			DDE-4,4'	8.5E-08	NA	5.1E-09	9.1E-08	Reproductive, Fetotoxicity	5.9E-02	NA	3.5E-03	6.2E-02
			DDT-4,4'	1.8E-08	NA	1.1E-09	1.9E-08	Liver	7.3E-03	NA	4.4E-04	7.8E-03
			Dieldrin	6.9E-07	NA	1.4E-07	8.3E-07	Liver	6.0E-02	NA	1.2E-02	7.3E-02
			Heptachlor	1.4E-08	NA	2.8E-09	1.7E-08	Liver	4.4E-04	NA	8.8E-05	5.3E-04
			Pcb-Aroclor 1248	1.5E-08	NA	4.3E-09	2.0E-08	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	7.1E-07	NA	2.0E-07	9.1E-07	Immune	5.0E-01	NA	1.4E-01	6.4E-01
			Pcb-Aroclor 1260	1.5E-07	NA	4.1E-08	1.9E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	6.7E-06	NA	1.3E-06	8.1E-06
			Benzo(a)anthracene	1.6E-06	NA	4.2E-07	2.0E-06	Kidney	5.1E-04	NA	1.3E-04	6.4E-04
			Benzo(a)pyrene	1.5E-05	NA	3.9E-06	1.9E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.7E-06	NA	4.4E-07	2.1E-06	Kidney	5.4E-04	NA	1.4E-04	6.8E-04
			Benzo(k)fluoranthene	8.4E-08	NA	2.2E-08	1.1E-07	Kidney	2.7E-04	NA	7.0E-05	3.4E-04
			Chrysene	1.6E-08	NA	4.1E-09	2.0E-08	Kidney	5.0E-04	NA	1.3E-04	6.3E-04
			Dibenzo(a,h)anthracene	1.0E-06	NA	2.7E-07	1.3E-06	Kidney	3.3E-05	NA	8.6E-06	4.2E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	8.6E-04	NA	2.5E-04	1.1E-03
			Indeno(1,2,3-cd)pyrene	4.1E-07	NA	1.1E-07	5.1E-07	Body Weight	6.5E-05	NA	1.7E-05	8.2E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	8.4E-04	NA	2.2E-04	1.1E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	7.0E-09	NA	1.4E-09	8.4E-09	Liver	1.7E-03	NA	1.8E-03	3.6E-03
			Benzene	7.1E-09	NA	0.0E+00	7.1E-09	Circulatory, Immune	3.0E-03	NA	0.0E+00	3.0E-03
			Chloroform	NA	NA	NA	NA	Liver	3.3E-04	NA	0.0E+00	3.3E-04
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.6E-04	NA	0.0E+00	2.6E-04
			Tetrachloroethylene	2.2E-07	NA	0.0E+00	2.2E-07	Liver	2.8E-04	NA	0.0E+00	2.8E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	8.5E-05	NA	0.0E+00	8.5E-05
			Trichloroethylene	4.3E-08	NA	0.0E+00	4.3E-08	Liver, Kidney, Fetotoxicity	2.5E-02	NA	0.0E+00	2.5E-02
			Vinyl chloride	1.6E-08	NA	0.0E+00	1.6E-08	Liver	2.5E-04	NA	0.0E+00	2.5E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	3.4E-04	NA	0.0E+00	3.4E-04

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TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		3.6E-05	NA	6.5E-06	4.3E-05		3.0E+00	NA	6.2E-01	3.7E+00
	Exposure Medium Total			3.6E-05	NA	6.5E-06	4.3E-05		3.0E+00	NA	6.2E-01	3.7E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	4.9E-04	NA	4.9E-04
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	4.8E-06	NA	4.8E-06
		Surface Soil	Arsenic	NA	7.1E-09	NA	7.1E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.1E-03	NA	3.1E-03
			Cadmium	NA	2.1E-10	NA	2.1E-10	Kidney	NA	9.2E-06	NA	9.2E-06
			Chromium	NA	2.1E-08	NA	2.1E-08	Respiratory	NA	1.5E-02	NA	1.5E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	4.2E-03	NA	4.2E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.2E-06	NA	1.2E-06
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	6.1E-04	NA	6.1E-04
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.2E-11	NA	1.2E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	2.3E-12	NA	2.3E-12	Liver	NA	2.3E-06	NA	2.3E-06
			Chlordane - gamma (technical mixture)	NA	2.6E-12	NA	2.6E-12	Liver	NA	2.6E-06	NA	2.6E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	8.9E-13	NA	8.9E-13	N/A	NA	NA	NA	NA
			Dieldrin	NA	3.5E-11	NA	3.5E-11	N/A	NA	NA	NA	NA
			Heptachlor	NA	7.2E-13	NA	7.2E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	1.3E-13	NA	1.3E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	6.2E-12	NA	6.2E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.3E-12	NA	1.3E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	Emissions from	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Martin Aaron property	Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	9.7E-03	NA	9.7E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.9E-07	NA	2.9E-07	Circulatory	NA	4.3E-02	NA	4.3E-02
			Chloroform	NA	2.3E-07	NA	2.3E-07	Liver, Kidney, CNS	NA	1.4E-02	NA	1.4E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	6.7E-07	NA	6.7E-07	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	7.6E-02	NA	7.6E-02
			Trichloroethylene	NA	2.9E-06	NA	2.9E-06	CNS, Liver, Endocrine	NA	5.1E-02	NA	5.1E-02

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TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Vinyl chloride	NA	1.3E-07	NA	1.3E-07	Liver	NA	2.1E-02	NA	2.1E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	9.9E-02	NA	9.9E-02
		Exposure Point Total		NA	4.2E-06	NA	4.2E-06		NA	3.4E-01	NA	3.4E-01
	Exposure Medium Total			NA	4.2E-06	NA	4.2E-06		NA	3.4E-01	NA	3.4E-01
Medium Total				3.6E-05	4.2E-06	6.5E-06	4.7E-05		3.0E+00	3.4E-01	6.2E-01	4.0E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	1.4E-02	NA	2.8E-04	1.4E-02
			Antimony	NA	NA	NA	NA	Body Weight	1.2E-01	NA	2.4E-03	1.2E-01
			Arsenic	3.7E-05	NA	2.2E-06	3.9E-05	Skin, Circulatory	3.4E-01	NA	2.0E-02	3.6E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	7.2E-01	NA	1.4E-02	7.3E-01
			Cadmium	NA	NA	NA	NA	Kidney	4.4E-02	NA	8.8E-05	4.4E-02
			Chromium	NA	NA	NA	NA	N/A	3.1E-01	NA	6.3E-03	3.2E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.0E-02	NA	6.0E-04	3.0E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.1E-01	NA	4.1E-03	2.1E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	5.4E-03	NA	1.1E-04	5.5E-03
			Mercury	NA	NA	NA	NA	Immune	2.2E-01	NA	4.3E-03	2.2E-01
			Nickel	NA	NA	NA	NA	Body Weight	8.1E-03	NA	1.6E-04	8.3E-03
			Silver	NA	NA	NA	NA	Skin	2.8E-03	NA	5.6E-05	2.8E-03
			Thallium	NA	NA	NA	NA	Liver, Circulatory	3.7E-03	NA	7.5E-05	3.8E-03
			Vanadium	NA	NA	NA	NA	Kidney	7.9E-03	NA	1.6E-04	8.1E-03
			Zinc	NA	NA	NA	NA	Circulatory	1.5E-02	NA	3.0E-04	1.5E-02
			Aldrin	9.7E-08	NA	1.9E-08	1.2E-07	Liver	1.3E-02	NA	2.7E-03	1.6E-02
Subsurface Soil	Subsurface Soil	Martin Aaron property	Chlordane - alpha	1.8E-08	NA	1.5E-09	2.0E-08	Liver	6.1E-02	NA	4.9E-03	6.6E-02
(cont.)	(cont.)	Subsurface Soil (cont.)	Chlordane - gamma (technical mixture)	2.2E-08	NA	1.8E-09	2.4E-08	Liver	7.3E-02	NA	5.9E-03	7.9E-02
			DDE-4,4'	5.5E-08	NA	3.3E-09	5.8E-08	Reproductive, Fetotoxicity	3.8E-02	NA	2.3E-03	4.0E-02
			DDT-4,4'	4.4E-09	NA	2.7E-10	4.7E-09	Liver	1.8E-03	NA	1.1E-04	1.9E-03
			Dieldrin	9.5E-08	NA	1.9E-08	1.1E-07	Liver	8.3E-03	NA	1.7E-03	1.0E-02
			Heptachlor	5.7E-09	NA	1.1E-09	6.8E-09	Liver	1.8E-04	NA	3.5E-05	2.1E-04
			Pcb-Aroclor 1248	6.1E-09	NA	1.7E-09	7.8E-09	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	7.2E-07	NA	2.0E-07	9.2E-07	Immune	5.0E-01	NA	1.4E-01	6.4E-01
			Pcb-Aroclor 1260	1.5E-08	NA	4.3E-09	2.0E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	6.7E-06	NA	1.3E-06	8.1E-06
			Benzo(a)anthracene	4.7E-07	NA	1.2E-07	6.0E-07	Kidney	1.5E-04	NA	3.9E-05	1.9E-04
			Benzo(a)pyrene	4.4E-06	NA	1.1E-06	5.5E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.2E-07	NA	1.4E-07	6.6E-07	Kidney	1.7E-04	NA	4.4E-05	2.1E-04
			Benzo(k)fluoranthene	1.9E-08	NA	5.0E-09	2.4E-08	Kidney	6.2E-05	NA	1.6E-05	7.8E-05
			Chrysene	4.5E-09	NA	1.2E-09	5.6E-09	Kidney	1.4E-04	NA	3.7E-05	1.8E-04
			Dibenzo(a,h)anthracene	9.8E-07	NA	2.6E-07	1.2E-06	Kidney	3.1E-05	NA	8.2E-06	4.0E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	2.2E-04	NA	5.7E-05	2.8E-04
			Indeno(1,2,3-cd)pyrene	2.4E-07	NA	6.1E-08	3.0E-07	Body Weight	3.8E-05	NA	9.8E-06	4.8E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	3.8E-03	NA	9.8E-04	4.7E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	1.2E-08	NA	2.4E-09	1.4E-08	Liver	3.0E-03	NA	6.0E-04	3.6E-03

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TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzene	1.1E-08	NA	0.0E+00	1.1E-08	Circulatory, Immune	4.6E-03	NA	0.0E+00	4.6E-03
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	2.4E-04	NA	0.0E+00	2.4E-04
			Chloroform	NA	NA	NA	NA	Liver	5.2E-04	NA	0.0E+00	5.2E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.3E-04	NA	0.0E+00	1.3E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.5E-04	NA	0.0E+00	1.5E-04
			Tetrachloroethylene	4.1E-07	NA	0.0E+00	4.1E-07	Liver	5.3E-04	NA	0.0E+00	5.3E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	3.5E-05	NA	0.0E+00	3.5E-05
			Trichloroethylene	1.5E-06	NA	0.0E+00	1.5E-06	Liver, Kidney, Fetotoxicity	8.8E-01	NA	0.0E+00	8.8E-01
			Vinyl chloride	2.4E-08	NA	0.0E+00	2.4E-08	Liver	3.7E-04	NA	0.0E+00	3.7E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	5.2E-04	NA	0.0E+00	5.2E-04
		Exposure Point Total		4.6E-05	NA	4.2E-06	5.0E-05		3.6E+00	NA	2.1E-01	3.8E+00
	Exposure Medium Total			4.6E-05	NA	4.2E-06	5.0E-05		3.6E+00	NA	2.1E-01	3.8E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	5.0E-04	NA	5.0E-04
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	1.0E-05	NA	1.0E-05
		Subsurface Soil	Arsenic	NA	1.8E-08	NA	1.8E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.8E-03	NA	1.8E-03
Subsurface Soil	Ambient Air	Emissions from	Cadmium	NA	2.0E-10	NA	2.0E-10	Kidney	NA	8.6E-06	NA	8.6E-06
(cont.)	(cont.)	Martin Aaron property	Chromium	NA	1.9E-07	NA	1.9E-07	Respiratory	NA	1.4E-01	NA	1.4E-01
		Subsurface Soil (cont.)	Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.6E-03	NA	2.6E-03
			Mercury	NA	NA	NA	NA	CNS	NA	3.8E-05	NA	3.8E-05
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	2.4E-04	NA	2.4E-04
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	4.9E-12	NA	4.9E-12	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	9.2E-13	NA	9.2E-13	Liver	NA	9.2E-07	NA	9.2E-07
			Chlordane - gamma (technical mixture)	NA	1.1E-12	NA	1.1E-12	Liver	NA	1.1E-06	NA	1.1E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	2.2E-13	NA	2.2E-13	N/A	NA	NA	NA	NA
			Dieldrin	NA	4.8E-12	NA	4.8E-12	N/A	NA	NA	NA	NA
			Heptachlor	NA	2.9E-13	NA	2.9E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	5.4E-14	NA	5.4E-14	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	6.2E-12	NA	6.2E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.3E-13	NA	1.3E-13	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	*Inhalation*	*Dermal*	*Exposure Routes Total*	*Primary Target Organ(s)*	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	4.3E-02	NA	4.3E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	4.3E-07	NA	4.3E-07	Circulatory	NA	6.5E-02	NA	6.5E-02
			Bromomethane	NA	NA	NA	NA	*Respiratory*	NA	2.1E-01	NA	2.1E-01
			Chloroform	NA	3.6E-07	NA	3.6E-07	Liver, Kidney, CNS	NA	2.2E-02	NA	2.2E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	2.2E-03	NA	2.2E-03
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Tetrachloroethylene	NA	1.3E-06	NA	1.3E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	3.1E-02	NA	3.1E-02
			Trichloroethylene	NA	1.0E-04	NA	1.0E-04	CNS, Liver, Endocrine	NA	1.8E+00	NA	1.8E+00
			Vinyl chloride	NA	2.0E-07	NA	2.0E-07	Liver	NA	3.1E-02	NA	3.1E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.5E-01	NA	1.5E-01
		Exposure Point Total		NA	1.0E-04	NA	1.0E-04		NA	2.5E+00	NA	2.5E+00
	Exposure Medium Total			NA	1.0E-04	NA	1.0E-04		NA	2.5E+00	NA	2.5E+00
Medium Total				4.6E-05	1.0E-04	4.2E-06	1.5E-04		3.6E+00	2.5E+00	2.1E-01	6.3E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	7.0E-04	7.0E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	1.2E-02	1.2E-02
			Arsenic	NA	NA	5.3E-06	5.3E-06	Skin, Circulatory	NA	NA	4.9E-02	4.9E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	1.3E-01	1.3E-01
			Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	7.5E-03	7.5E-03
			Cadmium	NA	NA	NA	NA	Kidney	NA	NA	1.8E-02	1.8E-02
			Chromium	NA	NA	NA	NA	N/A	NA	NA	1.2E-02	1.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	8.9E-05	8.9E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	2.7E-02	2.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	2.4E-02	2.4E-02
			Mercury	NA	NA	NA	NA	Immune	NA	NA	6.7E-04	6.7E-04
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	5.0E-04	5.0E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	9.5E-05	9.5E-05
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	4.1E-04	4.1E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	2.2E-02	2.2E-02
			Zinc	NA	NA	NA	NA	Circulatory	NA	NA	1.6E-04	1.6E-04
			Chlordane - alpha	NA	NA	8.2E-10	8.2E-10	Liver	NA	NA	2.7E-03	2.7E-03
			Dieldrin	NA	NA	1.2E-08	1.2E-08	Liver	NA	NA	1.1E-03	1.1E-03
			Heptachlor Epoxide	NA	NA	2.1E-09	2.1E-09	Liver	NA	NA	1.3E-03	1.3E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	5.8E-05	5.8E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	1.6E-02	1.6E-02

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TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Ether, bis(2-chloroethyl)	NA	NA	3.4E-08	3.4E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	5.8E-02	5.8E-02
			Nitrosodiphenylamine-n	NA	NA	1.0E-09	1.0E-09	Body Weight, Developmental, Reproductive	NA	NA	7.1E-04	7.1E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	5.1E-04	5.1E-04
			Benzene	NA	NA	2.7E-08	2.7E-08	Circulatory, Immune	NA	NA	1.1E-02	1.1E-02
			Chloroethane	NA	NA	2.4E-11	2.4E-11	Fetotoxicity	NA	NA	1.4E-06	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	2.9E-03	2.9E-03
			Dichlorobenzene-1,4	NA	NA	9.4E-10	9.4E-10	Liver, Developmental	NA	NA	9.2E-05	9.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	9.5E-06	9.5E-06
			Dichloroethane-1,2	NA	NA	3.8E-10	3.8E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	1.5E-05	1.5E-05
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	1.4E-04	1.4E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	NA	NA	6.7E-04	6.7E-04
			Dichloropropane-1,2	NA	NA	4.8E-10	4.8E-10	Kidney	NA	NA	2.5E-05	2.5E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	3.8E-04	3.8E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	8.1E-06	8.1E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	NA	1.5E-08	1.5E-08	Liver	NA	NA	2.0E-05	2.0E-05
			Trichloroethane-1,1,2	NA	NA	1.7E-10	1.7E-10	Circulatory	NA	NA	5.3E-06	5.3E-06
			Trichloroethylene	NA	NA	1.4E-08	1.4E-08	Liver, Kidney, Fetotoxicity	NA	NA	8.4E-03	8.4E-03
			Vinyl chloride	NA	NA	1.2E-07	1.2E-07	Liver	NA	NA	1.9E-03	1.9E-03
			Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	3.2E-04	3.2E-04
		Exposure Point Total		NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Exposure Medium Total			NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.0E+01	NA	3.0E+01
			Benzene	NA	1.2E-06	NA	1.2E-06	Circulatory	NA	1.8E-01	NA	1.8E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.8E-05	NA	4.8E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	2.3E-08	NA	2.3E-08	Liver	NA	3.2E-04	NA	3.2E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-03	NA	1.3E-03
			Dichloroethane-1,2	NA	1.1E-07	NA	1.1E-07	Gastrointestinal, Liver, Kidney	NA	6.0E-02	NA	6.0E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-02	NA	2.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.2E-03	NA	3.2E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.5E-03	NA	2.5E-03
			Tetrachloroethylene	NA	2.0E-08	NA	2.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	2.8E-08	NA	2.8E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	2.5E-02	NA	2.5E-02
			Vinyl chloride	NA	7.1E-08	NA	7.1E-08	Liver	NA	1.1E-02	NA	1.1E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.1E-02	NA	6.1E-02

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TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Air	Chemical Total		NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
	Exposure Medium Total			NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
Medium Total				NA	2.9E-06	5.5E-06	8.4E-06		NA	3.1E+01	4.1E-01	3.1E+01

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Table 9.5.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	3.6E-05	4.2E-06	6.5E-06	4.7E-05	**3.0E+00**	3.4E-01	6.2E-01	**4.0E+00**
Subsurface Soil	4.6E-05	1.0E-04	4.2E-06	**1.5E-04**	**3.6E+00**	**2.5E+00**	2.1E-01	**6.3E+00**
Upper PRM Aquifer	NA	2.9E-06	5.5E-06	8.4E-06	NA	**3.1E+01**	4.1E-01	**3.1E+01**
Surface Soil + Upper PRM Aquifer	3.6E-05	7.1E-06	1.2E-05	5.6E-05	**3.0E+00**	**3.1E+01**	1.0E+00	**3.5E+01**
Subsurface Soil + Upper PRM Aquifer	4.6E-05	1.1E-04	9.7E-06	**1.6E-04**	**3.6E+00**	**3.3E+01**	6.3E-01	**3.7E+01**

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Table 9.5.RME Supplement

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Martin Aaron property			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Body Weight HI Across Media =	8E-02	1E-01	9E-02	2E-01	2E-01
Total Circulatory HI Across Media =	**2E+00**	1E+00	4E-01	**3E+00**	**2E+00**
Total CNS HI Across Media =	3E-01	**2E+00**	**3E+01**	**3E+01**	**3E+01**
Total Developmental HI Across Media =	NA	2E-03	4E-03	4E-03	6E-03
Total Fetotoxicity HI Across Media =	9E-02	9E-01	1E-02	1E-01	9E-01
Total Gastrointestinal HI Across Media =	4E-01	2E-01	9E-02	5E-01	3E-01
Total General HI Across Media =	8E-06	8E-06	NA	8E-06	8E-06
Total Heart HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Immune HI Across Media =	6E-01	9E-01	1E-02	7E-01	9E-01
Total Kidney HI Across Media =	**2E+00**	**2E+00**	2E-01	**2E+00**	**2E+00**
Total Liver HI Across Media =	1E+00	**3E+00**	1E-01	1E+00	**3E+00**
Total Lungs HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Reproductive HI Across Media =	6E-02	4E-02	7E-04	6E-02	4E-02
Total Respiratory HI Across Media =	2E-02	4E-01	**3E+01**	**3E+01**	**3E+01**
Total Sensitizer HI Across Media =	NA	NA	NA	NA	NA
Total Skin HI Across Media =	2E-01	4E-01	5E-02	2E-01	4E-01
Total Thyroid HI Across Media =	NA	NA	3E-03	3E-03	3E-03
Total Endocrine HI Across Media =	5E-02	**2E+00**	3E-02	8E-02	**2E+00**

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony	NA	NA	NA	NA	Circulatory	1.4E-02	NA	3.7E-03	1.8E-02
			Arsenic	2.0E-05	NA	2.3E-06	2.2E-05	Skin, Circulatory	1.3E-01	NA	1.5E-02	1.4E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.1E-01	NA	1.8E-01	4.9E-01
			Cadmium	NA	NA	NA	NA	Kidney	2.5E-02	NA	2.0E-03	2.7E-02
			Chromium	NA	NA	NA	NA	N/A	7.4E-03	NA	1.2E-02	1.9E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.5E-01	NA	6.0E-03	1.6E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.1E-03	NA	2.1E-03	4.3E-03
			Mercury	NA	NA	NA	NA	Immune	1.1E-02	NA	6.2E-03	1.7E-02
			Benzo(a)anthracene	5.5E-07	NA	2.8E-07	8.3E-07	Kidney	7.3E-05	NA	3.8E-05	1.1E-04
			Benzo(a)pyrene	5.1E-06	NA	2.7E-06	7.8E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.1E-07	NA	2.7E-07	7.8E-07	Kidney	6.8E-05	NA	3.6E-05	1.0E-04
		Exposure Point Total		2.6E-05	NA	5.6E-06	3.1E-05		6.5E-01	NA	2.3E-01	8.7E-01
	Exposure Medium Total			2.6E-05	NA	5.6E-06	3.1E-05		6.5E-01	NA	2.3E-01	8.7E-01
	Ambient Air	Emissions from Junkyard Surface Soil	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	3.8E-08	NA	3.8E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.1E-02	NA	3.1E-02
			Cadmium	NA	1.1E-08	NA	1.1E-08	Kidney	NA	8.6E-05	NA	8.6E-05
			Chromium	NA	6.2E-08	NA	6.2E-08	Respiratory	NA	1.9E-03	NA	1.9E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	4.1E-03	NA	4.1E-03
			Mercury	NA	NA	NA	NA	CNS	NA	7.5E-06	NA	7.5E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	1.1E-07	NA	1.1E-07		NA	3.7E-02	NA	3.7E-02
	Exposure Medium Total			NA	1.1E-07	NA	1.1E-07		NA	3.7E-02	NA	3.7E-02
Medium Total				2.6E-05	1.1E-07	5.6E-06	3.1E-05		6.5E-01	3.7E-02	2.3E-01	9.1E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	1.3E-02	NA	5.0E-04	1.3E-02
			Antimony	NA	NA	NA	NA	Circulatory	1.4E-02	NA	3.7E-03	1.8E-02
			Arsenic	8.7E-04	NA	1.0E-04	9.8E-04	Skin, Circulatory	5.7E+00	NA	6.8E-01	6.3E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.6E-01	NA	2.1E-01	5.7E-01
			Cadmium	NA	NA	NA	NA	Kidney	3.4E-02	NA	2.7E-03	3.7E-02
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Chromium	NA	NA	NA	NA	N/A	8.4E-03	NA	1.3E-02	2.2E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.8E-01	NA	1.1E-02	2.9E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.6E-03	NA	2.6E-03	5.2E-03

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TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	*Inhalation*	*Dermal*	*Exposure* Routes Total	*Primary* Target Organ(s)	*Ingestion*	*Inhalation*	*Dermal*	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	1.1E-02	NA	6.2E-03	1.7E-02
			Benzo(a)anthracene	6.2E-07	NA	3.2E-07	9.4E-07	Kidney	8.2E-05	NA	4.3E-05	1.2E-04
			Benzo(a)pyrene	5.5E-06	NA	2.8E-06	8.3E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	6.5E-07	NA	3.4E-07	9.9E-07	Kidney	8.7E-05	NA	4.5E-05	1.3E-04
			Dibenzo(a,h)anthracene	1.2E-06	NA	6.4E-07	1.9E-06	Kidney	1.6E-05	NA	8.5E-06	2.5E-05
			Indeno(1,2,3-cd)pyrene	3.4E-07	NA	1.8E-07	5.2E-07	Body Weight	2.7E-05	NA	1.4E-05	4.2E-05
		Exposure Point Total		8.8E-04	NA	1.1E-04	9.9E-04		6.4E+00	NA	9.2E-01	7.3E+00
	Exposure Medium Total			8.8E-04	NA	1.1E-04	9.9E-04		6.4E+00	NA	9.2E-01	7.3E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	1.7E-03	NA	1.7E-03
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	1.7E-06	NA	1.7E-06	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.5E-02	NA	3.5E-02
			Cadmium	NA	1.4E-08	NA	1.4E-08	Kidney	NA	1.2E-04	NA	1.2E-04
			Chromium	NA	7.0E-08	NA	7.0E-08	Respiratory	NA	2.1E-03	NA	2.1E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	5.0E-03	NA	5.0E-03
			Mercury	NA	NA	NA	NA	CNS	NA	7.5E-06	NA	7.5E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	1.8E-06	NA	1.8E-06		NA	4.4E-02	NA	4.4E-02
	Exposure Medium Total			NA	1.8E-06	NA	1.8E-06		NA	4.4E-02	NA	4.4E-02
Medium Total				8.8E-04	1.8E-06	1.1E-04	9.9E-04		6.4E+00	4.4E-02	9.2E-01	7.4E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony	NA	NA	NA	NA	Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
			Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
			Barium	NA	NA	NA	NA	*Kidney, Circulatory*	*3.8E+00*	NA	1.2E-01	3.9E+00
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Beryllium	NA	NA	NA	NA	Gastrointestinal	5.3E-02	NA	1.7E-02	7.0E-02
			Cadmium	NA	NA	NA	NA	Kidney	7.2E-01	NA	6.5E-02	7.9E-01
			Chromium	NA	NA	NA	NA	N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.6E-02	NA	8.0E-05	3.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.9E-01	NA	2.2E-02	4.1E-01
			Mercury	NA	NA	NA	NA	Immune	1.9E-02	NA	6.1E-04	2.0E-02

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TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Nickel	NA	NA	NA	NA	Body Weight	4.0E-02	NA	4.6E-04	4.1E-02
			Selenium	NA	NA	NA	NA	Skin	3.8E-02	NA	8.6E-05	3.9E-02
			Thallium	NA	NA	NA	NA	Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium	NA	NA	NA	NA	Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Zinc	NA	NA	NA	NA	Circulatory	1.1E-01	NA	1.4E-04	1.1E-01
			Chlordane - alpha	7.4E-08	NA	1.0E-07	1.7E-07	Liver	1.2E-03	NA	1.7E-03	2.9E-03
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06	Liver	1.2E-02	NA	5.4E-03	1.7E-02
			Heptachlor Epoxide	8.4E-07	NA	2.6E-07	1.1E-06	Liver	2.1E-02	NA	6.5E-03	2.7E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	2.8E-02	NA	1.8E-03	3.0E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	4.9E-01	NA	2.2E-01	7.1E-01
			Nitrosodiphenylamine-n	5.0E-07	NA	1.1E-07	6.1E-07	Body Weight, Developmental, Reproductive	1.5E-02	NA	3.3E-03	1.8E-02
			Phenol	NA	NA	NA	NA	Body Weight	8.8E-02	NA	2.8E-03	9.1E-02
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Chloroethane	3.6E-08	NA	1.3E-09	3.7E-08	Fetotoxicity	9.0E-05	NA	3.4E-06	9.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	2.0E-02	NA	1.2E-02	3.2E-02
			Dichlorobenzene-1,4	2.1E-07	NA	9.1E-08	3.0E-07	Liver, Developmental	8.4E-04	NA	3.7E-04	1.2E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	5.4E-03	NA	2.7E-04	5.6E-03
			Dichloroethane-1,2	8.1E-07	NA	2.6E-08	8.4E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.3E-03	NA	4.2E-05	1.3E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	6.8E-03	NA	4.0E-04	7.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Dichloropropane-1,2	5.5E-07	NA	3.6E-08	5.9E-07	Kidney	1.2E-03	NA	7.8E-05	1.3E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	3.2E-03	NA	1.3E-03	4.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.1E-02	NA	2.3E-04	1.1E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06	Liver	2.2E-03	NA	8.6E-04	3.1E-03
			Trichloroethane-1,1,2	2.3E-07	NA	1.4E-08	2.4E-07	Circulatory	2.9E-03	NA	1.8E-04	3.1E-03
			Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Xylenes, total	NA	NA	NA	NA	Body Weight	2.6E-03	NA	1.1E-03	3.7E-03
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
Exposure Medium Total				5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
			Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	3.0E-05	NA	3.0E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.6E-07	NA	4.6E-07	Liver	NA	2.6E-04	NA	2.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	9.0E-03	NA	9.0E-03
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06	Gastrointestinal, Liver, Kidney	NA	4.4E-02	NA	4.4E-02

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TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	*Respiratory*	NA	5.0E-02	NA	5.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	2.7E-03	NA	2.7E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.8E-03	NA	1.8E-03
			Tetrachloroethylene	NA	3.8E-07	NA	3.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.4E-07	NA	5.4E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05	CNS, Liver, Endocrine	NA	1.9E-02	NA	1.9E-02
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06	Liver	NA	3.2E-02	NA	3.2E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	4.3E-02	NA	4.3E-02
		Chemical Total		NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.5E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.6E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	2.3E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium	NA	NA	NA	NA	N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Cobalt	NA	NA	NA	NA	Sensitizer	1.0E-01	NA	9.3E-05	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Groundwater	Groundwater	Middle PRM Aquifer	Manganese	NA	NA	NA	NA	CNS	6.7E-01	NA	3.8E-02	7.1E-01
(cont.)	(cont.)	(cont.)	Thallium	NA	NA	NA	NA	Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Benzene	1.7E-07	NA	1.7E-08	1.9E-07	Circulatory	2.3E-03	NA	2.3E-04	2.5E-03
			Dichloroethane-1,2	7.4E-07	NA	2.4E-08	7.7E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.2E-03	NA	3.8E-05	1.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	8.8E-02	NA	5.1E-03	9.3E-02
			Dichloropropane-1,2	4.7E-07	NA	3.1E-08	5.0E-07	Kidney	1.0E-03	NA	6.7E-05	1.1E-03
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06	Liver	2.7E-03	NA	1.1E-03	3.8E-03
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04	Liver	8.2E-02	NA	2.8E-03	8.5E-02
		Chemical Total		1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Air	Emissions from	Benzene	NA	2.0E-07	NA	2.0E-07	Circulatory	NA	2.5E-03	NA	2.5E-03
		Middle PRM Aquifer	*Dichloroethane-1,2*	NA	1.8E-06	NA	1.8E-06	Gastrointestinal, Liver, Kidney	NA	4.0E-02	NA	4.0E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	4.3E-02	NA	4.3E-02
			Tetrachloroethylene	NA	4.7E-07	NA	4.7E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05	CNS, Liver, Endocrine	NA	9.9E-03	NA	9.9E-03
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06	Liver	NA	2.1E-02	NA	2.1E-02
		Chemical Total		NA	1.9E-05	NA	1.9E-05		NA	1.2E-01	NA	1.2E-01
	Exposure Medium Total			NA	1.9E-05	NA	2.0E-04		NA	1.2E-01	NA	2.1E+01
Medium Total				1.9E-04	1.9E-05	7.1E-06	2.1E-04		2.1E+01	1.2E-01	1.4E-01	2.1E+01

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Table 9.6.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	2.6E-05	1.1E-07	5.6E-06	3.1E-05	6.5E-01	3.7E-02	2.3E-01	9.1E-01
Subsurface Soil	**8.8E-04**	1.8E-06	1.1E-04	**9.9E-04**	**6.4E+00**	4.4E-02	9.2E-01	**7.4E+00**
Upper PRM Aquifer	**5.1E-02**	5.5E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.6E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.9E-05	7.1E-06	**2.1E-04**	**2.1E+01**	1.2E-01	1.4E-01	**2.1E+01**
Surface Soil + Upper PRM Aquifer	**5.1E-02**	5.5E-05	1.4E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.8E+00**	**3.8E+02**
Surface Soil + Middle PRM Aquifer	**2.1E-04**	1.9E-05	1.3E-05	**2.5E-04**	**2.1E+01**	1.5E-01	3.7E-01	**2.2E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	5.7E-05	**2.4E-04**	**5.3E-02**	**3.6E+02**	**2.8E+01**	**2.5E+00**	**3.9E+02**
Subsurface Soil + Middle PRM Aquifer	**1.1E-03**	2.1E-05	1.2E-04	**1.2E-03**	**2.7E+01**	1.6E-01	**1.1E+00**	**2.8E+01**

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Table 9.6.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	4E-05	**2E+00**	NA	**2E+00**	NA	**2E+00**	4E-05
Total Circulatory HI Across Media =	8E-01	**7E+00**	**3E+02**	**2E+01**	**3E+02**	**2E+01**	**4E+02**	**3E+01**
Total CNS HI Across Media =	8E-03	2E-02	**3E+01**	8E-01	**3E+01**	8E-01	**3E+01**	8E-01
Total Developmental HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Fetotoxicity HI Across Media =	3E-02	4E-02	3E-01	2E-01	3E-01	2E-01	3E-01	2E-01
Total Gastrointestinal HI Across Media =	2E-01	3E-01	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Immune HI Across Media =	2E-02	2E-02	2E-02	NA	4E-02	2E-02	4E-02	2E-02
Total Kidney HI Across Media =	5E-01	6E-01	**7E+00**	6E-01	**7E+00**	1E+00	**7E+00**	1E+00
Total Liver HI Across Media =	2E-01	3E-01	**1E+01**	**2E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Lungs HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Reproductive HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Respiratory HI Across Media =	2E-03	2E-03	**3E+01**	4E-02	**3E+01**	4E-02	**3E+01**	4E-02
Total Sensitizer HI Across Media =	NA	NA	NA	1E-01	NA	1E-01	NA	1E-01
Total Skin HI Across Media =	1E-01	**6E+00**	**3E+02**	3E-01	**3E+02**	5E-01	**3E+02**	**7E+00**
Total Thyroid HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Endocrine HI Across Media =	NA	NA	2E-02	1E-02	2E-02	1E-02	2E-02	1E-02

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TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	2.6E-01	NA	4.9E-02	3.1E-01
			Arsenic	4.6E-05	NA	3.8E-06	4.9E-05	Skin, Circulatory	7.1E-02	NA	5.9E-03	7.7E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.9E+00	NA	1.2E+00	4.1E+00
			Cadmium	NA	NA	NA	NA	Kidney	2.3E-01	NA	1.3E-02	2.5E-01
			Chromium	NA	NA	NA	NA	N/A	1.0E-02	NA	1.2E-02	2.2E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.4E+00	NA	3.9E-02	1.4E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.0E-02	NA	1.4E-02	3.4E-02
			Mercury	NA	NA	NA	NA	Immune	1.0E-01	NA	4.1E-02	1.4E-01
			Benzo(a)anthracene	1.3E-06	NA	4.7E-07	1.7E-06	Kidney	6.8E-05	NA	2.5E-05	9.3E-05
			Benzo(a)pyrene	1.2E-05	NA	4.4E-06	1.6E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.2E-06	NA	4.4E-07	1.6E-06	Kidney	6.4E-05	NA	2.3E-05	8.7E-05
		Exposure Point Total		6.0E-05	NA	9.1E-06	6.9E-05		5.0E+00	NA	1.3E+00	6.4E+00
	Exposure Medium Total			6.0E-05	NA	9.1E-06	6.9E-05		5.0E+00	NA	1.3E+00	6.4E+00
	Ambient Air	Emissions from Junkyard Surface Soil	Antimony	NA	NA	NA	NA	N/A	NA	2.3E-05	NA	2.3E-05
			Arsenic	NA	2.3E-08	NA	2.3E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	7.2E-03	NA	7.2E-03
			Cadmium	NA	6.2E-09	NA	6.2E-09	Kidney	NA	4.5E-05	NA	4.5E-05
			Chromium	NA	3.7E-08	NA	3.7E-08	Respiratory	NA	4.5E-03	NA	4.5E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	9.7E-03	NA	9.7E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.8E-05	NA	1.8E-05
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	6.6E-08	NA	6.6E-08		NA	2.1E-02	NA	2.1E-02
	Exposure Medium Total			NA	6.6E-08	NA	6.6E-08		NA	2.1E-02	NA	2.1E-02
Medium Total				6.0E-05	6.6E-08	9.1E-06	6.9E-05		5.0E+00	2.1E-02	1.3E+00	6.4E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	1.2E-01	NA	3.3E-03	1.2E-01
			Antimony	NA	NA	NA	NA	Body Weight	2.6E-01	NA	4.9E-02	3.1E-01
			Arsenic	2.0E-03	NA	1.7E-04	2.2E-03	Skin, Circulatory	3.2E+00	NA	2.7E-01	3.4E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.4E+00	NA	1.4E+00	4.7E+00
			Cadmium	NA	NA	NA	NA	Kidney	3.2E-01	NA	1.8E-02	3.3E-01
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Chromium	NA	NA	NA	NA	N/A	1.2E-02	NA	1.3E-02	2.5E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.6E+00	NA	7.3E-02	2.7E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.4E-02	NA	1.7E-02	4.1E-02

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TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	1.0E-01	NA	4.1E-02	1.4E-01
			Benzo(a)anthracene	1.4E-06	NA	5.2E-07	2.0E-06	Kidney	7.7E-05	NA	2.8E-05	1.0E-04
			Benzo(a)pyrene	1.3E-05	NA	4.7E-06	1.7E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.5E-06	NA	5.5E-07	2.1E-06	Kidney	8.1E-05	NA	2.9E-05	1.1E-04
			Dibenzo(a,h)anthracene	2.9E-06	NA	1.0E-06	3.9E-06	Kidney	1.5E-05	NA	5.6E-06	2.1E-05
			Indeno(1,2,3-cd)pyrene	8.0E-07	NA	2.9E-07	1.1E-06	Body Weight	2.1E-05	NA	7.8E-06	2.9E-05
		Exposure Point Total		2.1E-03	NA	1.8E-04	2.2E-03		1.0E+01	NA	1.8E+00	1.2E+01
	Exposure Medium Total			2.1E-03	NA	1.8E-04	2.2E-03		1.0E+01	NA	1.8E+00	1.2E+01
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	4.0E-03	NA	4.0E-03
			Antimony	NA	NA	NA	NA	N/A	NA	2.3E-05	NA	2.3E-05
			Arsenic	NA	1.0E-06	NA	1.0E-06	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	8.3E-03	NA	8.3E-03
			Cadmium	NA	8.5E-09	NA	8.5E-09	Kidney	NA	6.1E-05	NA	6.1E-05
			Chromium	NA	4.2E-08	NA	4.2E-08	Respiratory	NA	5.1E-03	NA	5.1E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.2E-02	NA	1.2E-02
			Mercury	NA	NA	NA	NA	CNS	NA	1.8E-05	NA	1.8E-05
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	1.1E-06	NA	1.1E-06		NA	2.9E-02	NA	2.9E-02
	Exposure Medium Total			NA	1.1E-06	NA	1.1E-06		NA	2.9E-02	NA	2.9E-02
Medium Total				2.1E-03	1.1E-06	1.8E-04	2.2E-03		1.0E+01	2.9E-02	1.8E+00	1.2E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
			Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Beryllium	NA	NA	NA	NA	Gastrointestinal	5.0E-02	NA	2.1E-02	7.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium	NA	NA	NA	NA	N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	8.3E-02	NA	2.5E-04	8.4E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Mercury	NA	NA	NA	NA	Immune	4.4E-02	NA	1.9E-03	4.6E-02

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TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Nickel	NA	NA	NA	NA	Body Weight	9.4E-02	NA	1.4E-03	9.6E-02
			Selenium	NA	NA	NA	NA	Skin	9.0E-02	NA	2.7E-04	9.0E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc	NA	NA	NA	NA	Circulatory	2.5E-01	NA	4.4E-04	2.5E-01
			Chlordane - alpha	4.3E-08	NA	5.8E-08	1.0E-07	Liver	2.4E-02	NA	3.2E-02	5.6E-02
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06	Liver	2.8E-02	NA	1.2E-02	4.0E-02
			Heptachlor Epoxide	4.9E-07	NA	1.5E-07	6.4E-07	Liver	4.9E-02	NA	1.5E-02	6.3E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	6.5E-03	NA	4.0E-04	6.9E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00
			Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Nitrosodiphenylamine-n	2.9E-07	NA	6.3E-08	3.5E-07	Body Weight, Developmental, Reproductive	3.5E-02	NA	7.5E-03	4.2E-02
			Phenol	NA	NA	NA	NA	Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Chloroethane	2.1E-08	NA	7.6E-10	2.2E-08	Fetotoxicity	2.1E-04	NA	7.7E-06	2.2E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	4.7E-02	NA	2.8E-02	7.5E-02
			Dichlorobenzene-1,4	1.2E-07	NA	5.2E-08	1.7E-07	Liver, Developmental	2.0E-03	NA	8.5E-04	2.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.2E-03	NA	6.3E-05	1.3E-03
			Dichloroethane-1,2	4.7E-07	NA	1.5E-08	4.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.0E-03	NA	9.6E-05	3.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.6E-03	NA	9.1E-04	2.5E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	7.6E-02	NA	4.4E-03	8.1E-02
			Dichloropropane-1,2	3.2E-07	NA	2.1E-08	3.4E-07	Kidney	2.8E-03	NA	1.8E-04	2.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	7.5E-03	NA	2.9E-03	1.0E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	2.6E-03	NA	5.3E-05	2.6E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06	Liver	5.1E-04	NA	2.0E-04	7.1E-04
			Trichloroethane-1,1,2	1.3E-07	NA	8.1E-09	1.4E-07	Circulatory	6.9E-04	NA	4.2E-05	7.3E-04
			Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Xylenes, total	NA	NA	NA	NA	Body Weight	6.0E-03	NA	2.5E-03	8.5E-03
		Exposure Point Total		3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
Exposure Medium Total				3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
			Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.3E-04	NA	4.3E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06	Liver	NA	3.8E-03	NA	3.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-02	NA	1.3E-02
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01

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TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-01	NA	2.2E-01
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.9E-02	NA	3.9E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	3.5E-02	NA	3.5E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.6E-02	NA	2.6E-02
			Tetrachloroethylene	NA	1.4E-06	NA	1.4E-06	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.2E-01	NA	6.2E-01
		Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.8E-05	3.0E-02		9.1E+01	4.0E+02	1.7E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.3E-01	NA	7.0E-04	2.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05	Skin, Circulatory	4.5E-02	NA	1.3E-04	4.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Chromium	NA	NA	NA	NA	N/A	3.4E-02	NA	8.1E-03	4.2E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Groundwater	Groundwater	Aluminum	Manganese	NA	NA	NA	NA	CNS	1.6E+00	NA	1.2E-01	1.7E+00
(cont.)	(cont.)	(cont.)	Thallium	NA	NA	NA	NA	Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Benzene	9.9E-08	NA	9.8E-09	1.1E-07	Circulatory, Immune	7.0E-03	NA	7.0E-04	7.7E-03
			Dichloroethane-1,2	4.3E-07	NA	1.4E-08	4.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.8E-03	NA	8.8E-05	2.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.0E-02	NA	1.2E-03	2.2E-02
			Dichloropropane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Kidney	2.4E-03	NA	1.5E-04	2.5E-03
			Tetrachloroethylene	3.0E-06	NA	1.1E-06	4.1E-06	Liver	6.4E-04	NA	2.5E-04	8.9E-04
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Air	Emissions from	Benzene	NA	7.3E-07	NA	7.3E-07	Circulatory	NA	1.8E-02	NA	1.8E-02
		Middle PRM Aquifer	Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	4.0E+01
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.2E-01	4.1E+01

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Table 9.7.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	6.0E-05	6.6E-08	9.1E-06	6.9E-05	**5.0E+00**	2.1E-02	**1.3E+00**	**6.4E+00**
Subsurface Soil	**2.1E-03**	1.1E-06	**1.8E-04**	**2.2E-03**	**1.0E+01**	2.9E-02	**1.8E+00**	**1.2E+01**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.8E-05	**3.0E-02**	**9.1E+01**	**4.0E+02**	**1.7E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.2E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	1.1E-04	**3.0E-02**	**9.6E+01**	**4.0E+02**	**3.1E+00**	**5.0E+02**
Surface Soil + Middle PRM Aquifer	**1.7E-04**	6.8E-05	1.3E-05	**2.5E-04**	**4.5E+01**	**1.2E+00**	**1.7E+00**	**4.8E+01**
Subsurface Soil + Upper PRM Aquifer	**3.2E-02**	**2.0E-04**	**2.8E-04**	**3.2E-02**	**1.0E+02**	**4.0E+02**	**3.6E+00**	**5.0E+02**
Subsurface Soil + Middle PRM Aquifer	**2.2E-03**	6.9E-05	**1.8E-04**	**2.4E-03**	**5.0E+01**	**1.2E+00**	**2.1E+00**	**5.3E+01**

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Table 9.7.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	*Subsurface* soil	*Upper* PRM Aquifer	Middle PRM Aquifer	*Upper* PRM Aquifer	Middle PRM Aquifer	*Upper* PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	3E-01	3E-01	**6E+00**	9E-01	**6E+00**	1E+00	**6E+00**	1E+00
Total Circulatory HI Across Media =	**6E+00**	**1E+01**	**8E+01**	**4E+01**	**9E+01**	**4E+01**	**9E+01**	**5E+01**
Total CNS HI Across Media =	4E-02	2E-01	**4E+02**	**2E+00**	**4E+02**	**2E+00**	**4E+02**	**2E+00**
Total Developmental HI Across Media =	NA	NA	8E-02	NA	8E-02	NA	8E-02	NA
Total Fetotoxicity HI Across Media =	7E-03	8E-03	7E-01	4E-01	7E-01	4E-01	7E-01	4E-01
Total Gastrointestinal HI Across Media =	1E+00	**3E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Immune HI Across Media =	1E-01	1E-01	8E-01	8E-03	1E+00	2E-01	1E+00	2E-01
Total Kidney HI Across Media =	**4E+00**	**5E+00**	**1E+01**	**2E+00**	**2E+01**	**6E+00**	**2E+01**	**7E+00**
Total Liver HI Across Media =	1E+00	**3E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Lungs HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Reproductive HI Across Media =	NA	NA	4E-02	NA	4E-02	NA	4E-02	NA
Total Respiratory HI Across Media =	4E-03	5E-03	**4E+02**	2E-01	**4E+02**	2E-01	**4E+02**	2E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	8E-02	**3E+00**	**5E+01**	4E-02	**5E+01**	1E-01	**5E+01**	**3E+00**
Total Thyroid HI Across Media =	NA	NA	7E-02	NA	7E-02	NA	7E-02	NA
Total Endocrine HI Across Media =	NA	NA	3E-01	1E-01	3E-01	1E-01	3E-01	1E-01

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony	NA	NA	NA	NA	Circulatory	1.0E-02	NA	4.4E-03	1.4E-02
			Arsenic	1.5E-05	NA	2.9E-06	1.7E-05	Skin, Circulatory	9.0E-02	NA	1.8E-02	1.1E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.2E-01	NA	2.1E-01	4.3E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.8E-02	NA	2.4E-03	2.0E-02
			Chromium	NA	NA	NA	NA	N/A	5.3E-03	NA	1.4E-02	1.9E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.1E-01	NA	7.1E-03	1.1E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.5E-03	NA	2.5E-03	4.1E-03
			Mercury	NA	NA	NA	NA	Immune	7.8E-03	NA	7.4E-03	1.5E-02
			Benzo(a)anthracene	4.1E-07	NA	3.5E-07	7.6E-07	Kidney	5.2E-05	NA	4.5E-05	9.7E-05
			Benzo(a)pyrene	3.8E-06	NA	3.3E-06	7.1E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	3.8E-07	NA	3.3E-07	7.1E-07	Kidney	4.9E-05	NA	4.2E-05	9.1E-05
		Exposure Point Total		1.9E-05	NA	6.8E-06	2.6E-05		4.6E-01	NA	2.7E-01	7.3E-01
	Exposure Medium Total			1.9E-05	NA	6.8E-06	2.6E-05		4.6E-01	NA	2.7E-01	7.3E-01
	Ambient Air	Emissions from Junkyard Surface Soil	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	2.9E-08	NA	2.9E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.2E-02	NA	2.2E-02
			Cadmium	NA	7.9E-09	NA	7.9E-09	Kidney	NA	6.2E-05	NA	6.2E-05
			Chromium	NA	4.7E-08	NA	4.7E-08	Respiratory	NA	1.4E-03	NA	1.4E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.9E-03	NA	2.9E-03
			Mercury	NA	NA	NA	NA	CNS	NA	5.4E-06	NA	5.4E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	8.3E-08	NA	8.3E-08		NA	2.6E-02	NA	2.6E-02
	Exposure Medium Total			NA	8.3E-08	NA	8.3E-08		NA	2.6E-02	NA	2.6E-02
Medium Total				1.9E-05	8.3E-08	6.8E-06	2.6E-05		4.6E-01	2.6E-02	2.7E-01	7.6E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	8.9E-03	NA	5.9E-04	9.5E-03
			Antimony	NA	NA	NA	NA	Circulatory	1.0E-02	NA	4.4E-03	1.4E-02
			Arsenic	6.5E-04	NA	1.3E-04	7.8E-04	Skin, Circulatory	4.0E+00	NA	8.0E-01	4.8E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.6E-01	NA	2.4E-01	5.0E-01
			Cadmium	NA	NA	NA	NA	Kidney	2.4E-02	NA	3.2E-03	2.7E-02
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Chromium	NA	NA	NA	NA	N/A	6.0E-03	NA	1.6E-02	2.2E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.0E-01	NA	1.3E-02	2.1E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.9E-03	NA	3.1E-03	4.9E-03

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TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	7.8E-03	NA	7.4E-03	1.5E-02
			Benzo(a)anthracene	4.6E-07	NA	3.9E-07	8.5E-07	Kidney	5.9E-05	NA	5.0E-05	1.1E-04
			Benzo(a)pyrene	4.1E-06	NA	3.5E-06	7.6E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.8E-07	NA	4.2E-07	9.0E-07	Kidney	6.2E-05	NA	5.3E-05	1.2E-04
			Dibenzo(a,h)anthracene	9.2E-07	NA	7.9E-07	1.7E-06	Kidney	1.2E-05	NA	1.0E-05	2.2E-05
			Indeno(1,2,3-cd)pyrene	2.6E-07	NA	2.2E-07	4.7E-07	Body Weight	2.0E-05	NA	1.7E-05	3.6E-05
		Exposure Point Total		6.6E-04	NA	1.3E-04	7.9E-04		4.6E+00	NA	1.1E+00	5.7E+00
	Exposure Medium Total			6.6E-04	NA	1.3E-04	7.9E-04		4.6E+00	NA	1.1E+00	5.7E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	1.2E-03	NA	1.2E-03
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	1.3E-06	NA	1.3E-06	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-02	NA	2.5E-02
			Cadmium	NA	1.1E-08	NA	1.1E-08	Kidney	NA	8.3E-05	NA	8.3E-05
			Chromium	NA	5.3E-08	NA	5.3E-08	Respiratory	NA	1.5E-03	NA	1.5E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.6E-03	NA	3.6E-03
			Mercury	NA	NA	NA	NA	CNS	NA	5.4E-06	NA	5.4E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	1.3E-06	NA	1.3E-06		NA	3.2E-02	NA	3.2E-02
	Exposure Medium Total			NA	1.3E-06	NA	1.3E-06		NA	3.2E-02	NA	3.2E-02
Medium Total				6.6E-04	1.3E-06	1.3E-04	7.9E-04		4.6E+00	3.2E-02	1.1E+00	5.7E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	4.5E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
			Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Beryllium	NA	NA	NA	NA	Gastrointestinal	1.9E-02	NA	1.2E-02	3.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium	NA	NA	NA	NA	N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.3E-02	NA	5.7E-05	1.3E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Mercury	NA	NA	NA	NA	Immune	6.8E-03	NA	4.4E-04	7.2E-03

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Nickel	NA	NA	NA	NA	Body Weight	1.4E-02	NA	3.3E-04	1.5E-02
			Selenium	NA	NA	NA	NA	Skin	1.4E-02	NA	6.2E-05	1.4E-02
			Thallium	NA	NA	NA	NA	Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.8E-02	NA	1.0E-04	3.8E-02
			Chlordane - alpha	2.7E-08	NA	7.5E-08	1.0E-07	Liver	4.4E-04	NA	1.2E-03	1.6E-03
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06	Liver	4.2E-03	NA	3.9E-03	8.1E-03
			Heptachlor Epoxide	3.1E-07	NA	2.0E-07	5.1E-07	Liver	7.4E-03	NA	4.6E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.0E-02	NA	1.3E-03	1.1E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Nitrosodiphenylamine-n	1.9E-07	NA	8.2E-08	2.7E-07	Body Weight, Developmental, Reproductive	5.3E-03	NA	2.3E-03	7.6E-03
			Phenol	NA	NA	NA	NA	Body Weight	3.2E-02	NA	2.0E-03	3.4E-02
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06	Circulatory	8.3E-02	NA	1.7E-02	9.9E-02
			Chloroethane	1.3E-08	NA	9.9E-10	1.4E-08	Fetotoxicity	3.2E-05	NA	2.4E-06	3.5E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	7.2E-03	NA	8.7E-03	1.6E-02
			Dichlorobenzene-1,4	7.7E-08	NA	6.8E-08	1.5E-07	Liver, Developmental	3.0E-04	NA	2.6E-04	5.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.9E-03	NA	2.0E-04	2.1E-03
			Dichloroethane-1,2	3.0E-07	NA	1.9E-08	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.7E-04	NA	3.0E-05	5.0E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.4E-03	NA	2.8E-04	2.7E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Dichloropropane-1,2	2.1E-07	NA	2.7E-08	2.3E-07	Kidney	4.2E-04	NA	5.6E-05	4.8E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.2E-03	NA	9.1E-04	2.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.9E-03	NA	1.7E-04	4.1E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06	Liver	7.9E-04	NA	6.2E-04	1.4E-03
			Trichloroethane-1,1,2	8.6E-08	NA	1.1E-08	9.6E-08	Circulatory	1.1E-03	NA	1.3E-04	1.2E-03
			Trichloroethylene	4.0E-06	NA	9.2E-07	5.0E-06	Liver, Kidney, Fetotoxicity	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05	Liver	4.6E-02	NA	3.1E-03	4.9E-02
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Xylenes, total	NA	NA	NA	NA	Body Weight	9.2E-04	NA	7.9E-04	1.7E-03
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.0E+01	NA	2.0E+01
			Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.2E-05	NA	2.2E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	3.4E-07	NA	3.4E-07	Liver	NA	1.9E-04	NA	1.9E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.4E-03	NA	6.4E-03
			Dichloroethane-1,2	NA	1.5E-06	NA	1.5E-06	Gastrointestinal, Liver, Kidney	NA	3.1E-02	NA	3.1E-02

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TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.6E-02	NA	3.6E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.9E-03	NA	1.9E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.8E-03	NA	1.8E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.3E-03	NA	1.3E-03
			Tetrachloroethylene	NA	2.8E-07	NA	2.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	4.0E-07	NA	4.0E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05	CNS, Liver, Endocrine	NA	1.4E-02	NA	1.4E-02
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06	Liver	NA	2.3E-02	NA	2.3E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.1E-02	NA	3.1E-02
		Chemical Total		NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	4.1E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.6E-02	NA	1.6E-04	3.6E-02
			Antimony	NA	NA	NA	NA	Circulatory	7.1E-02	NA	2.1E-03	7.3E-02
			Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.1E-02	NA	2.6E-03	4.4E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.3E-02	NA	9.5E-03	6.2E-02
			Chromium	NA	NA	NA	NA	N/A	3.5E-02	NA	1.2E-02	4.7E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.7E-02	NA	6.6E-05	3.7E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.0E-02	NA	2.7E-04	6.0E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Groundwater	Groundwater	Middle PRM Aquifer	Manganese	NA	NA	NA	NA	CNS	2.4E-01	NA	2.7E-02	2.7E-01
(cont.)	(cont.)	(cont.)	Thallium	NA	NA	NA	NA	Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Benzene	6.3E-08	NA	1.3E-08	7.6E-08	Circulatory	8.1E-04	NA	1.6E-04	9.7E-04
			Dichloroethane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.3E-04	NA	2.7E-05	4.5E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.1E-02	NA	3.6E-03	3.5E-02
			Dichloropropane-1,2	1.8E-07	NA	2.3E-08	2.0E-07	Kidney	3.6E-04	NA	4.8E-05	4.1E-04
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06	Liver	9.8E-04	NA	7.7E-04	1.7E-03
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06	Liver, Kidney, Fetotoxicity	4.9E-02	NA	1.1E-02	6.0E-02
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05	Liver	2.9E-02	NA	2.0E-03	3.1E-02
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Air	Emissions from	Benzene	NA	1.5E-07	NA	1.5E-07	Circulatory	NA	1.8E-03	NA	1.8E-03
		Middle PRM Aquifer	Dichloroethane-1,2	NA	1.3E-06	NA	1.3E-06	Gastrointestinal, Liver, Kidney	NA	2.9E-02	NA	2.9E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.0E-02	NA	3.0E-02
			Tetrachloroethylene	NA	3.5E-07	NA	3.5E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.0E-05	NA	1.0E-05	CNS, Liver, Endocrine	NA	7.0E-03	NA	7.0E-03
			Vinyl chloride	NA	2.3E-06	NA	2.3E-06	Liver	NA	1.5E-02	NA	1.5E-02
		Chemical Total		NA	1.4E-05	NA	1.4E-05		NA	8.3E-02	NA	8.3E-02
	Exposure Medium Total			NA	1.4E-05	NA	7.5E-05		NA	8.3E-02	NA	7.5E+00
Medium Total				7.0E-05	1.4E-05	5.3E-06	9.0E-05		7.4E+00	8.3E-02	1.0E-01	7.6E+00

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Table 9.8.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	1.9E-05	8.3E-08	6.8E-06	2.6E-05	4.6E-01	2.6E-02	2.7E-01	7.6E-01
Subsurface Soil	**6.6E-04**	1.3E-06	1.3E-04	**7.9E-04**	**4.6E+00**	3.2E-02	**1.1E+00**	**5.7E+00**
Upper PRM Aquifer	**1.9E-02**	4.1E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.4E-05	5.3E-06	9.0E-05	**7.4E+00**	8.3E-02	1.0E-01	**7.6E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	4.1E-05	1.0E-04	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.4E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	8.9E-05	1.4E-05	1.2E-05	1.2E-04	**7.9E+00**	1.1E-01	3.7E-01	**8.4E+00**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	4.2E-05	**2.3E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.2E+00**	**1.5E+02**
Subsurface Soil + Middle PRM Aquifer	**7.3E-04**	1.6E-05	1.4E-04	**8.8E-04**	**1.2E+01**	1.1E-01	**1.2E+00**	**1.3E+01**

Table 9.8.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	4E-05	7E-01	NA	7E-01	NA	7E-01	4E-05
Total Circulatory HI Across Media =	7E-01	**6E+00**	**1E+02**	**7E+00**	**1E+02**	**8E+00**	**1E+02**	**1E+01**
Total CNS HI Across Media =	7E-03	2E-02	**2E+01**	3E-01	**2E+01**	3E-01	**2E+01**	3E-01
Total Developmental HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Fetotoxicity HI Across Media =	2E-02	3E-02	1E-01	6E-02	1E-01	8E-02	1E-01	9E-02
Total Gastrointestinal HI Across Media =	1E-01	2E-01	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**6E+00**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Immune HI Across Media =	2E-02	2E-02	7E-03	NA	2E-02	2E-02	2E-02	2E-02
Total Kidney HI Across Media =	5E-01	5E-01	**3E+00**	3E-01	**3E+00**	7E-01	**3E+00**	8E-01
Total Liver HI Across Media =	1E-01	2E-01	**4E+00**	**5E+00**	**4E+00**	**6E+00**	**4E+00**	**6E+00**
Total Lungs HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Reproductive HI Across Media =	NA	NA	8E-03	NA	8E-03	NA	8E-03	NA
Total Respiratory HI Across Media =	1E-03	2E-03	**2E+01**	3E-02	**2E+01**	3E-02	**2E+01**	3E-02
Total Sensitizer HI Across Media =	NA	NA	NA	4E-02	NA	4E-02	NA	4E-02
Total Skin HI Across Media =	1E-01	**5E+00**	**1E+02**	1E-01	**1E+02**	2E-01	**1E+02**	**5E+00**
Total Thyroid HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Endocrine HI Across Media =	NA	NA	1E-02	7E-03	1E-02	7E-03	1E-02	7E-03

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TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	4.8E-02	NA	6.4E-03	5.4E-02
			Arsenic	1.4E-06	NA	8.3E-08	1.5E-06	Skin, Circulatory	1.3E-02	NA	7.7E-04	1.4E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.3E-01	NA	1.5E-01	6.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	4.3E-02	NA	1.7E-03	4.4E-02
			Chromium	NA	NA	NA	NA	N/A	1.9E-03	NA	1.5E-03	3.4E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.5E-01	NA	5.1E-03	2.6E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.6E-03	NA	1.8E-03	5.5E-03
			Mercury	NA	NA	NA	NA	Immune	1.9E-02	NA	5.3E-03	2.4E-02
			Benzo(a)anthracene	3.9E-08	NA	1.0E-08	4.9E-08	Kidney	1.2E-05	NA	3.2E-06	1.6E-05
			Benzo(a)pyrene	3.6E-07	NA	9.5E-08	4.6E-07	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	3.6E-08	NA	9.5E-09	4.6E-08	Kidney	1.2E-05	NA	3.0E-06	1.5E-05
		Exposure Point Total		1.8E-06	NA	2.0E-07	2.0E-06		9.1E-01	NA	1.7E-01	1.1E+00
	Exposure Medium Total			1.8E-06	NA	2.0E-07	2.0E-06		9.1E-01	NA	1.7E-01	1.1E+00
	Ambient Air	Emissions from Junkyard Surface Soil	Antimony	NA	NA	NA	NA	N/A	NA	4.2E-06	NA	4.2E-06
			Arsenic	NA	6.9E-10	NA	6.9E-10	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.3E-03	NA	1.3E-03
			Cadmium	NA	1.9E-10	NA	1.9E-10	Kidney	NA	8.3E-06	NA	8.3E-06
			Chromium	NA	1.1E-09	NA	1.1E-09	Respiratory	NA	8.2E-04	NA	8.2E-04
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.8E-03	NA	1.8E-03
			Mercury	NA	NA	NA	NA	CNS	NA	3.2E-06	NA	3.2E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	2.0E-09	NA	2.0E-09		NA	3.9E-03	NA	3.9E-03
	Exposure Medium Total			NA	2.0E-09	NA	2.0E-09		NA	3.9E-03	NA	3.9E-03
Medium Total				1.8E-06	2.0E-09	2.0E-07	2.0E-06		9.1E-01	3.9E-03	1.7E-01	1.1E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.1E-02	NA	4.2E-04	2.2E-02
			Antimony	NA	NA	NA	NA	Body Weight	4.8E-02	NA	9.5E-04	4.9E-02
			Arsenic	6.2E-05	NA	3.7E-06	6.5E-05	Skin, Circulatory	5.8E-01	NA	3.5E-02	6.1E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	6.1E-01	NA	1.2E-02	6.3E-01
			Cadmium	NA	NA	NA	NA	Kidney	5.8E-02	NA	1.2E-04	5.8E-02
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Chromium	NA	NA	NA	NA	N/A	2.1E-03	NA	4.3E-05	2.2E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.7E-01	NA	9.4E-03	4.8E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	4.4E-03	NA	8.8E-05	4.5E-03
			Mercury	NA	NA	NA	NA	Immune	1.9E-02	NA	3.7E-04	1.9E-02
			Benzo(a)anthracene	4.4E-08	NA	1.1E-08	5.5E-08	Kidney	1.4E-05	NA	3.6E-06	1.8E-05

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TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(a)pyrene	3.9E-07	NA	1.0E-07	4.9E-07	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.6E-08	NA	1.2E-08	5.8E-08	Kidney	1.5E-05	NA	3.8E-06	1.9E-05
			Dibenzo(a,h)anthracene	8.7E-08	NA	2.3E-08	1.1E-07	Kidney	2.8E-06	NA	7.3E-07	3.5E-06
			Indeno(1,2,3-cd)pyrene	2.4E-08	NA	6.3E-09	3.1E-08	Body Weight	3.9E-06	NA	1.0E-06	4.9E-06
		Exposure Point Total		6.2E-05	NA	3.9E-06	6.6E-05		1.8E+00	NA	5.8E-02	1.9E+00
	Exposure Medium Total			6.2E-05	NA	3.9E-06	6.6E-05		1.8E+00	NA	5.8E-02	1.9E+00
Subsurface Soil	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	7.4E-04	NA	7.4E-04
		Junkyard Subsurface Soil	Antimony	NA	NA	NA	NA	N/A	NA	4.2E-06	NA	4.2E-06
			Arsenic	NA	3.1E-08	NA	3.1E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.5E-03	NA	1.5E-03
			Cadmium	NA	2.6E-10	NA	2.6E-10	Kidney	NA	1.1E-05	NA	1.1E-05
			Chromium	NA	1.3E-09	NA	1.3E-09	Respiratory	NA	9.3E-04	NA	9.3E-04
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.2E-03	NA	2.2E-03
			Mercury	NA	NA	NA	NA	CNS	NA	3.2E-06	NA	3.2E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	3.2E-08	NA	3.2E-08		NA	5.4E-03	NA	5.4E-03
	Exposure Medium Total			NA	3.2E-08	NA	3.2E-08		NA	5.4E-03	NA	5.4E-03
Medium Total				6.2E-05	3.2E-08	3.9E-06	6.6E-05		1.8E+00	5.4E-03	5.8E-02	1.9E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	7.0E-04	7.0E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	1.2E-02	1.2E-02
			Arsenic	NA	NA	5.3E-06	5.3E-06	Skin, Circulatory	NA	NA	4.9E-02	4.9E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	1.3E-01	1.3E-01
Groundwater	Groundwater	Upper PRM Aquifer	Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	7.5E-03	7.5E-03
(cont.)	(cont.)	(cont.)	Cadmium	NA	NA	NA	NA	Kidney	NA	NA	1.8E-02	1.8E-02
			Chromium	NA	NA	NA	NA	N/A	NA	NA	1.2E-02	1.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	8.9E-05	8.9E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	2.7E-02	2.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	2.4E-02	2.4E-02
			Mercury	NA	NA	NA	NA	Immune	NA	NA	6.7E-04	6.7E-04
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	5.0E-04	5.0E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	9.5E-05	9.5E-05
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	4.1E-04	4.1E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	2.2E-02	2.2E-02

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TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Zinc	NA	NA	NA	NA	*Circulatory*	NA	NA	1.6E-04	1.6E-04
			Chlordane - alpha	NA	NA	8.2E-10	8.2E-10	Liver	NA	NA	2.7E-03	2.7E-03
			Dieldrin	NA	NA	1.2E-08	1.2E-08	Liver	NA	NA	1.1E-03	1.1E-03
			Heptachlor Epoxide	NA	NA	2.1E-09	2.1E-09	Liver	NA	NA	1.3E-03	1.3E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	5.8E-05	5.8E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	1.6E-02	1.6E-02
			Ether, bis(2-chloroethyl)	NA	NA	3.4E-08	3.4E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	5.8E-02	5.8E-02
			Nitrosodiphenylamine-n	NA	NA	1.0E-09	1.0E-09	Body Weight, Developmental, Reproductive	NA	NA	7.1E-04	7.1E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	5.1E-04	5.1E-04
			Benzene	NA	NA	2.7E-08	2.7E-08	Circulatory, Immune	NA	NA	1.1E-02	1.1E-02
			Chloroethane	NA	NA	2.4E-11	2.4E-11	Fetotoxicity	NA	NA	1.4E-06	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	2.9E-03	2.9E-03
			Dichlorobenzene-1,4	NA	NA	9.4E-10	9.4E-10	Liver, Developmental	NA	NA	9.2E-05	9.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	9.5E-06	9.5E-06
			Dichloroethane-1,2	NA	NA	3.8E-10	3.8E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	1.5E-05	1.5E-05
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	1.4E-04	1.4E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	*Circulatory*	NA	NA	6.7E-04	6.7E-04
			Dichloropropane-1,2	NA	NA	4.8E-10	4.8E-10	Kidney	NA	NA	2.5E-05	2.5E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	3.8E-04	3.8E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	8.1E-06	8.1E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	NA	1.5E-08	1.5E-08	Liver	NA	NA	2.0E-05	2.0E-05
			Trichloroethane-1,1,2	NA	NA	1.7E-10	1.7E-10	Circulatory	NA	NA	5.3E-06	5.3E-06
			Trichloroethylene	NA	NA	1.4E-08	1.4E-08	Liver, Kidney, Fetotoxicity	NA	NA	8.4E-03	8.4E-03
			Vinyl chloride	NA	NA	1.2E-07	1.2E-07	Liver	NA	NA	1.9E-03	1.9E-03
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	3.2E-04	3.2E-04
		Exposure Point Total		NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Exposure Medium Total			NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.0E+01	NA	3.0E+01
			Benzene	NA	1.2E-06	NA	1.2E-06	Circulatory	NA	1.8E-01	NA	1.8E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.8E-05	NA	4.8E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	2.3E-08	NA	2.3E-08	Liver	NA	3.2E-04	NA	3.2E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-03	NA	1.3E-03
			Dichloroethane-1,2	NA	1.1E-07	NA	1.1E-07	Gastrointestinal, Liver, Kidney	NA	6.0E-02	NA	6.0E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-02	NA	2.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.2E-03	NA	3.2E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	*Fetotoxicity*	NA	*2.5E-03*	NA	*2.5E-03*
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.5E-03	NA	2.5E-03

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TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Tetrachloroethylene	NA	2.0E-08	NA	2.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	2.8E-08	NA	2.8E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	2.5E-02	NA	2.5E-02
			Vinyl chloride	NA	7.1E-08	NA	7.1E-08	Liver	NA	1.1E-02	NA	1.1E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.1E-02	NA	6.1E-02
		Chemical Total		NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
	Exposure Medium Total			NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
Medium Total				NA	2.9E-06	5.5E-06	8.4E-06		NA	3.1E+01	4.1E-01	3.1E+01

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Table 9.9.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	1.8E-06	2.0E-09	2.0E-07	2.0E-06	9.1E-01	3.9E-03	1.7E-01	**1.1E+00**
Subsurface Soil	6.2E-05	3.2E-08	3.9E-06	6.6E-05	**1.8E+00**	5.4E-03	5.8E-02	**1.9E+00**
Upper PRM Aquifer	NA	2.9E-06	5.5E-06	8.4E-06	NA	**3.1E+01**	4.1E-01	**3.1E+01**
Surface Soil + Upper PRM Aquifer	1.8E-06	2.9E-06	5.7E-06	1.0E-05	9.1E-01	**3.1E+01**	5.9E-01	**3.2E+01**
Subsurface Soil + Upper PRM Aquifer	6.2E-05	2.9E-06	9.4E-06	7.5E-05	**1.8E+00**	**3.1E+01**	4.7E-01	**3.3E+01**

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Table 9.9.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Junkyard			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Body Weight HI Across Media =	5E-02	5E-02	9E-02	1E-01	1E-01
Total Circulatory HI Across Media =	1E+00	**2E+00**	4E-01	1E+00	**2E+00**
Total CNS HI Across Media =	7E-03	3E-02	**3E+01**	**3E+01**	**3E+01**
Total Developmental HI Across Media =	NA	NA	4E-03	4E-03	4E-03
Total Fetotoxicity HI Across Media =	1E-03	2E-03	1E-02	1E-02	1E-02
Total Gastrointestinal HI Across Media =	3E-01	5E-01	9E-02	4E-01	6E-01
Total General HI Across Media =	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Immune HI Across Media =	2E-02	2E-02	1E-02	4E-02	3E-02
Total Kidney HI Across Media =	7E-01	7E-01	2E-01	1E+00	9E-01
Total Liver HI Across Media =	3E-01	5E-01	1E-01	4E-01	6E-01
Total Lungs HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Reproductive HI Across Media =	NA	NA	7E-04	7E-04	7E-04
Total Respiratory HI Across Media =	8E-04	9E-04	**3E+01**	**3E+01**	**3E+01**
Total Sensitizer HI Across Media =	NA	NA	NA	NA	NA
Total Skin HI Across Media =	1E-02	6E-01	5E-02	6E-02	7E-01
Total Thyroid HI Across Media =	NA	NA	3E-03	3E-03	3E-03
Total Endocrine HI Across Media =	NA	NA	3E-02	3E-02	3E-02

TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Circulatory	1.2E-02	NA	3.1E-03	1.5E-02
			Arsenic	2.4E-04	NA	2.9E-05	2.7E-04	Skin, Circulatory	1.5E+00	NA	1.9E-01	1.7E+00
			Barium	NA	NA	NA	NA	*Kidney, Circulatory*	4.4E-01	NA	2.5E-01	6.9E-01
			Cadmium	NA	NA	NA	NA	Kidney	6.3E-03	NA	5.0E-04	6.8E-03
			Chromium	NA	NA	NA	NA	N/A	1.9E-01	NA	3.0E-01	4.9E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.3E-01	NA	5.0E-03	1.3E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.1E-03	NA	2.1E-03	4.1E-03
			Mercury	NA	NA	NA	NA	Immune	2.6E-02	NA	1.5E-02	4.1E-02
			Aldrin	5.8E-07	NA	2.3E-07	8.2E-07	Liver	3.3E-03	NA	1.3E-03	4.7E-03
			Dieldrin	9.0E-07	NA	3.6E-07	1.3E-06	Liver	3.3E-03	NA	1.3E-03	4.6E-03
			Pcb-Aroclor 1254	3.0E-06	NA	1.7E-06	4.7E-06	Immune	2.2E-01	NA	1.2E-01	3.4E-01
			Benzo(a)anthracene	8.2E-06	NA	4.3E-06	1.2E-05	Kidney	1.1E-03	NA	5.7E-04	1.7E-03
			Benzo(a)pyrene	6.2E-05	NA	3.2E-05	9.4E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.5E-06	NA	2.8E-06	8.3E-06	Kidney	7.3E-04	NA	3.8E-04	1.1E-03
			Benzo(k)fluoranthene	6.2E-07	NA	3.2E-07	9.4E-07	Kidney	8.2E-04	NA	4.3E-04	1.2E-03
			Dibenzo(a,h)anthracene	6.9E-06	NA	3.6E-06	1.0E-05	Kidney	9.1E-05	NA	4.7E-05	1.4E-04
			Indeno(1,2,3-cd)pyrene	2.0E-06	NA	1.0E-06	3.0E-06	Body Weight	1.6E-04	NA	8.1E-05	2.4E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	4.0E-04	NA	2.1E-04	6.1E-04
		Exposure Point Total		3.3E-04	NA	7.5E-05	4.0E-04		2.6E+00	NA	8.9E-01	3.5E+00
	Exposure Medium Total			3.3E-04	NA	7.5E-05	4.0E-04		2.6E+00	NA	8.9E-01	3.5E+00
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Row Homes and Industrial	Arsenic	NA	4.7E-07	NA	4.7E-07	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	*Fetotoxicity*	NA	4.3E-02	NA	4.3E-02
			Cadmium	NA	2.7E-09	NA	2.7E-09	Kidney	NA	2.2E-05	NA	2.2E-05
			Chromium	NA	1.6E-06	NA	1.6E-06	Respiratory	NA	4.8E-02	NA	4.8E-02
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	4.0E-03	NA	4.0E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.8E-05	NA	1.8E-05
			Aldrin	NA	1.1E-10	NA	1.1E-10	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.8E-10	NA	1.8E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	1.0E-10	NA	1.0E-10	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	4.2E-02	NA	4.2E-02
		Exposure Point Total		NA	2.1E-06	NA	2.1E-06		NA	1.4E-01	NA	1.4E-01
	Exposure Medium Total			NA	2.1E-06	NA	2.1E-06		NA	1.4E-01	NA	1.4E-01
Medium Total				3.3E-04	2.1E-06	7.5E-05	4.1E-04		2.6E+00	1.4E-01	8.9E-01	3.6E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	7.8E-03	NA	3.1E-04	8.1E-03
			Antimony	NA	NA	NA	NA	Circulatory	8.0E-03	NA	2.1E-03	1.0E-02
			Arsenic	2.6E-04	NA	3.1E-05	2.9E-04	Skin, Circulatory	1.7E+00	NA	2.0E-01	1.9E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	6.9E-01	NA	3.9E-01	1.1E+00
			Cadmium	NA	NA	NA	NA	Kidney	4.1E-03	NA	3.3E-04	4.4E-03
			Chromium	NA	NA	NA	NA	N/A	1.3E-01	NA	2.0E-01	3.3E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	9.0E-03	NA	3.6E-04	9.3E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	9.3E-02	NA	3.7E-03	9.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.7E-03	NA	1.7E-03	3.4E-03
			Mercury	NA	NA	NA	NA	Immune	8.2E-03	NA	4.7E-03	1.3E-02
			Thallium	NA	NA	NA	NA	Circulatory	1.5E-02	NA	5.8E-04	1.5E-02
			Aldrin	3.5E-07	NA	1.4E-07	4.8E-07	Liver	2.0E-03	NA	7.9E-04	2.8E-03
			Chlordane - alpha	1.0E-06	NA	1.7E-07	1.2E-06	Liver	1.7E-02	NA	2.8E-03	2.0E-02
			Chlordane - gamma (technical mixture)	1.2E-06	NA	1.9E-07	1.4E-06	Liver	2.0E-02	NA	3.2E-03	2.3E-02
			Dieldrin	1.7E-06	NA	6.8E-07	2.4E-06	Liver	6.2E-03	NA	2.5E-03	8.7E-03
			Heptachlor Epoxide	1.9E-06	NA	7.4E-07	2.6E-06	Liver	4.6E-02	NA	1.8E-02	6.4E-02
			Pcb-Aroclor 1254	1.8E-06	NA	1.0E-06	2.8E-06	Immune	1.3E-01	NA	7.3E-02	2.0E-01
			Pcb-Aroclor 1260	6.1E-07	NA	3.4E-07	9.5E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	7.1E-07	NA	2.8E-07	1.0E-06
			Benzo(a)anthracene	8.2E-06	NA	4.3E-06	1.2E-05	Kidney	1.1E-03	NA	5.7E-04	1.7E-03
			Benzo(a)pyrene	6.2E-05	NA	3.2E-05	9.4E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.5E-06	NA	2.8E-06	8.3E-06	Kidney	7.3E-04	NA	3.8E-04	1.1E-03
			Benzo(k)fluoranthene	6.5E-07	NA	3.4E-07	9.9E-07	Kidney	8.7E-04	NA	4.5E-04	1.3E-03
			Dibenzo(a,h)anthracene	8.2E-06	NA	4.3E-06	1.2E-05	Kidney	1.1E-04	NA	5.7E-05	1.7E-04
			Indeno(1,2,3-cd)pyrene	2.2E-06	NA	1.1E-06	3.3E-06	Body Weight	1.8E-04	NA	9.1E-05	2.7E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	3.0E-04	NA	1.6E-04	4.6E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		3.5E-04	NA	7.9E-05	4.3E-04		2.9E+00	NA	9.1E-01	3.8E+00
	Exposure Medium Total			3.5E-04	NA	7.9E-05	4.3E-04		2.9E+00	NA	9.1E-01	3.8E+00
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	1.1E-03	NA	1.1E-03
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	5.0E-07	NA	5.0E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	6.7E-02	NA	6.7E-02

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TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium	NA	1.7E-09	NA	1.7E-09	Kidney	NA	1.4E-05	NA	1.4E-05
			Chromium	NA	1.1E-06	NA	1.1E-06	Respiratory	NA	3.3E-02	NA	3.3E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.3E-03	NA	3.3E-03
			Mercury	NA	NA	NA	NA	CNS	NA	5.6E-06	NA	5.6E-06
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	6.8E-11	NA	6.8E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	2.0E-10	NA	2.0E-10	Liver	NA	8.5E-06	NA	8.5E-06
			Chlordane - gamma (technical mixture)	NA	2.3E-10	NA	2.3E-10	Liver	NA	9.7E-06	NA	9.7E-06
			Dieldrin	NA	3.3E-10	NA	3.3E-10	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	3.6E-10	NA	3.6E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	6.1E-11	NA	6.1E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	2.1E-11	NA	2.1E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.1E-02	NA	3.1E-02
		Exposure Point Total		NA	1.6E-06	NA	1.6E-06		NA	1.4E-01	NA	1.4E-01
	Exposure Medium Total			NA	1.6E-06	NA	1.6E-06		NA	1.4E-01	NA	1.4E-01
Medium Total				3.5E-04	1.6E-06	7.9E-05	4.3E-04		2.9E+00	1.4E-01	9.1E-01	3.9E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony	NA	NA	NA	NA	Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	3.8E+00	NA	1.2E-01	3.9E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	5.3E-02	NA	1.7E-02	7.0E-02
			Cadmium	NA	NA	NA	NA	Kidney	7.2E-01	NA	6.5E-02	7.9E-01
			Chromium	NA	NA	NA	NA	N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.6E-02	NA	8.0E-05	3.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.9E-01	NA	2.2E-02	4.1E-01
			Mercury	NA	NA	NA	NA	Immune	1.9E-02	NA	6.1E-04	2.0E-02
			Nickel	NA	NA	NA	NA	Body Weight	4.0E-02	NA	4.6E-04	4.1E-02
			Selenium	NA	NA	NA	NA	Skin	3.8E-02	NA	8.6E-05	3.9E-02

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TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium	NA	NA	NA	NA	Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Zinc	NA	NA	NA	NA	Circulatory	1.1E-01	NA	1.4E-04	1.1E-01
			Chlordane - alpha	7.4E-08	NA	1.0E-07	1.7E-07	Liver	1.2E-03	NA	1.7E-03	2.9E-03
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06	Liver	1.2E-02	NA	5.4E-03	1.7E-02
			Heptachlor Epoxide	8.4E-07	NA	2.6E-07	1.1E-06	Liver	2.1E-02	NA	6.5E-03	2.7E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	2.8E-02	NA	1.8E-03	3.0E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	4.9E-01	NA	2.2E-01	7.1E-01
			Nitrosodiphenylamine-n	5.0E-07	NA	1.1E-07	6.1E-07	Body Weight, Developmental, Reproductive	1.5E-02	NA	3.3E-03	1.8E-02
			Phenol	NA	NA	NA	NA	Body Weight	8.8E-02	NA	2.8E-03	9.1E-02
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Chloroethane	3.6E-08	NA	1.3E-09	3.7E-08	Fetotoxicity	9.0E-05	NA	3.4E-06	9.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	2.0E-02	NA	1.2E-02	3.2E-02
			Dichlorobenzene-1,4	2.1E-07	NA	9.1E-08	3.0E-07	Liver, Developmental	8.4E-04	NA	3.7E-04	1.2E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	5.4E-03	NA	2.7E-04	5.6E-03
			Dichloroethane-1,2	8.1E-07	NA	2.6E-08	8.4E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.3E-03	NA	4.2E-05	1.3E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	6.8E-03	NA	4.0E-04	7.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Dichloropropane-1,2	5.5E-07	NA	3.6E-08	5.9E-07	Kidney	1.2E-03	NA	7.8E-05	1.3E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	3.2E-03	NA	1.3E-03	4.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.1E-02	NA	2.3E-04	1.1E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06	Liver	2.2E-03	NA	8.6E-04	3.1E-03
			Trichloroethane-1,1,2	2.3E-07	NA	1.4E-08	2.4E-07	Circulatory	2.9E-03	NA	1.8E-04	3.1E-03
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	2.6E-03	NA	1.1E-03	3.7E-03
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
	Exposure Medium Total			5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
			Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	3.0E-05	NA	3.0E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.6E-07	NA	4.6E-07	Liver	NA	2.6E-04	NA	2.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	9.0E-03	NA	9.0E-03
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06	Gastrointestinal, Liver, Kidney	NA	4.4E-02	NA	4.4E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	5.0E-02	NA	5.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	2.7E-03	NA	2.7E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.8E-03	NA	1.8E-03
			Tetrachloroethylene	NA	3.8E-07	NA	3.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.4E-07	NA	5.4E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05	CNS, Liver, Endocrine	NA	1.9E-02	NA	1.9E-02
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06	Liver	NA	3.2E-02	NA	3.2E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	4.3E-02	NA	4.3E-02
		Chemical Total		NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.5E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.6E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	2.3E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium	NA	NA	NA	NA	N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Cobalt	NA	NA	NA	NA	Sensitizer	1.0E-01	NA	9.3E-05	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
Groundwater	Groundwater	Middle PRM Aquifer	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
(cont.)	(cont.)	(cont.)	Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.7E-01	NA	3.8E-02	7.1E-01
			Thallium	NA	NA	NA	NA	Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Benzene	1.7E-07	NA	1.7E-08	1.9E-07	Circulatory	2.3E-03	NA	2.3E-04	2.5E-03
			Dichloroethane-1,2	7.4E-07	NA	2.4E-08	7.7E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.2E-03	NA	3.8E-05	1.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	8.8E-02	NA	5.1E-03	9.3E-02
			Dichloropropane-1,2	4.7E-07	NA	3.1E-08	5.0E-07	Kidney	1.0E-03	NA	6.7E-05	1.1E-03
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06	Liver	2.7E-03	NA	1.1E-03	3.8E-03
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04	Liver	8.2E-02	NA	2.8E-03	8.5E-02
		Chemical Total		1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Air	Emissions from	Benzene	NA	2.0E-07	NA	2.0E-07	Circulatory	NA	2.5E-03	NA	2.5E-03
		Middle PRM Aquifer	Dichloroethane-1,2	NA	1.8E-06	NA	1.8E-06	Gastrointestinal, Liver, Kidney	NA	4.0E-02	NA	4.0E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	4.3E-02	NA	4.3E-02
			Tetrachloroethylene	NA	4.7E-07	NA	4.7E-07	N/A	NA	NA	NA	NA

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TABLE 9.10.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05	CNS, Liver, Endocrine	NA	9.9E-03	NA	9.9E-03
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06	Liver	NA	2.1E-02	NA	2.1E-02
		Chemical Total		NA	1.9E-05	NA	1.9E-05		NA	1.2E-01	NA	1.2E-01
	Exposure Medium Total			NA	1.9E-05	NA	2.0E-04		NA	1.2E-01	NA	2.1E+01
Medium Total				1.9E-04	1.9E-05	7.1E-06	2.1E-04		2.1E+01	1.2E-01	1.4E-01	2.1E+01

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Table 9.10.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**3.3E-04**	2.1E-06	7.5E-05	**4.1E-04**	**2.6E+00**	1.4E-01	8.9E-01	**3.6E+00**
Subsurface Soil	**3.5E-04**	1.6E-06	7.9E-05	**4.3E-04**	**2.9E+00**	1.4E-01	9.1E-01	**3.9E+00**
Upper PRM Aquifer	**5.1E-02**	5.5E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.6E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.9E-05	7.1E-06	**2.1E-04**	**2.1E+01**	1.2E-01	1.4E-01	**2.1E+01**
Surface Soil + Upper PRM Aquifer	**5.2E-02**	5.7E-05	**2.1E-04**	**5.2E-02**	**3.6E+02**	**2.8E+01**	**2.5E+00**	**3.8E+02**
Surface Soil + Middle PRM Aquifer	**5.2E-04**	2.1E-05	8.2E-05	**6.2E-04**	**2.3E+01**	2.5E-01	1.0E+00	**2.5E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	5.7E-05	**2.1E-04**	**5.2E-02**	**3.6E+02**	**2.8E+01**	**2.5E+00**	**3.8E+02**
Subsurface Soil + Middle PRM Aquifer	**5.4E-04**	2.1E-05	8.6E-05	**6.5E-04**	**2.4E+01**	2.5E-01	**1.1E+00**	**2.5E+01**

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Table 9.10.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	9E-04	7E-04	**2E+00**	NA	**2E+00**	9E-04	**2E+00**	7E-04
Total Circulatory HI Across Media =	**3E+00**	**3E+00**	**3E+02**	**2E+01**	**4E+02**	**2E+01**	**4E+02**	**2E+01**
Total CNS HI Across Media =	5E-02	5E-02	**3E+01**	8E-01	**3E+01**	9E-01	**3E+01**	9E-01
Total Developmental HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Fetotoxicity HI Across Media =	4E-02	7E-02	3E-01	2E-01	3E-01	2E-01	4E-01	2E-01
Total Gastrointestinal HI Across Media =	1E-01	1E-01	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total General HI Across Media =	NA	1E-06	NA	NA	NA	NA	1E-06	1E-06
Total Heart HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Immune HI Across Media =	4E-01	2E-01	2E-02	NA	4E-01	4E-01	2E-01	2E-01
Total Kidney HI Across Media =	7E-01	1E+00	**7E+00**	6E-01	**8E+00**	1E+00	**8E+00**	**2E+00**
Total Liver HI Across Media =	1E-01	2E-01	**1E+01**	**2E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Lungs HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Reproductive HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Respiratory HI Across Media =	9E-02	6E-02	**3E+01**	4E-02	**3E+01**	1E-01	**3E+01**	1E-01
Total Sensitizer HI Across Media =	NA	NA	NA	1E-01	NA	1E-01	NA	1E-01
Total Skin HI Across Media =	**2E+00**	**2E+00**	**3E+02**	3E-01	**3E+02**	**2E+00**	**3E+02**	**2E+00**
Total Thyroid HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Endocrine HI Across Media =	NA	NA	2E-02	1E-02	2E-02	1E-02	2E-02	1E-02

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TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	2.2E-01	NA	4.1E-02	2.6E-01
			Arsenic	5.6E-04	NA	4.7E-05	6.0E-04	Skin, Circulatory	8.7E-01	NA	7.3E-02	9.4E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.1E+00	NA	1.7E+00	5.8E+00
			Cadmium	NA	NA	NA	NA	Kidney	5.9E-02	NA	3.3E-03	6.2E-02
			Chromium	NA	NA	NA	NA	N/A	2.6E-01	NA	3.0E-01	5.6E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.2E+00	NA	3.3E-02	1.2E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.9E-02	NA	1.3E-02	3.3E-02
			Mercury	NA	NA	NA	NA	Immune	2.4E-01	NA	9.7E-02	3.4E-01
			Aldrin	1.4E-06	NA	3.8E-07	1.7E-06	Liver	3.1E-02	NA	8.7E-03	4.0E-02
			Dieldrin	2.1E-06	NA	5.9E-07	2.7E-06	Liver	3.1E-02	NA	8.6E-03	3.9E-02
			Pcb-Aroclor 1254	7.0E-06	NA	2.7E-06	9.8E-06	Immune	8.2E-01	NA	3.2E-01	1.1E+00
			Benzo(a)anthracene	1.9E-05	NA	7.0E-06	2.6E-05	Kidney	1.0E-03	NA	3.7E-04	1.4E-03
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.3E-05	NA	4.7E-06	1.7E-05	Kidney	6.8E-04	NA	2.5E-04	9.3E-04
			Benzo(k)fluoranthene	1.4E-06	NA	5.2E-07	2.0E-06	Kidney	7.7E-04	NA	2.8E-04	1.0E-03
			Dibenzo(a,h)anthracene	1.6E-05	NA	5.8E-06	2.2E-05	Kidney	8.5E-05	NA	3.1E-05	1.2E-04
			Indeno(1,2,3-cd)pyrene	4.6E-06	NA	1.7E-06	6.2E-06	Body Weight	1.2E-04	NA	4.4E-05	1.7E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	3.8E-03	NA	1.4E-03	5.1E-03
		Exposure Point Total		7.7E-04	NA	1.2E-04	8.9E-04		7.9E+00	NA	2.5E+00	1.0E+01
	Exposure Medium Total			7.7E-04	NA	1.2E-04	8.9E-04		7.9E+00	NA	2.5E+00	1.0E+01
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	1.9E-05	NA	1.9E-05
		Row Homes and Industrial	Arsenic	NA	2.8E-07	NA	2.8E-07	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.0E-02	NA	1.0E-02
			Cadmium	NA	1.6E-09	NA	1.6E-09	Kidney	NA	1.1E-05	NA	1.1E-05
			Chromium	NA	9.4E-07	NA	9.4E-07	Respiratory	NA	1.1E-01	NA	1.1E-01
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	9.3E-03	NA	9.3E-03
			Mercury	NA	NA	NA	NA	CNS	NA	4.2E-05	NA	4.2E-05
			Aldrin	NA	6.8E-11	NA	6.8E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.0E-10	NA	1.0E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	6.1E-11	NA	6.1E-11	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	9.8E-02	NA	9.8E-02
		Exposure Point Total		NA	1.2E-06	NA	1.2E-06		NA	2.3E-01	NA	2.3E-01
	Exposure Medium Total			NA	1.2E-06	NA	1.2E-06		NA	2.3E-01	NA	2.3E-01
Medium Total				7.7E-04	1.2E-06	1.2E-04	8.9E-04		7.9E+00	2.3E-01	2.5E+00	1.1E+01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	7.3E-02	NA	2.0E-03	7.5E-02
			Antimony	NA	NA	NA	NA	Body Weight	1.5E-01	NA	2.8E-02	1.8E-01
			Arsenic	6.0E-04	NA	5.0E-05	6.5E-04	Skin, Circulatory	9.3E-01	NA	7.8E-02	1.0E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	6.4E+00	NA	2.6E+00	9.0E+00
			Cadmium	NA	NA	NA	NA	Kidney	3.8E-02	NA	2.1E-03	4.1E-02
			Chromium	NA	NA	NA	NA	N/A	1.8E-01	NA	2.0E-01	3.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	8.4E-02	NA	2.3E-03	8.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.7E-01	NA	2.4E-02	9.0E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.6E-02	NA	1.1E-02	2.7E-02
			Mercury	NA	NA	NA	NA	Immune	7.7E-02	NA	3.1E-02	1.1E-01
			Thallium	NA	NA	NA	NA	Liver, Circulatory	1.4E-02	NA	3.8E-04	1.4E-02
			Aldrin	8.1E-07	NA	2.3E-07	1.0E-06	Liver	1.8E-02	NA	5.2E-03	2.4E-02
			Chlordane - alpha	2.4E-06	NA	2.7E-07	2.7E-06	Liver	1.3E+00	NA	1.5E-01	1.5E+00
			Chlordane - gamma (technical mixture)	2.8E-06	NA	3.1E-07	3.1E-06	Liver	1.5E+00	NA	1.7E-01	1.7E+00
			Dieldrin	4.0E-06	NA	1.1E-06	5.1E-06	Liver	5.8E-02	NA	1.6E-02	7.4E-02
			Heptachlor Epoxide	4.3E-06	NA	1.2E-06	5.6E-06	Liver	4.3E-01	NA	1.2E-01	5.5E-01
			Pcb-Aroclor 1254	4.2E-06	NA	1.6E-06	5.8E-06	Immune	4.9E-01	NA	1.9E-01	6.8E-01
			Pcb-Aroclor 1260	1.4E-06	NA	5.6E-07	2.0E-06	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	6.6E-07	NA	1.9E-07	8.5E-07
			Benzo(a)anthracene	1.9E-05	NA	7.0E-06	2.6E-05	Kidney	1.0E-03	NA	3.7E-04	1.4E-03
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.3E-05	NA	4.7E-06	1.7E-05	Kidney	6.8E-04	NA	2.5E-04	9.3E-04
			Benzo(k)fluoranthene	1.5E-06	NA	5.5E-07	2.1E-06	Kidney	8.1E-04	NA	2.9E-04	1.1E-03
			Dibenzo(a,h)anthracene	1.9E-05	NA	7.0E-06	2.6E-05	Kidney	1.0E-04	NA	3.7E-05	1.4E-04
			Indeno(1,2,3-cd)pyrene	5.1E-06	NA	1.9E-06	7.0E-06	Body Weight	1.4E-04	NA	5.0E-05	1.9E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	2.8E-03	NA	1.0E-03	3.9E-03
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		8.2E-04	NA	1.3E-04	9.5E-04		1.3E+01	NA	3.6E+00	1.6E+01
	Exposure Medium Total			8.2E-04	NA	1.3E-04	9.5E-04		1.3E+01	NA	3.6E+00	1.6E+01
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	2.5E-03	NA	2.5E-03
			Antimony	NA	NA	NA	NA	N/A	NA	1.3E-05	NA	1.3E-05
			Arsenic	NA	3.0E-07	NA	3.0E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.6E-02	NA	1.6E-02

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TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium	NA	1.0E-09	NA	1.0E-09	Kidney	NA	7.4E-06	NA	7.4E-06
			Chromium	NA	6.3E-07	NA	6.3E-07	Respiratory	NA	7.7E-02	NA	7.7E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	7.7E-03	NA	7.7E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.3E-05	NA	1.3E-05
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	4.0E-11	NA	4.0E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.2E-10	NA	1.2E-10	Liver	NA	2.0E-05	NA	2.0E-05
			Chlordane - gamma (technical mixture)	NA	1.4E-10	NA	1.4E-10	Liver	NA	2.3E-05	NA	2.3E-05
			Dieldrin	NA	2.0E-10	NA	2.0E-10	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	2.1E-10	NA	2.1E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	3.6E-11	NA	3.6E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.2E-11	NA	1.2E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	7.4E-02	NA	7.4E-02
		Exposure Point Total		NA	9.3E-07	NA	9.3E-07		NA	1.8E-01	NA	1.8E-01
	Exposure Medium Total			NA	9.3E-07	NA	9.3E-07		NA	1.8E-01	NA	1.8E-01
Medium Total				8.2E-04	9.3E-07	1.3E-04	9.5E-04		1.3E+01	1.8E-01	3.6E+00	1.7E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	5.0E-02	NA	2.1E-02	7.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium	NA	NA	NA	NA	N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	8.3E-02	NA	2.5E-04	8.4E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Mercury	NA	NA	NA	NA	Immune	4.4E-02	NA	1.9E-03	4.6E-02
			Nickel	NA	NA	NA	NA	Body Weight	9.4E-02	NA	1.4E-03	9.6E-02
			Selenium	NA	NA	NA	NA	Skin	9.0E-02	NA	2.7E-04	9.0E-02

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TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc	NA	NA	NA	NA	Circulatory	2.5E-01	NA	4.4E-04	2.5E-01
			Chlordane - alpha	4.3E-08	NA	5.8E-08	1.0E-07	Liver	2.4E-02	NA	3.2E-02	5.6E-02
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06	Liver	2.8E-02	NA	1.2E-02	4.0E-02
			Heptachlor Epoxide	4.9E-07	NA	1.5E-07	6.4E-07	Liver	4.9E-02	NA	1.5E-02	6.3E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	6.5E-03	NA	4.0E-04	6.9E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00
			Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Nitrosodiphenylamine-n	2.9E-07	NA	6.3E-08	3.5E-07	Body Weight, Developmental, Reproductive	3.5E-02	NA	7.5E-03	4.2E-02
			Phenol	NA	NA	NA	NA	Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Chloroethane	2.1E-08	NA	7.6E-10	2.2E-08	Fetotoxicity	2.1E-04	NA	7.7E-06	2.2E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	4.7E-02	NA	2.8E-02	7.5E-02
			Dichlorobenzene-1,4	1.2E-07	NA	5.2E-08	1.7E-07	Liver, Developmental	2.0E-03	NA	8.5E-04	2.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.2E-03	NA	6.3E-05	1.3E-03
			Dichloroethane-1,2	4.7E-07	NA	1.5E-08	4.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.0E-03	NA	9.6E-05	3.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.6E-03	NA	9.1E-04	2.5E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	7.6E-02	NA	4.4E-03	8.1E-02
			Dichloropropane-1,2	3.2E-07	NA	2.1E-08	3.4E-07	Kidney	2.8E-03	NA	1.8E-04	2.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	7.5E-03	NA	2.9E-03	1.0E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	2.6E-03	NA	5.3E-05	2.6E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06	Liver	5.1E-04	NA	2.0E-04	7.1E-04
			Trichloroethane-1,1,2	1.3E-07	NA	8.1E-09	1.4E-07	Circulatory	6.9E-04	NA	4.2E-05	7.3E-04
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	6.0E-03	NA	2.5E-03	8.5E-03
		Exposure Point Total		3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
	Exposure Medium Total			3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
			Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.3E-04	NA	4.3E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06	Liver	NA	3.8E-03	NA	3.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-02	NA	1.3E-02
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-01	NA	2.2E-01
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.9E-02	NA	3.9E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	3.5E-02	NA	3.5E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.6E-02	NA	2.6E-02
			Tetrachloroethylene	NA	1.4E-06	NA	1.4E-06	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.2E-01	NA	6.2E-01
		Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.8E-05	3.0E-02		9.1E+01	4.0E+02	1.7E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.3E-01	NA	7.0E-04	2.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05	Skin, Circulatory	4.5E-02	NA	1.3E-04	4.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Chromium	NA	NA	NA	NA	N/A	3.4E-02	NA	8.1E-03	4.2E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.6E+00	NA	1.2E-01	1.7E+00
			Thallium	NA	NA	NA	NA	Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Benzene	9.9E-08	NA	9.8E-09	1.1E-07	Circulatory, Immune	7.0E-03	NA	7.0E-04	7.7E-03
			Dichloroethane-1,2	4.3E-07	NA	1.4E-08	4.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.8E-03	NA	8.8E-05	2.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.0E-02	NA	1.2E-03	2.2E-02
			Dichloropropane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Kidney	2.4E-03	NA	1.5E-04	2.5E-03
			Tetrachloroethylene	3.0E-06	NA	1.1E-06	4.1E-06	Liver	6.4E-04	NA	2.5E-04	8.9E-04
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	7.3E-07	NA	7.3E-07	Circulatory	NA	1.8E-02	NA	1.8E-02
			Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06	N/A	NA	NA	NA	NA

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TABLE 9.11.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	4.0E+01
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.2E-01	4.1E+01

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Table 9.11.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**7.7E-04**	1.2E-06	1.2E-04	**8.9E-04**	**7.9E+00**	2.3E-01	**2.5E+00**	**1.1E+01**
Subsurface Soil	**8.2E-04**	9.3E-07	1.3E-04	**9.5E-04**	**1.3E+01**	1.8E-01	**3.6E+00**	**1.7E+01**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.8E-05	**3.0E-02**	**9.1E+01**	**4.0E+02**	**1.7E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.2E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.1E-02**	**2.0E-04**	**2.2E-04**	**3.1E-02**	**9.9E+01**	**4.0E+02**	**4.3E+00**	**5.0E+02**
Surface Soil + Middle PRM Aquifer	**8.8E-04**	7.0E-05	1.3E-04	**1.1E-03**	**4.7E+01**	**1.4E+00**	**2.9E+00**	**5.2E+01**
Subsurface Soil + Upper PRM Aquifer	**3.1E-02**	**2.0E-04**	**2.3E-04**	**3.1E-02**	**1.0E+02**	**4.0E+02**	**5.3E+00**	**5.1E+02**
Subsurface Soil + Middle PRM Aquifer	**9.3E-04**	6.9E-05	1.3E-04	**1.1E-03**	**5.2E+01**	**1.4E+00**	**3.9E+00**	**5.8E+01**

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Table 9.11.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	3E-01	2E-01	**6E+00**	9E-01	**6E+00**	1E+00	**6E+00**	1E+00
Total Circulatory HI Across Media =	**8E+00**	**1E+01**	**8E+01**	**4E+01**	**9E+01**	**4E+01**	**1E+02**	**5E+01**
Total CNS HI Across Media =	1E-01	2E-01	**4E+02**	**2E+00**	**4E+02**	**2E+00**	**4E+02**	**2E+00**
Total Developmental HI Across Media =	NA	NA	8E-02	NA	8E-02	NA	8E-02	NA
Total Fetotoxicity HI Across Media =	1E-02	2E-02	7E-01	4E-01	7E-01	4E-01	7E-01	4E-01
Total Gastrointestinal HI Across Media =	1E+00	1E+00	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total General HI Across Media =	NA	9E-07	NA	NA	NA	NA	9E-07	9E-07
Total Heart HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Immune HI Across Media =	1E+00	8E-01	8E-01	8E-03	**2E+00**	1E+00	**2E+00**	8E-01
Total Kidney HI Across Media =	**6E+00**	**9E+00**	**1E+01**	**2E+00**	**2E+01**	**8E+00**	**2E+01**	**1E+01**
Total Liver HI Across Media =	1E+00	**5E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Lungs HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Reproductive HI Across Media =	NA	NA	4E-02	NA	4E-02	NA	4E-02	NA
Total Respiratory HI Across Media =	2E-01	2E-01	**4E+02**	2E-01	**4E+02**	4E-01	**4E+02**	3E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	9E-01	1E+00	**5E+01**	4E-02	**5E+01**	1E+00	**5E+01**	1E+00
Total Thyroid HI Across Media =	NA	NA	7E-02	NA	7E-02	NA	7E-02	NA
Total Endocrine HI Across Media =	NA	NA	3E-01	1E-01	3E-01	1E-01	3E-01	1E-01

TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Circulatory	8.3E-03	NA	3.7E-03	1.2E-02
			Arsenic	1.8E-04	NA	3.5E-05	2.1E-04	Skin, Circulatory	1.1E+00	NA	2.2E-01	1.3E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.2E-01	NA	3.0E-01	6.1E-01
			Cadmium	NA	NA	NA	NA	Kidney	4.5E-03	NA	5.9E-04	5.1E-03
			Chromium	NA	NA	NA	NA	N/A	1.3E-01	NA	3.6E-01	4.9E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	9.0E-02	NA	6.0E-03	9.6E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.5E-03	NA	2.4E-03	3.9E-03
			Mercury	NA	NA	NA	NA	Immune	1.9E-02	NA	1.8E-02	3.6E-02
			Aldrin	4.3E-07	NA	2.9E-07	7.2E-07	Liver	2.4E-03	NA	1.6E-03	4.0E-03
			Dieldrin	6.7E-07	NA	4.4E-07	1.1E-06	Liver	2.3E-03	NA	1.5E-03	3.9E-03
			Pcb-Aroclor 1254	2.2E-06	NA	2.1E-06	4.3E-06	Immune	1.6E-01	NA	1.4E-01	3.0E-01
			Benzo(a)anthracene	6.1E-06	NA	5.3E-06	1.1E-05	Kidney	7.8E-04	NA	6.7E-04	1.5E-03
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.1E-06	NA	3.5E-06	7.6E-06	Kidney	5.2E-04	NA	4.5E-04	9.7E-04
			Benzo(k)fluoranthene	4.6E-07	NA	3.9E-07	8.5E-07	Kidney	5.9E-04	NA	5.0E-04	1.1E-03
			Dibenzo(a,h)anthracene	5.1E-06	NA	4.4E-06	9.5E-06	Kidney	6.5E-05	NA	5.6E-05	1.2E-04
			Indeno(1,2,3-cd)pyrene	1.5E-06	NA	1.2E-06	2.7E-06	Body Weight	1.1E-04	NA	9.6E-05	2.1E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	2.9E-04	NA	2.5E-04	5.4E-04
		Exposure Point Total		2.4E-04	NA	9.2E-05	3.4E-04		1.8E+00	NA	1.1E+00	2.9E+00
	Exposure Medium Total			2.4E-04	NA	9.2E-05	3.4E-04		1.8E+00	NA	1.1E+00	2.9E+00
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Row Homes and Industrial	Arsenic	NA	3.5E-07	NA	3.5E-07	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.1E-02	NA	3.1E-02
			Cadmium	NA	2.0E-09	NA	2.0E-09	Kidney	NA	1.5E-05	NA	1.5E-05
			Chromium	NA	1.2E-06	NA	1.2E-06	Respiratory	NA	3.5E-02	NA	3.5E-02
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.8E-03	NA	2.8E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.3E-05	NA	1.3E-05
			Aldrin	NA	8.6E-11	NA	8.6E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.3E-10	NA	1.3E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	7.7E-11	NA	7.7E-11	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.0E-02	NA	3.0E-02
		Exposure Point Total		NA	1.5E-06	NA	1.5E-06		NA	9.8E-02	NA	9.8E-02
	Exposure Medium Total			NA	1.5E-06	NA	1.5E-06		NA	9.8E-02	NA	9.8E-02
Medium Total				2.4E-04	1.5E-06	9.2E-05	3.4E-04		1.8E+00	9.8E-02	1.1E+00	3.0E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	5.6E-03	NA	3.7E-04	6.0E-03
			Antimony	NA	NA	NA	NA	Circulatory	5.7E-03	NA	2.5E-03	8.2E-03
			Arsenic	1.9E-04	NA	3.8E-05	2.3E-04	Skin, Circulatory	1.2E+00	NA	2.4E-01	1.4E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.9E-01	NA	4.7E-01	9.6E-01
			Cadmium	NA	NA	NA	NA	Kidney	2.9E-03	NA	3.9E-04	3.3E-03
			Chromium	NA	NA	NA	NA	N/A	9.1E-02	NA	2.4E-01	3.3E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.4E-03	NA	4.2E-04	6.8E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	6.7E-02	NA	4.4E-03	7.1E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.2E-03	NA	2.0E-03	3.2E-03
			Mercury	NA	NA	NA	NA	Immune	5.9E-03	NA	5.5E-03	1.1E-02
			Thallium	NA	NA	NA	NA	Circulatory	1.0E-02	NA	6.9E-04	1.1E-02
			Aldrin	2.6E-07	NA	1.7E-07	4.3E-07	Liver	1.4E-03	NA	9.3E-04	2.3E-03
			Chlordane - alpha	7.7E-07	NA	2.0E-07	9.8E-07	Liver	1.2E-02	NA	3.3E-03	1.6E-02
			Chlordane - gamma (technical mixture)	8.8E-07	NA	2.3E-07	1.1E-06	Liver	1.4E-02	NA	3.7E-03	1.8E-02
			Dieldrin	1.3E-06	NA	8.4E-07	2.1E-06	Liver	4.4E-03	NA	2.9E-03	7.4E-03
			Heptachlor Epoxide	1.4E-06	NA	9.1E-07	2.3E-06	Liver	3.3E-02	NA	2.2E-02	5.4E-02
			Pcb-Aroclor 1254	1.3E-06	NA	1.2E-06	2.6E-06	Immune	9.3E-02	NA	8.6E-02	1.8E-01
			Pcb-Aroclor 1260	4.5E-07	NA	4.2E-07	8.7E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	5.1E-07	NA	3.4E-07	8.4E-07
			Benzo(a)anthracene	6.1E-06	NA	5.3E-06	1.1E-05	Kidney	7.8E-04	NA	6.7E-04	1.5E-03
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.1E-06	NA	3.5E-06	7.6E-06	Kidney	5.2E-04	NA	4.5E-04	9.7E-04
			Benzo(k)fluoranthene	4.8E-07	NA	4.2E-07	9.0E-07	Kidney	6.2E-04	NA	5.3E-04	1.2E-03
			Dibenzo(a,h)anthracene	6.1E-06	NA	5.3E-06	1.1E-05	Kidney	7.8E-05	NA	6.7E-05	1.5E-04
			Indeno(1,2,3-cd)pyrene	1.6E-06	NA	1.4E-06	3.0E-06	Body Weight	1.3E-04	NA	1.1E-04	2.3E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	2.2E-04	NA	1.9E-04	4.0E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		2.6E-04	NA	9.7E-05	3.6E-04		2.0E+00	NA	1.1E+00	3.1E+00
	Exposure Medium Total			2.6E-04	NA	9.7E-05	3.6E-04		2.0E+00	NA	1.1E+00	3.1E+00
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	7.7E-04	NA	7.7E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	3.8E-07	NA	3.8E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.8E-02	NA	4.8E-02

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TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium	NA	1.3E-09	NA	1.3E-09	Kidney	NA	1.0E-05	NA	1.0E-05
			Chromium	NA	8.0E-07	NA	8.0E-07	Respiratory	NA	2.3E-02	NA	2.3E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.3E-03	NA	2.3E-03
			Mercury	NA	NA	NA	NA	CNS	NA	4.0E-06	NA	4.0E-06
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	5.1E-11	NA	5.1E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.5E-10	NA	1.5E-10	Liver	NA	6.1E-06	NA	6.1E-06
			Chlordane - gamma (technical mixture)	NA	1.7E-10	NA	1.7E-10	Liver	NA	6.9E-06	NA	6.9E-06
			Dieldrin	NA	2.5E-10	NA	2.5E-10	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	2.7E-10	NA	2.7E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	4.6E-11	NA	4.6E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.6E-11	NA	1.6E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.2E-02	NA	2.2E-02
		Exposure Point Total		NA	1.2E-06	NA	1.2E-06		NA	9.7E-02	NA	9.7E-02
	Exposure Medium Total			NA	1.2E-06	NA	1.2E-06		NA	9.7E-02	NA	9.7E-02
Medium Total				2.6E-04	1.2E-06	9.7E-05	3.6E-04		2.0E+00	9.7E-02	1.1E+00	3.2E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	4.5E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	1.9E-02	NA	1.2E-02	3.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium	NA	NA	NA	NA	N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.3E-02	NA	5.7E-05	1.3E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Mercury	NA	NA	NA	NA	Immune	6.8E-03	NA	4.4E-04	7.2E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.4E-02	NA	3.3E-04	1.5E-02
			Selenium	NA	NA	NA	NA	Skin	1.4E-02	NA	6.2E-05	1.4E-02

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TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.8E-02	NA	1.0E-04	3.8E-02
			Chlordane - alpha	2.7E-08	NA	7.5E-08	1.0E-07	Liver	4.4E-04	NA	1.2E-03	1.6E-03
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06	Liver	4.2E-03	NA	3.9E-03	8.1E-03
			Heptachlor Epoxide	3.1E-07	NA	2.0E-07	5.1E-07	Liver	7.4E-03	NA	4.6E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.0E-02	NA	1.3E-03	1.1E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Nitrosodiphenylamine-n	1.9E-07	NA	8.2E-08	2.7E-07	Body Weight, Developmental, Reproductive	5.3E-03	NA	2.3E-03	7.6E-03
			Phenol	NA	NA	NA	NA	Body Weight	3.2E-02	NA	2.0E-03	3.4E-02
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06	Circulatory	8.3E-02	NA	1.7E-02	9.9E-02
			Chloroethane	1.3E-08	NA	9.9E-10	1.4E-08	Fetotoxicity	3.2E-05	NA	2.4E-06	3.5E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	7.2E-03	NA	8.7E-03	1.6E-02
			Dichlorobenzene-1,4	7.7E-08	NA	6.8E-08	1.5E-07	Liver, Developmental	3.0E-04	NA	2.6E-04	5.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.9E-03	NA	2.0E-04	2.1E-03
			Dichloroethane-1,2	3.0E-07	NA	1.9E-08	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.7E-04	NA	3.0E-05	5.0E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.4E-03	NA	2.8E-04	2.7E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Dichloropropane-1,2	2.1E-07	NA	2.7E-08	2.3E-07	Kidney	4.2E-04	NA	5.6E-05	4.8E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.2E-03	NA	9.1E-04	2.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.9E-03	NA	1.7E-04	4.1E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06	Liver	7.9E-04	NA	6.2E-04	1.4E-03
			Trichloroethane-1,1,2	8.6E-08	NA	1.1E-08	9.6E-08	Circulatory	1.1E-03	NA	1.3E-04	1.2E-03
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	4.0E-06	NA	9.2E-07	5.0E-06	Liver, Kidney, Fetotoxicity	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05	Liver	4.6E-02	NA	3.1E-03	4.9E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	9.2E-04	NA	7.9E-04	1.7E-03
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.0E+01	NA	2.0E+01
			Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.2E-05	NA	2.2E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	3.4E-07	NA	3.4E-07	Liver	NA	1.9E-04	NA	1.9E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.4E-03	NA	6.4E-03
			Dichloroethane-1,2	NA	1.5E-06	NA	1.5E-06	Gastrointestinal, Liver, Kidney	NA	3.1E-02	NA	3.1E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.6E-02	NA	3.6E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.9E-03	NA	1.9E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.8E-03	NA	1.8E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.3E-03	NA	1.3E-03
			Tetrachloroethylene	NA	2.8E-07	NA	2.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	4.0E-07	NA	4.0E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05	CNS, Liver, Endocrine	NA	1.4E-02	NA	1.4E-02
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06	Liver	NA	2.3E-02	NA	2.3E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.1E-02	NA	3.1E-02
		Chemical Total		NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	4.1E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.6E-02	NA	1.6E-04	3.6E-02
			Antimony	NA	NA	NA	NA	Circulatory	7.1E-02	NA	2.1E-03	7.3E-02
			Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.1E-02	NA	2.6E-03	4.4E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.3E-02	NA	9.5E-03	6.2E-02
			Chromium	NA	NA	NA	NA	N/A	3.5E-02	NA	1.2E-02	4.7E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.7E-02	NA	6.6E-05	3.7E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.0E-02	NA	2.7E-04	6.0E-02
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.4E-01	NA	2.7E-02	2.7E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Benzene	6.3E-08	NA	1.3E-08	7.6E-08	Circulatory	8.1E-04	NA	1.6E-04	9.7E-04
			Dichloroethane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.3E-04	NA	2.7E-05	4.5E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.1E-02	NA	3.6E-03	3.5E-02
			Dichloropropane-1,2	1.8E-07	NA	2.3E-08	2.0E-07	Kidney	3.6E-04	NA	4.8E-05	4.1E-04
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06	Liver	9.8E-04	NA	7.7E-04	1.7E-03
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06	Liver, Kidney, Fetotoxicity	4.9E-02	NA	1.1E-02	6.0E-02
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05	Liver	2.9E-02	NA	2.0E-03	3.1E-02
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	1.5E-07	NA	1.5E-07	Circulatory	NA	1.8E-03	NA	1.8E-03
			Dichloroethane-1,2	NA	1.3E-06	NA	1.3E-06	Gastrointestinal, Liver, Kidney	NA	2.9E-02	NA	2.9E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.0E-02	NA	3.0E-02
			Tetrachloroethylene	NA	3.5E-07	NA	3.5E-07	N/A	NA	NA	NA	NA

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TABLE 9.12.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	1.0E-05	NA	1.0E-05	CNS, Liver, Endocrine	NA	7.0E-03	NA	7.0E-03
			Vinyl chloride	NA	2.3E-06	NA	2.3E-06	Liver	NA	1.5E-02	NA	1.5E-02
		Chemical Total		NA	1.4E-05	NA	1.4E-05		NA	8.3E-02	NA	8.3E-02
	Exposure Medium Total			NA	1.4E-05	NA	7.5E-05		NA	8.3E-02	NA	7.5E+00
Medium Total				7.0E-05	1.4E-05	5.3E-06	9.0E-05		7.4E+00	8.3E-02	1.0E-01	7.6E+00

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Table 9.12.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**2.4E-04**	1.5E-06	9.2E-05	**3.4E-04**	**1.8E+00**	9.8E-02	**1.1E+00**	**3.0E+00**
Subsurface Soil	**2.6E-04**	1.2E-06	9.7E-05	**3.6E-04**	**2.0E+00**	9.7E-02	**1.1E+00**	**3.2E+00**
Upper PRM Aquifer	**1.9E-02**	4.1E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.4E-05	5.3E-06	9.0E-05	**7.4E+00**	8.3E-02	1.0E-01	**7.6E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	4.3E-05	**1.9E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.2E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	**3.1E-04**	1.6E-05	9.7E-05	**4.3E-04**	**9.3E+00**	1.8E-01	**1.2E+00**	**1.1E+01**
Subsurface Soil + Upper PRM Aquifer	**1.9E-02**	4.2E-05	**1.9E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.2E+00**	**1.5E+02**
Subsurface Soil + Middle PRM Aquifer	**3.3E-04**	1.5E-05	1.0E-04	**4.5E-04**	**9.4E+00**	1.8E-01	**1.2E+00**	**1.1E+01**

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Table 9.12.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	7E-04	6E-04	7E-01	NA	7E-01	7E-04	7E-01	6E-04
Total Circulatory HI Across Media =	**2E+00**	**2E+00**	**1E+02**	**7E+00**	**1E+02**	**9E+00**	**1E+02**	**9E+00**
Total CNS HI Across Media =	4E-02	3E-02	**2E+01**	3E-01	**2E+01**	3E-01	**2E+01**	3E-01
Total Developmental HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Fetotoxicity HI Across Media =	3E-02	5E-02	1E-01	6E-02	1E-01	9E-02	2E-01	1E-01
Total Gastrointestinal HI Across Media =	1E-01	8E-02	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total General HI Across Media =	NA	8E-07	NA	NA	NA	NA	8E-07	8E-07
Total Heart HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Immune HI Across Media =	3E-01	2E-01	7E-03	NA	3E-01	3E-01	2E-01	2E-01
Total Kidney HI Across Media =	6E-01	1E+00	**3E+00**	3E-01	**3E+00**	9E-01	**4E+00**	1E+00
Total Liver HI Across Media =	1E-01	2E-01	**4E+00**	**5E+00**	**4E+00**	**6E+00**	**4E+00**	**6E+00**
Total Lungs HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Reproductive HI Across Media =	NA	NA	8E-03	NA	8E-03	NA	8E-03	NA
Total Respiratory HI Across Media =	6E-02	5E-02	**2E+01**	3E-02	**2E+01**	9E-02	**2E+01**	8E-02
Total Sensitizer HI Across Media =	NA	NA	NA	4E-02	NA	4E-02	NA	4E-02
Total Skin HI Across Media =	1E+00	1E+00	**1E+02**	1E-01	**1E+02**	1E+00	**1E+02**	**2E+00**
Total Thyroid HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Endocrine HI Across Media =	NA	NA	1E-02	7E-03	1E-02	7E-03	1E-02	7E-03

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TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	4.0E-02	NA	5.3E-03	4.5E-02
			Arsenic	1.7E-05	NA	1.0E-06	1.8E-05	Skin, Circulatory	1.6E-01	NA	9.5E-03	1.7E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	7.5E-01	NA	2.1E-01	9.7E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.1E-02	NA	4.3E-04	1.1E-02
			Chromium	NA	NA	NA	NA	N/A	4.8E-02	NA	3.8E-02	8.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.1E-01	NA	4.3E-03	2.2E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.5E-03	NA	1.8E-03	5.3E-03
			Mercury	NA	NA	NA	NA	Immune	4.4E-02	NA	1.3E-02	5.7E-02
			Aldrin	4.1E-08	NA	8.2E-09	4.9E-08	Liver	5.7E-03	NA	1.1E-03	6.8E-03
			Dieldrin	6.4E-08	NA	1.3E-08	7.7E-08	Liver	5.6E-03	NA	1.1E-03	6.7E-03
			Pcb-Aroclor 1254	2.1E-07	NA	6.0E-08	2.7E-07	Immune	1.5E-01	NA	4.2E-02	1.9E-01
			Benzo(a)anthracene	5.8E-07	NA	1.5E-07	7.3E-07	Kidney	1.9E-04	NA	4.8E-05	2.3E-04
			Benzo(a)pyrene	4.4E-06	NA	1.1E-06	5.5E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	3.9E-07	NA	1.0E-07	4.9E-07	Kidney	1.2E-04	NA	3.2E-05	1.6E-04
			Benzo(k)fluoranthene	4.4E-08	NA	1.1E-08	5.5E-08	Kidney	1.4E-04	NA	3.6E-05	1.8E-04
			Dibenzo(a,h)anthracene	4.8E-07	NA	1.3E-07	6.1E-07	Kidney	1.5E-05	NA	4.0E-06	2.0E-05
			Indeno(1,2,3-cd)pyrene	1.4E-07	NA	3.6E-08	1.7E-07	Body Weight	2.2E-05	NA	5.7E-06	2.8E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	6.9E-04	NA	1.8E-04	8.6E-04
		Exposure Point Total		2.3E-05	NA	2.7E-06	2.6E-05		1.4E+00	NA	3.3E-01	1.8E+00
	Exposure Medium Total			2.3E-05	NA	2.7E-06	2.6E-05		1.4E+00	NA	3.3E-01	1.8E+00
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	3.5E-06	NA	3.5E-06
		Row Homes and Industrial	Arsenic	NA	8.5E-09	NA	8.5E-09	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.9E-03	NA	1.9E-03
			Cadmium	NA	4.8E-11	NA	4.8E-11	Kidney	NA	2.1E-06	NA	2.1E-06
			Chromium	NA	2.9E-08	NA	2.9E-08	Respiratory	NA	2.1E-02	NA	2.1E-02
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.7E-03	NA	1.7E-03
			Mercury	NA	NA	NA	NA	CNS	NA	7.7E-06	NA	7.7E-06
			Aldrin	NA	2.1E-12	NA	2.1E-12	N/A	NA	NA	NA	NA
			Dieldrin	NA	3.2E-12	NA	3.2E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	1.9E-12	NA	1.9E-12	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	7.9E-03	NA	7.9E-03
		Exposure Point Total		NA	3.7E-08	NA	3.7E-08		NA	3.2E-02	NA	3.2E-02
	Exposure Medium Total			NA	3.7E-08	NA	3.7E-08		NA	3.2E-02	NA	3.2E-02
Medium Total				2.3E-05	3.7E-08	2.7E-06	2.6E-05		1.4E+00	3.2E-02	3.3E-01	1.8E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	1.3E-02	NA	2.7E-04	1.4E-02
			Antimony	NA	NA	NA	NA	Body Weight	2.7E-02	NA	5.4E-04	2.8E-02
			Arsenic	1.8E-05	NA	1.1E-06	1.9E-05	Skin, Circulatory	1.7E-01	NA	1.0E-02	1.8E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E+00	NA	2.3E-02	1.2E+00
			Cadmium	NA	NA	NA	NA	Kidney	7.0E-03	NA	1.4E-05	7.0E-03
			Chromium	NA	NA	NA	NA	N/A	3.2E-02	NA	6.5E-04	3.3E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.5E-02	NA	3.0E-04	1.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.6E-01	NA	3.2E-03	1.6E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.9E-03	NA	5.8E-05	2.9E-03
			Mercury	NA	NA	NA	NA	Immune	1.4E-02	NA	2.8E-04	1.4E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	2.5E-03	NA	5.0E-05	2.5E-03
			Aldrin	2.4E-08	NA	4.9E-09	2.9E-08	Liver	3.4E-03	NA	6.7E-04	4.0E-03
			Chlordane - alpha	7.3E-08	NA	5.9E-09	7.9E-08	Liver	2.4E-01	NA	2.0E-02	2.6E-01
			Chlordane - gamma (technical mixture)	8.4E-08	NA	6.7E-09	9.1E-08	Liver	2.8E-01	NA	2.2E-02	3.0E-01
			Dieldrin	1.2E-07	NA	2.4E-08	1.4E-07	Liver	1.1E-02	NA	2.1E-03	1.3E-02
			Heptachlor Epoxide	1.3E-07	NA	2.6E-08	1.6E-07	Liver	7.8E-02	NA	1.6E-02	9.3E-02
			Pcb-Aroclor 1254	1.3E-07	NA	3.5E-08	1.6E-07	Immune	8.9E-02	NA	2.5E-02	1.1E-01
			Pcb-Aroclor 1260	4.3E-08	NA	1.2E-08	5.5E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.2E-07	NA	2.4E-08	1.5E-07
			Benzo(a)anthracene	5.8E-07	NA	1.5E-07	7.3E-07	Kidney	1.9E-04	NA	4.8E-05	2.3E-04
			Benzo(a)pyrene	4.4E-06	NA	1.1E-06	5.5E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	3.9E-07	NA	1.0E-07	4.9E-07	Kidney	1.2E-04	NA	3.2E-05	1.6E-04
			Benzo(k)fluoranthene	4.6E-08	NA	1.2E-08	5.8E-08	Kidney	1.5E-04	NA	3.8E-05	1.9E-04
			Dibenzo(a,h)anthracene	5.8E-07	NA	1.5E-07	7.3E-07	Kidney	1.9E-05	NA	4.8E-06	2.3E-05
			Indeno(1,2,3-cd)pyrene	1.6E-07	NA	4.0E-08	2.0E-07	Body Weight	2.5E-05	NA	6.4E-06	3.1E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	5.1E-04	NA	1.3E-04	6.5E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		2.5E-05	NA	2.8E-06	2.8E-05		2.3E+00	NA	1.2E-01	2.4E+00
	Exposure Medium Total			2.5E-05	NA	2.8E-06	2.8E-05		2.3E+00	NA	1.2E-01	2.4E+00
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	4.6E-04	NA	4.6E-04
			Antimony	NA	NA	NA	NA	N/A	NA	2.4E-06	NA	2.4E-06
			Arsenic	NA	9.1E-09	NA	9.1E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.9E-03	NA	2.9E-03

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TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium	NA	3.1E-11	NA	3.1E-11	Kidney	NA	1.4E-06	NA	1.4E-06
			Chromium	NA	1.9E-08	NA	1.9E-08	*Respiratory*	NA	1.4E-02	NA	1.4E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.4E-03	NA	1.4E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.4E-06	NA	2.4E-06
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.2E-12	NA	1.2E-12	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	3.7E-12	NA	3.7E-12	Liver	NA	3.7E-06	NA	3.7E-06
			Chlordane - gamma (technical mixture)	NA	4.2E-12	NA	4.2E-12	Liver	NA	4.2E-06	NA	4.2E-06
			Dieldrin	NA	6.1E-12	NA	6.1E-12	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	6.6E-12	NA	6.6E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	1.1E-12	NA	1.1E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	3.8E-13	NA	3.8E-13	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	5.9E-03	NA	5.9E-03
		Exposure Point Total		NA	2.9E-08	NA	2.9E-08		NA	2.5E-02	NA	2.5E-02
	Exposure Medium Total			NA	2.9E-08	NA	2.9E-08		NA	2.5E-02	NA	2.5E-02
Medium Total				2.5E-05	2.9E-08	2.8E-06	2.8E-05		2.3E+00	2.5E-02	1.2E-01	2.5E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	7.0E-04	7.0E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	1.2E-02	1.2E-02
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	5.3E-06	5.3E-06	Skin, Circulatory	NA	NA	4.9E-02	4.9E-02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	1.3E-01	1.3E-01
			Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	7.5E-03	7.5E-03
			Cadmium	NA	NA	NA	NA	Kidney	NA	NA	1.8E-02	1.8E-02
			Chromium	NA	NA	NA	NA	N/A	NA	NA	1.2E-02	1.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	8.9E-05	8.9E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	2.7E-02	2.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	2.4E-02	2.4E-02
			Mercury	NA	NA	NA	NA	Immune	NA	NA	6.7E-04	6.7E-04
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	5.0E-04	5.0E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	9.5E-05	9.5E-05

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TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	4.1E-04	4.1E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	2.2E-02	2.2E-02
			Zinc	NA	NA	NA	NA	Circulatory	NA	NA	1.6E-04	1.6E-04
			Chlordane - alpha	NA	NA	8.2E-10	8.2E-10	Liver	NA	NA	2.7E-03	2.7E-03
			Dieldrin	NA	NA	1.2E-08	1.2E-08	Liver	NA	NA	1.1E-03	1.1E-03
			Heptachlor Epoxide	NA	NA	2.1E-09	2.1E-09	Liver	NA	NA	1.3E-03	1.3E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	5.8E-05	5.8E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	1.6E-02	1.6E-02
			Ether, bis(2-chloroethyl)	NA	NA	3.4E-08	3.4E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	5.8E-02	5.8E-02
			Nitrosodiphenylamine-n	NA	NA	1.0E-09	1.0E-09	Body Weight, Developmental, Reproductive	NA	NA	7.1E-04	7.1E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	5.1E-04	5.1E-04
			Benzene	NA	NA	2.7E-08	2.7E-08	Circulatory, Immune	NA	NA	1.1E-02	1.1E-02
			Chloroethane	NA	NA	2.4E-11	2.4E-11	Fetotoxicity	NA	NA	1.4E-06	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	2.9E-03	2.9E-03
			Dichlorobenzene-1,4	NA	NA	9.4E-10	9.4E-10	Liver, Developmental	NA	NA	9.2E-05	9.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	9.5E-06	9.5E-06
			Dichloroethane-1,2	NA	NA	3.8E-10	3.8E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	1.5E-05	1.5E-05
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	1.4E-04	1.4E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	NA	NA	6.7E-04	6.7E-04
			Dichloropropane-1,2	NA	NA	4.8E-10	4.8E-10	Kidney	NA	NA	2.5E-05	2.5E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	3.8E-04	3.8E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	8.1E-06	8.1E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	NA	1.5E-08	1.5E-08	Liver	NA	NA	2.0E-05	2.0E-05
			Trichloroethane-1,1,2	NA	NA	1.7E-10	1.7E-10	Circulatory	NA	NA	5.3E-06	5.3E-06
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	NA	NA	1.4E-08	1.4E-08	Liver, Kidney, Fetotoxicity	NA	NA	8.4E-03	8.4E-03
			Vinyl chloride	NA	NA	1.2E-07	1.2E-07	Liver	NA	NA	1.9E-03	1.9E-03
			Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	3.2E-04	3.2E-04
		Exposure Point Total		NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Exposure Medium Total			NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.0E+01	NA	3.0E+01
			Benzene	NA	1.2E-06	NA	1.2E-06	Circulatory	NA	1.8E-01	NA	1.8E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.8E-05	NA	4.8E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	2.3E-08	NA	2.3E-08	Liver	NA	3.2E-04	NA	3.2E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-03	NA	1.3E-03
			Dichloroethane-1,2	NA	1.1E-07	NA	1.1E-07	Gastrointestinal, Liver, Kidney	NA	6.0E-02	NA	6.0E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.13.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-02	NA	2.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.2E-03	NA	3.2E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.5E-03	NA	2.5E-03
			Tetrachloroethylene	NA	2.0E-08	NA	2.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	2.8E-08	NA	2.8E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	2.5E-02	NA	2.5E-02
			Vinyl chloride	NA	7.1E-08	NA	7.1E-08	Liver	NA	1.1E-02	NA	1.1E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.1E-02	NA	6.1E-02
		Chemical Total		NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
	Exposure Medium Total			NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
Medium Total				NA	2.9E-06	5.5E-06	8.4E-06		NA	3.1E+01	4.1E-01	3.1E+01

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Table 9.13.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	2.3E-05	3.7E-08	2.7E-06	2.6E-05	**1.4E+00**	3.2E-02	3.3E-01	**1.8E+00**
Subsurface Soil	2.5E-05	2.9E-08	2.8E-06	2.8E-05	**2.3E+00**	2.5E-02	1.2E-01	**2.5E+00**
Upper PRM Aquifer	NA	2.9E-06	5.5E-06	8.4E-06	NA	**3.1E+01**	4.1E-01	**3.1E+01**
Surface Soil + Upper PRM Aquifer	2.3E-05	2.9E-06	8.2E-06	3.4E-05	**1.4E+00**	**3.1E+01**	7.4E-01	**3.3E+01**
Subsurface Soil + Upper PRM Aquifer	2.5E-05	2.9E-06	8.3E-06	3.6E-05	**2.3E+00**	**3.1E+01**	5.4E-01	**3.4E+01**

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Table 9.13.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Row Homes and Industrial Area			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Body Weight HI Across Media =	5E-02	3E-02	9E-02	1E-01	1E-01
Total Circulatory HI Across Media =	1E+00	**2E+00**	4E-01	**2E+00**	**2E+00**
Total CNS HI Across Media =	1E-02	2E-02	**3E+01**	**3E+01**	**3E+01**
Total Developmental HI Across Media =	NA	NA	4E-03	4E-03	4E-03
Total Fetotoxicity HI Across Media =	2E-03	3E-03	1E-02	1E-02	1E-02
Total Gastrointestinal HI Across Media =	2E-01	2E-01	9E-02	3E-01	3E-01
Total General HI Across Media =	NA	1E-07	NA	NA	1E-07
Total Heart HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Immune HI Across Media =	2E-01	1E-01	1E-02	3E-01	1E-01
Total Kidney HI Across Media =	1E+00	1E+00	2E-01	1E+00	1E+00
Total Liver HI Across Media =	2E-01	8E-01	1E-01	4E-01	1E+00
Total Lungs HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Reproductive HI Across Media =	NA	NA	7E-04	7E-04	7E-04
Total Respiratory HI Across Media =	3E-02	2E-02	**3E+01**	**3E+01**	**3E+01**
Total Sensitizer HI Across Media =	NA	NA	NA	NA	NA
Total Skin HI Across Media =	2E-01	2E-01	5E-02	2E-01	2E-01
Total Thyroid HI Across Media =	NA	NA	3E-03	3E-03	3E-03
Total Endocrine HI Across Media =	NA	NA	3E-02	3E-02	3E-02

TABLE 9.14.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	5.3E-03	NA	4.9E-04	5.8E-03
			Arsenic	5.7E-06	NA	1.6E-06	7.2E-06	Skin, Circulatory	9.8E-02	NA	2.7E-02	1.2E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.5E-02	NA	7.2E-02	1.3E-01
			Cadmium	NA	NA	NA	NA	Kidney	3.7E-03	NA	6.8E-04	4.4E-03
			Chromium	NA	NA	NA	NA	N/A	2.7E-02	NA	1.0E-01	1.3E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.5E-03	NA	3.3E-04	3.9E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.8E-02	NA	5.3E-03	6.3E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.9E-03	NA	4.4E-03	6.3E-03
			Mercury	NA	NA	NA	NA	Immune	2.6E-03	NA	3.4E-03	6.0E-03
			Benzo(a)anthracene	7.3E-08	NA	8.7E-08	1.6E-07	Kidney	2.6E-05	NA	3.1E-05	5.7E-05
			Benzo(a)pyrene	3.2E-05	NA	3.8E-05	7.1E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	2.9E-06	NA	3.5E-06	6.4E-06	Kidney	1.0E-03	NA	1.2E-03	2.3E-03
			Benzo(k)fluoranthene	3.0E-07	NA	3.6E-07	6.7E-07	Kidney	1.1E-03	NA	1.3E-03	2.4E-03
			Carbazole	5.4E-08	NA	6.4E-08	1.2E-07	N/A	NA	NA	NA	NA
			Chrysene	3.5E-08	NA	4.2E-08	7.7E-08	Kidney	1.2E-03	NA	1.5E-03	2.7E-03
			Dibenzo(a,h)anthracene	6.8E-07	NA	8.2E-07	1.5E-06	Kidney	2.4E-05	NA	2.9E-05	5.3E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.8E-03	NA	2.4E-03	4.3E-03
			Indeno(1,2,3-cd)pyrene	1.8E-06	NA	2.2E-06	4.0E-06	Body Weight	3.9E-04	NA	4.7E-04	8.6E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	2.0E-03	NA	2.4E-03	4.4E-03
		Exposure Point Total		4.4E-05	NA	4.7E-05	9.1E-05		2.6E-01	NA	2.2E-01	4.9E-01
	Exposure Medium Total			4.4E-05	NA	4.7E-05	9.1E-05		2.6E-01	NA	2.2E-01	4.9E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	6.0E-05	NA	6.0E-05
		South Jersey Port property	Arsenic	NA	9.2E-10	NA	9.2E-10	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.4E-04	NA	4.4E-04
			Cadmium	NA	4.9E-11	NA	4.9E-11	Kidney	NA	1.1E-06	NA	1.1E-06
			Chromium	NA	7.2E-09	NA	7.2E-09	Respiratory	NA	5.8E-04	NA	5.8E-04
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.0E-04	NA	3.0E-04
			Mercury	NA	NA	NA	NA	CNS	NA	1.5E-07	NA	1.5E-07
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.14.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from South Jersey Port property Surface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	8.2E-09	NA	8.2E-09		NA	1.4E-03	NA	1.4E-03
	Exposure Medium Total			NA	8.2E-09	NA	8.2E-09		NA	1.4E-03	NA	1.4E-03
Medium Total				4.4E-05	8.2E-09	4.7E-05	9.1E-05		2.6E-01	1.4E-03	2.2E-01	4.9E-01
Receptor Total				4.4E-05	8.2E-09	4.7E-05	9.1E-05		2.6E-01	1.4E-03	2.2E-01	4.9E-01

Total Body Weight HI Across Media =	9E-04
Total Circulatory HI Across Media =	3E-01
Total CNS HI Across Media =	1E-02
Total Fetotoxicity HI Across Media =	4E-04
Total Gastrointestinal HI Across Media =	7E-02
Total Heart HI Across Media =	9E-09
Total Immune HI Across Media =	6E-03
Total Kidney HI Across Media =	2E-01
Total Liver HI Across Media =	7E-02
Total Lungs HI Across Media =	9E-09
Total Respiratory HI Across Media =	6E-04
Total Sensitizer HI Across Media =	9E-09
Total Skin HI Across Media =	1E-01

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TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	8.0E-03	NA	3.2E-04	8.3E-03
			Arsenic	2.3E-05	NA	2.7E-06	2.5E-05	Skin, Circulatory	1.5E-01	NA	1.8E-02	1.7E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	8.2E-02	NA	4.7E-02	1.3E-01
			Cadmium	NA	NA	NA	NA	Kidney	5.6E-03	NA	4.5E-04	6.1E-03
			Chromium	NA	NA	NA	NA	N/A	4.1E-02	NA	6.6E-02	1.1E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.3E-03	NA	2.1E-04	5.6E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.7E-02	NA	3.5E-03	9.1E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.9E-03	NA	2.9E-03	5.7E-03
			Mercury	NA	NA	NA	NA	Immune	3.9E-03	NA	2.2E-03	6.1E-03
			Benzo(a)anthracene	2.9E-07	NA	1.5E-07	4.4E-07	Kidney	3.9E-05	NA	2.0E-05	5.9E-05
			Benzo(a)pyrene	1.3E-04	NA	6.7E-05	2.0E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.2E-05	NA	6.1E-06	1.8E-05	Kidney	1.6E-03	NA	8.1E-04	2.4E-03
			Benzo(k)fluoranthene	1.2E-06	NA	6.3E-07	1.9E-06	Kidney	1.6E-03	NA	8.4E-04	2.5E-03
			Carbazole	2.2E-07	NA	1.1E-07	3.3E-07	N/A	NA	NA	NA	NA
			Chrysene	1.4E-07	NA	7.3E-08	2.1E-07	Kidney	1.9E-03	NA	9.7E-04	2.8E-03
			Dibenzo(a,h)anthracene	2.7E-06	NA	1.4E-06	4.2E-06	Kidney	3.7E-05	NA	1.9E-05	5.5E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	2.7E-03	NA	1.6E-03	4.3E-03
			Indeno(1,2,3-cd)pyrene	7.4E-06	NA	3.8E-06	1.1E-05	Body Weight	5.9E-04	NA	3.0E-04	8.9E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	3.0E-03	NA	1.6E-03	4.6E-03
		Exposure Point Total		1.8E-04	NA	8.2E-05	2.6E-04		4.0E-01	NA	1.5E-01	5.4E-01
	Exposure Medium Total			1.8E-04	NA	8.2E-05	2.6E-04		4.0E-01	NA	1.5E-01	5.4E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	1.1E-12	NA	1.1E-12
		South Jersey Port property	Arsenic	NA	4.5E-08	NA	4.5E-08	N/A	NA	NA	NA	NA
		Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	7.9E-12	NA	7.9E-12
			Cadmium	NA	2.4E-09	NA	2.4E-09	Kidney	NA	1.9E-14	NA	1.9E-14
			Chromium	NA	3.5E-07	NA	3.5E-07	Respiratory	NA	1.0E-11	NA	1.0E-11
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	5.4E-12	NA	5.4E-12
			Mercury	NA	NA	NA	NA	CNS	NA	2.6E-15	NA	2.6E-15
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	South Jersey Port property Surface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		NA	3.9E-07	NA	3.9E-07		NA	2.5E-11	NA	2.5E-11
	Exposure Medium Total			NA	3.9E-07	NA	3.9E-07		NA	2.5E-11	NA	2.5E-11
Medium Total				1.8E-04	3.9E-07	8.2E-05	2.6E-04		4.0E-01	2.5E-11	1.5E-01	5.4E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	*Aluminum*	NA	NA	NA	NA	CNS	7.0E-03	NA	2.8E-04	7.3E-03
			Antimony	NA	NA	NA	NA	Circulatory	9.1E-03	NA	2.4E-03	1.1E-02
			Arsenic	6.7E-05	NA	8.1E-06	7.5E-05	Skin, Circulatory	4.4E-01	NA	5.2E-02	4.9E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.1E-01	NA	6.2E-02	1.7E-01
			Cadmium	NA	NA	NA	NA	Kidney	9.8E-02	NA	7.8E-03	1.1E-01
			Chromium	NA	NA	NA	NA	N/A	1.6E-02	NA	2.6E-02	4.3E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	4.5E-03	NA	1.8E-04	4.6E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	9.3E-02	NA	3.7E-03	9.6E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.2E-03	NA	2.2E-03	4.4E-03
			Mercury	NA	NA	NA	NA	Immune	4.1E-03	NA	2.3E-03	6.4E-03
			Zinc	NA	NA	NA	NA	Circulatory	1.1E-02	NA	4.6E-04	1.2E-02
			Benzo(a)anthracene	7.7E-06	NA	4.0E-06	1.2E-05	Kidney	1.0E-03	NA	5.3E-04	1.6E-03
			Benzo(a)pyrene	6.1E-05	NA	3.2E-05	9.3E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	7.3E-06	NA	3.8E-06	1.1E-05	Kidney	9.7E-04	NA	5.0E-04	1.5E-03
			Benzo(k)fluoranthene	6.4E-07	NA	3.3E-07	9.7E-07	Kidney	8.5E-04	NA	4.4E-04	1.3E-03
			Carbazole	1.4E-07	NA	7.1E-08	2.1E-07	N/A	NA	NA	NA	NA
			Chrysene	6.9E-08	NA	3.6E-08	1.0E-07	Kidney	9.2E-04	NA	4.8E-04	1.4E-03
			Dibenzo(a,h)anthracene	4.7E-05	NA	2.4E-05	7.1E-05	Kidney	6.3E-04	NA	3.2E-04	9.5E-04
			Dibenzofuran	NA	NA	NA	NA	Kidney	9.8E-03	NA	5.1E-03	1.5E-02
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.2E-03	NA	7.2E-04	2.0E-03
			Indeno(1,2,3-cd)pyrene	4.6E-06	NA	2.4E-06	7.0E-06	Body Weight	3.7E-04	NA	1.9E-04	5.6E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	1.0E-03	NA	5.3E-04	1.5E-03
			Phenanthrene	NA	NA	NA	NA	Kidney	1.7E-03	NA	9.1E-04	2.7E-03
			Pyrene	NA	NA	NA	NA	Kidney	1.4E-03	NA	7.4E-04	2.2E-03
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Surface Soil (cont.)	Benzene	7.7E-11	NA	0.0E+00	7.7E-11	Circulatory	1.0E-06	NA	0.0E+00	1.0E-06
		Exposure Point Total		2.0E-04	NA	7.5E-05	2.7E-04		8.1E-01	NA	1.7E-01	9.8E-01
	Exposure Medium Total			2.0E-04	NA	7.5E-05	2.7E-04		8.1E-01	NA	1.7E-01	9.8E-01
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	9.5E-04	NA	9.5E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	1.3E-07	NA	1.3E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-02	NA	1.1E-02
			Cadmium	NA	4.1E-08	NA	4.1E-08	Kidney	NA	3.3E-04	NA	3.3E-04
			Chromium	NA	1.4E-07	NA	1.4E-07	Respiratory	NA	4.2E-03	NA	4.2E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Manganese	NA	NA	NA	NA	CNS	NA	4.2E-03	NA	4.2E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.8E-06	NA	2.8E-06
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.0E-01	NA	1.0E-01
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.6E-09	NA	2.6E-09	Circulatory	NA	3.3E-05	NA	3.3E-05
		Exposure Point Total		NA	3.1E-07	NA	3.1E-07		NA	1.3E-01	NA	1.3E-01
	Exposure Medium Total			NA	3.1E-07	NA	3.1E-07		NA	1.3E-01	NA	1.3E-01
Medium Total				2.0E-04	3.1E-07	7.5E-05	2.7E-04		8.1E-01	1.3E-01	1.7E-01	1.1E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony	NA	NA	NA	NA	Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	3.8E+00	NA	1.2E-01	3.9E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	5.3E-02	NA	1.7E-02	7.0E-02
			Cadmium	NA	NA	NA	NA	Kidney	7.2E-01	NA	6.5E-02	7.9E-01
			Chromium	NA	NA	NA	NA	N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.6E-02	NA	8.0E-05	3.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.9E-01	NA	2.2E-02	4.1E-01
			Mercury	NA	NA	NA	NA	Immune	1.9E-02	NA	6.1E-04	2.0E-02
			Nickel	NA	NA	NA	NA	Body Weight	4.0E-02	NA	4.6E-04	4.1E-02
			Selenium	NA	NA	NA	NA	Skin	3.8E-02	NA	8.6E-05	3.9E-02
			Thallium	NA	NA	NA	NA	Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium	NA	NA	NA	NA	Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Zinc	NA	NA	NA	NA	Circulatory	1.1E-01	NA	1.4E-04	1.1E-01
			Chlordane - alpha	7.4E-08	NA	1.0E-07	1.7E-07	Liver	1.2E-03	NA	1.7E-03	2.9E-03
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06	Liver	1.2E-02	NA	5.4E-03	1.7E-02
			Heptachlor Epoxide	8.4E-07	NA	2.6E-07	1.1E-06	Liver	2.1E-02	NA	6.5E-03	2.7E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	2.8E-02	NA	1.8E-03	3.0E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01

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TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	4.9E-01	NA	2.2E-01	7.1E-01
			Nitrosodiphenylamine-n	5.0E-07	NA	1.1E-07	6.1E-07	Body Weight, Developmental, Reproductive	1.5E-02	NA	3.3E-03	1.8E-02
			Phenol	NA	NA	NA	NA	Body Weight	8.8E-02	NA	2.8E-03	9.1E-02
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Chloroethane	3.6E-08	NA	1.3E-09	3.7E-08	Fetotoxicity	9.0E-05	NA	3.4E-06	9.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	2.0E-02	NA	1.2E-02	3.2E-02
			Dichlorobenzene-1,4	2.1E-07	NA	9.1E-08	3.0E-07	Liver, Developmental	8.4E-04	NA	3.7E-04	1.2E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	5.4E-03	NA	2.7E-04	5.6E-03
			Dichloroethane-1,2	8.1E-07	NA	2.6E-08	8.4E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.3E-03	NA	4.2E-05	1.3E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	6.8E-03	NA	4.0E-04	7.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Dichloropropane-1,2	5.5E-07	NA	3.6E-08	5.9E-07	Kidney	1.2E-03	NA	7.8E-05	1.3E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	3.2E-03	NA	1.3E-03	4.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.1E-02	NA	2.3E-04	1.1E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06	Liver	2.2E-03	NA	8.6E-04	3.1E-03
			Trichloroethane-1,1,2	2.3E-07	NA	1.4E-08	2.4E-07	Circulatory	2.9E-03	NA	1.8E-04	3.1E-03
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	2.6E-03	NA	1.1E-03	3.7E-03
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
	Exposure Medium Total			5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.6E+00	3.5E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
			Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	3.0E-05	NA	3.0E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.6E-07	NA	4.6E-07	Liver	NA	2.6E-04	NA	2.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	9.0E-03	NA	9.0E-03
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06	Gastrointestinal, Liver, Kidney	NA	4.4E-02	NA	4.4E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	5.0E-02	NA	5.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	2.7E-03	NA	2.7E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.8E-03	NA	1.8E-03
			Tetrachloroethylene	NA	3.8E-07	NA	3.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.4E-07	NA	5.4E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05	CNS, Liver, Endocrine	NA	1.9E-02	NA	1.9E-02
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06	Liver	NA	3.2E-02	NA	3.2E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	4.3E-02	NA	4.3E-02

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TABLE 9.15.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.5E-05	NA	5.5E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.5E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.6E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	2.3E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium	NA	NA	NA	NA	N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Cobalt	NA	NA	NA	NA	Sensitizer	1.0E-01	NA	9.3E-05	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.7E-01	NA	3.8E-02	7.1E-01
			Thallium	NA	NA	NA	NA	Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Benzene	1.7E-07	NA	1.7E-08	1.9E-07	Circulatory	2.3E-03	NA	2.3E-04	2.5E-03
			Dichloroethane-1,2	7.4E-07	NA	2.4E-08	7.7E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.2E-03	NA	3.8E-05	1.2E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	8.8E-02	NA	5.1E-03	9.3E-02
			Dichloropropane-1,2	4.7E-07	NA	3.1E-08	5.0E-07	Kidney	1.0E-03	NA	6.7E-05	1.1E-03
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06	Liver	2.7E-03	NA	1.1E-03	3.8E-03
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04	Liver	8.2E-02	NA	2.8E-03	8.5E-02
		Chemical Total		1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	2.0E-04		2.1E+01	NA	1.4E-01	2.1E+01
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	2.0E-07	NA	2.0E-07	Circulatory	NA	2.5E-03	NA	2.5E-03
			Dichloroethane-1,2	NA	1.8E-06	NA	1.8E-06	Gastrointestinal, Liver, Kidney	NA	4.0E-02	NA	4.0E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	4.3E-02	NA	4.3E-02
			Tetrachloroethylene	NA	4.7E-07	NA	4.7E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05	CNS, Liver, Endocrine	NA	9.9E-03	NA	9.9E-03
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06	Liver	NA	2.1E-02	NA	2.1E-02
		Chemical Total		NA	1.9E-05	NA	1.9E-05		NA	1.2E-01	NA	1.2E-01
	Exposure Medium Total			NA	1.9E-05	NA	2.0E-04		NA	1.2E-01	NA	2.1E+01
Medium Total				1.9E-04	1.9E-05	7.1E-06	2.1E-04		2.1E+01	1.2E-01	1.4E-01	2.1E+01

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Table 9.15.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	**1.8E-04**	3.9E-07	8.2E-05	**2.6E-04**	4.0E-01	2.5E-11	1.5E-01	5.4E-01
Subsurface Soil	**2.0E-04**	3.1E-07	7.5E-05	**2.7E-04**	8.1E-01	1.3E-01	1.7E-01	**1.1E+00**
Upper PRM Aquifer	**5.1E-02**	5.5E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.6E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.9E-05	7.1E-06	**2.1E-04**	**2.1E+01**	1.2E-01	1.4E-01	**2.1E+01**
Surface Soil + Upper PRM Aquifer	**5.2E-02**	5.6E-05	**2.1E-04**	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.7E+00**	**3.8E+02**
Surface Soil + Middle PRM Aquifer	**3.6E-04**	2.0E-05	8.9E-05	**4.7E-04**	**2.1E+01**	1.2E-01	2.9E-01	**2.2E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	5.5E-05	**2.1E-04**	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.8E+00**	**3.8E+02**
Subsurface Soil + Middle PRM Aquifer	**3.8E-04**	1.9E-05	8.2E-05	**4.9E-04**	**2.2E+01**	2.4E-01	3.1E-01	**2.2E+01**

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Table 9.15.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	9E-04	2E-03	**2E+00**	NA	**2E+00**	9E-04	**2E+00**	2E-03
Total Circulatory HI Across Media =	4E-01	8E-01	**3E+02**	**2E+01**	**3E+02**	**2E+01**	**3E+02**	**2E+01**
Total CNS HI Across Media =	1E-02	1E-01	**3E+01**	8E-01	**3E+01**	8E-01	**3E+01**	9E-01
Total Developmental HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Fetotoxicity HI Across Media =	8E-12	1E-02	3E-01	2E-01	3E-01	2E-01	3E-01	2E-01
Total Gastrointestinal HI Across Media =	1E-01	1E-01	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Immune HI Across Media =	6E-03	6E-03	2E-02	NA	3E-02	6E-03	3E-02	6E-03
Total Kidney HI Across Media =	2E-01	3E-01	**7E+00**	6E-01	**7E+00**	8E-01	**7E+00**	1E+00
Total Liver HI Across Media =	1E-01	1E-01	**1E+01**	**2E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Lungs HI Across Media =	NA	NA	1E-03	1E-03	1E-03	1E-03	1E-03	1E-03
Total Reproductive HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Respiratory HI Across Media =	1E-11	1E-01	**3E+01**	4E-02	**3E+01**	4E-02	**3E+01**	2E-01
Total Sensitizer HI Across Media =	NA	NA	NA	1E-01	NA	1E-01	NA	1E-01
Total Skin HI Across Media =	2E-01	5E-01	**3E+02**	3E-01	**3E+02**	5E-01	**3E+02**	8E-01
Total Thyroid HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Endocrine HI Across Media =	NA	NA	2E-02	1E-02	2E-02	1E-02	2E-02	1E-02

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TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	*Surface Soil*	*South Jersey Port property* Surface Soil	Aluminum	NA	NA	NA	NA	CNS	7.5E-02	NA	2.1E-03	7.7E-02
			Arsenic	5.3E-05	NA	4.5E-06	5.8E-05	Skin, Circulatory	8.3E-02	NA	6.9E-03	9.0E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	7.7E-01	NA	3.1E-01	1.1E+00
			Cadmium	NA	NA	NA	NA	Kidney	5.2E-02	NA	2.9E-03	5.5E-02
			Chromium	NA	NA	NA	NA	N/A	5.8E-02	NA	6.5E-02	1.2E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.0E-02	NA	1.4E-03	5.1E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.2E-01	NA	2.3E-02	8.4E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.7E-02	NA	1.9E-02	4.5E-02
			Mercury	NA	NA	NA	NA	Immune	3.6E-02	NA	1.5E-02	5.1E-02
			Benzo(a)anthracene	6.8E-07	NA	2.5E-07	9.3E-07	Kidney	3.6E-05	NA	1.3E-05	5.0E-05
			Benzo(a)pyrene	3.0E-04	NA	1.1E-04	4.1E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	2.8E-05	NA	1.0E-05	3.8E-05	Kidney	1.5E-03	NA	5.3E-04	2.0E-03
			Benzo(k)fluoranthene	2.8E-06	NA	1.0E-06	3.9E-06	Kidney	1.5E-03	NA	5.5E-04	2.1E-03
			Carbazole	5.0E-07	NA	1.8E-07	6.9E-07	N/A	NA	NA	NA	NA
			Chrysene	3.3E-07	NA	1.2E-07	4.5E-07	Kidney	1.7E-03	NA	6.4E-04	2.4E-03
			Dibenzo(a,h)anthracene	6.4E-06	NA	2.3E-06	8.7E-06	Kidney	3.4E-05	NA	1.2E-05	4.7E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	2.6E-03	NA	1.0E-03	3.6E-03
			Indeno(1,2,3-cd)pyrene	1.7E-05	NA	6.2E-06	2.3E-05	Body Weight	4.6E-04	NA	1.7E-04	6.2E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	2.8E-03	NA	1.0E-03	3.8E-03
		Exposure Point Total		4.1E-04	NA	1.3E-04	5.4E-04		2.0E+00	NA	4.5E-01	2.4E+00
	Exposure Medium Total			4.1E-04	NA	1.3E-04	5.4E-04		2.0E+00	NA	4.5E-01	2.4E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	2.6E-03	NA	2.6E-03
		South Jersey Port property	Arsenic	NA	2.6E-08	NA	2.6E-08	N/A	NA	NA	NA	NA
		Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.9E-03	NA	1.9E-03
			Cadmium	NA	1.4E-09	NA	1.4E-09	Kidney	NA	1.0E-05	NA	1.0E-05
			Chromium	NA	2.1E-07	NA	2.1E-07	Respiratory	NA	2.5E-02	NA	2.5E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.3E-02	NA	1.3E-02
			Mercury	NA	NA	NA	NA	CNS	NA	6.3E-06	NA	6.3E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	South Jersey Port property	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Surface Soil (cont.)	Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	2.3E-07	NA	2.3E-07		NA	4.2E-02	NA	4.2E-02
	Exposure Medium Total			NA	2.3E-07	NA	2.3E-07		NA	4.2E-02	NA	4.2E-02
Medium Total				4.1E-04	2.3E-07	1.3E-04	5.4E-04		2.0E+00	4.2E-02	4.5E-01	2.5E+00
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	6.5E-02	NA	1.8E-03	6.7E-02
			Antimony	NA	NA	NA	NA	Body Weight	1.7E-01	NA	3.2E-02	2.0E-01
			Arsenic	1.6E-04	NA	1.3E-05	1.7E-04	Skin, Circulatory	2.4E-01	NA	2.1E-02	2.7E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.0E+00	NA	4.1E-01	1.4E+00
			Cadmium	NA	NA	NA	NA	Kidney	9.1E-01	NA	5.1E-02	9.6E-01
			Chromium	NA	NA	NA	NA	N/A	2.3E-02	NA	2.6E-02	4.9E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	4.2E-02	NA	1.2E-03	4.3E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.7E-01	NA	2.4E-02	8.9E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.1E-02	NA	1.4E-02	3.5E-02
			Mercury	NA	NA	NA	NA	Immune	3.8E-02	NA	1.5E-02	5.3E-02
			Zinc	NA	NA	NA	NA	Circulatory	1.1E-01	NA	3.0E-03	1.1E-01
			Benzo(a)anthracene	1.8E-05	NA	6.5E-06	2.4E-05	Kidney	9.5E-04	NA	3.5E-04	1.3E-03
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.7E-05	NA	6.2E-06	2.3E-05	Kidney	9.0E-04	NA	3.3E-04	1.2E-03
			Benzo(k)fluoranthene	1.5E-06	NA	5.4E-07	2.0E-06	Kidney	8.0E-04	NA	2.9E-04	1.1E-03
			Carbazole	3.2E-07	NA	1.2E-07	4.4E-07	N/A	NA	NA	NA	NA
			Chrysene	1.6E-07	NA	5.9E-08	2.2E-07	Kidney	8.6E-04	NA	3.1E-04	1.2E-03
			Dibenzo(a,h)anthracene	1.1E-04	NA	4.0E-05	1.5E-04	Kidney	5.8E-04	NA	2.1E-04	8.0E-04
			Dibenzofuran	NA	NA	NA	NA	Kidney	9.1E-02	NA	3.3E-02	1.2E-01
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.2E-03	NA	4.7E-04	1.6E-03
			Indeno(1,2,3-cd)pyrene	1.1E-05	NA	3.9E-06	1.5E-05	Body Weight	2.9E-04	NA	1.0E-04	3.9E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	9.5E-03	NA	3.5E-03	1.3E-02
			Phenanthrene	NA	NA	NA	NA	Kidney	1.6E-03	NA	5.9E-04	2.2E-03
			Pyrene	NA	NA	NA	NA	Kidney	1.3E-03	NA	4.9E-04	1.8E-03
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Surface Soil (cont.)	Benzene	1.8E-10	NA	0.0E+00	1.8E-10	Circulatory, Immune	1.3E-05	NA	0.0E+00	1.3E-05
		Exposure Point Total		4.6E-04	NA	1.2E-04	5.8E-04		3.6E+00	NA	6.3E-01	4.2E+00
	Exposure Medium Total			4.6E-04	NA	1.2E-04	5.8E-04		3.6E+00	NA	6.3E-01	4.2E+00
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	2.3E-03	NA	2.3E-03
			Antimony	NA	NA	NA	NA	N/A	NA	1.5E-05	NA	1.5E-05
			Arsenic	NA	7.8E-08	NA	7.8E-08	N/A	NA	NA	NA	NA

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TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Cadmium	NA	2.4E-08	NA	2.4E-08	Kidney	NA	1.7E-04	NA	1.7E-04
			Chromium	NA	8.2E-08	NA	8.2E-08	Respiratory	NA	9.9E-03	NA	9.9E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.0E-02	NA	1.0E-02
			Mercury	NA	NA	NA	NA	CNS	NA	6.6E-06	NA	6.6E-06
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.5E-01	NA	2.5E-01
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	1.6E-09	NA	1.6E-09	Circulatory	NA	3.9E-05	NA	3.9E-05
		Exposure Point Total		NA	1.9E-07	NA	1.9E-07		NA	2.7E-01	NA	2.7E-01
	Exposure Medium Total			NA	1.9E-07	NA	1.9E-07		NA	2.7E-01	NA	2.7E-01
Medium Total				4.6E-04	1.9E-07	1.2E-04	5.8E-04		3.6E+00	2.7E-01	6.3E-01	4.5E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	5.0E-02	NA	2.1E-02	7.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium	NA	NA	NA	NA	N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	8.3E-02	NA	2.5E-04	8.4E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Mercury	NA	NA	NA	NA	Immune	4.4E-02	NA	1.9E-03	4.6E-02
			Nickel	NA	NA	NA	NA	Body Weight	9.4E-02	NA	1.4E-03	9.6E-02
			Selenium	NA	NA	NA	NA	Skin	9.0E-02	NA	2.7E-04	9.0E-02

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TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc	NA	NA	NA	NA	Circulatory	2.5E-01	NA	4.4E-04	2.5E-01
			Chlordane - alpha	4.3E-08	NA	5.8E-08	1.0E-07	Liver	2.4E-02	NA	3.2E-02	5.6E-02
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06	Liver	2.8E-02	NA	1.2E-02	4.0E-02
			Heptachlor Epoxide	4.9E-07	NA	1.5E-07	6.4E-07	Liver	4.9E-02	NA	1.5E-02	6.3E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	6.5E-03	NA	4.0E-04	6.9E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00
			Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Nitrosodiphenylamine-n	2.9E-07	NA	6.3E-08	3.5E-07	Body Weight, Developmental, Reproductive	3.5E-02	NA	7.5E-03	4.2E-02
			Phenol	NA	NA	NA	NA	Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Chloroethane	2.1E-08	NA	7.6E-10	2.2E-08	Fetotoxicity	2.1E-04	NA	7.7E-06	2.2E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	4.7E-02	NA	2.8E-02	7.5E-02
			Dichlorobenzene-1,4	1.2E-07	NA	5.2E-08	1.7E-07	Liver, Developmental	2.0E-03	NA	8.5E-04	2.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.2E-03	NA	6.3E-05	1.3E-03
			Dichloroethane-1,2	4.7E-07	NA	1.5E-08	4.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.0E-03	NA	9.6E-05	3.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.6E-03	NA	9.1E-04	2.5E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	7.6E-02	NA	4.4E-03	8.1E-02
			Dichloropropane-1,2	3.2E-07	NA	2.1E-08	3.4E-07	Kidney	2.8E-03	NA	1.8E-04	2.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	7.5E-03	NA	2.9E-03	1.0E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	2.6E-03	NA	5.3E-05	2.6E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06	Liver	5.1E-04	NA	2.0E-04	7.1E-04
			Trichloroethane-1,1,2	1.3E-07	NA	8.1E-09	1.4E-07	Circulatory	6.9E-04	NA	4.2E-05	7.3E-04
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	6.0E-03	NA	2.5E-03	8.5E-03
		Exposure Point Total		3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
	Exposure Medium Total			3.0E-02	NA	9.8E-05	3.0E-02		9.1E+01	NA	1.7E+00	9.3E+01
	Air	Emissions from	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
		Upper PRM Aquifer	Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.3E-04	NA	4.3E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06	Liver	NA	3.8E-03	NA	3.8E-03
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-02	NA	1.3E-02
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-01	NA	2.2E-01
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.9E-02	NA	3.9E-02
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	3.5E-02	NA	3.5E-02
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.6E-02	NA	2.6E-02
			Tetrachloroethylene	NA	1.4E-06	NA	1.4E-06	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.2E-01	NA	6.2E-01
		Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.8E-05	3.0E-02		9.1E+01	4.0E+02	1.7E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	2.3E-01	NA	7.0E-04	2.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05	Skin, Circulatory	4.5E-02	NA	1.3E-04	4.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Chromium	NA	NA	NA	NA	N/A	3.4E-02	NA	8.1E-03	4.2E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.6E+00	NA	1.2E-01	1.7E+00
			Thallium	NA	NA	NA	NA	Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Benzene	9.9E-08	NA	9.8E-09	1.1E-07	Circulatory, Immune	7.0E-03	NA	7.0E-04	7.7E-03
			Dichloroethane-1,2	4.3E-07	NA	1.4E-08	4.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.8E-03	NA	8.8E-05	2.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.0E-02	NA	1.2E-03	2.2E-02
			Dichloropropane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Kidney	2.4E-03	NA	1.5E-04	2.5E-03
			Tetrachloroethylene	*3.0E-06*	*NA*	*1.1E-06*	*4.1E-06*	*Liver*	*6.4E-04*	*NA*	*2.5E-04*	*8.9E-04*
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.2E-01	4.0E+01
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	7.3E-07	NA	7.3E-07	Circulatory	NA	1.8E-02	NA	1.8E-02
			Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06	N/A	NA	NA	NA	NA

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TABLE 9.16.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	4.0E+01
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.2E-01	4.1E+01

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Table 9.16.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	**4.1E-04**	2.3E-07	1.3E-04	**5.4E-04**	**2.0E+00**	4.2E-02	4.5E-01	**2.5E+00**
Subsurface Soil	**4.6E-04**	1.9E-07	1.2E-04	**5.8E-04**	**3.6E+00**	2.7E-01	6.3E-01	**4.5E+00**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.8E-05	**3.0E-02**	**9.1E+01**	**4.0E+02**	**1.7E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.2E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	**2.3E-04**	**3.1E-02**	**9.3E+01**	**4.0E+02**	**2.2E+00**	**4.9E+02**
Surface Soil + Middle PRM Aquifer	**5.2E-04**	6.9E-05	1.4E-04	**7.3E-04**	**4.2E+01**	**1.3E+00**	7.6E-01	**4.4E+01**
Subsurface Soil + Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	**2.2E-04**	**3.1E-02**	**9.5E+01**	**4.0E+02**	**2.4E+00**	**5.0E+02**
Subsurface Soil + Middle PRM Aquifer	**5.7E-04**	6.9E-05	1.3E-04	**7.6E-04**	**4.3E+01**	**1.5E+00**	9.5E-01	**4.6E+01**

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Table 9.16.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	6E-04	2E-01	**6E+00**	9E-01	**6E+00**	9E-01	**6E+00**	1E+00
Total Circulatory HI Across Media =	**2E+00**	**3E+00**	**8E+01**	**4E+01**	**9E+01**	**4E+01**	**9E+01**	**4E+01**
Total CNS HI Across Media =	1E-01	4E-01	**4E+02**	**2E+00**	**4E+02**	**2E+00**	**4E+02**	**2E+00**
Total Developmental HI Across Media =	NA	NA	8E-02	NA	8E-02	NA	8E-02	NA
Total Fetotoxicity HI Across Media =	2E-03	3E-03	7E-01	4E-01	7E-01	4E-01	7E-01	4E-01
Total Gastrointestinal HI Across Media =	9E-01	9E-01	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Immune HI Across Media =	5E-02	5E-02	8E-01	8E-03	9E-01	6E-02	9E-01	6E-02
Total Kidney HI Across Media =	1E+00	**3E+00**	**1E+01**	**2E+00**	**1E+01**	**3E+00**	**1E+01**	**4E+00**
Total Liver HI Across Media =	8E-01	9E-01	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Lungs HI Across Media =	NA	NA	3E-03	3E-03	3E-03	3E-03	3E-03	3E-03
Total Reproductive HI Across Media =	NA	NA	4E-02	NA	4E-02	NA	4E-02	NA
Total Respiratory HI Across Media =	2E-02	3E-01	**4E+02**	2E-01	**4E+02**	2E-01	**4E+02**	4E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	9E-02	3E-01	**5E+01**	4E-02	**5E+01**	1E-01	**5E+01**	3E-01
Total Thyroid HI Across Media =	NA	NA	7E-02	NA	7E-02	NA	7E-02	NA
Total Endocrine HI Across Media =	NA	NA	3E-01	1E-01	3E-01	1E-01	3E-01	1E-01

TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	5.7E-03	NA	3.8E-04	6.1E-03
			Arsenic	1.7E-05	NA	3.4E-06	2.0E-05	Skin, Circulatory	1.1E-01	NA	2.1E-02	1.3E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.9E-02	NA	5.6E-02	1.1E-01
			Cadmium	NA	NA	NA	NA	Kidney	4.0E-03	NA	5.3E-04	4.5E-03
			Chromium	NA	NA	NA	NA	N/A	2.9E-02	NA	7.8E-02	1.1E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.8E-03	NA	2.5E-04	4.1E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	6.2E-02	NA	4.1E-03	6.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.0E-03	NA	3.4E-03	5.4E-03
			Mercury	NA	NA	NA	NA	Immune	2.8E-03	NA	2.6E-03	5.4E-03
			Benzo(a)anthracene	2.2E-07	NA	1.9E-07	4.0E-07	Kidney	2.8E-05	NA	2.4E-05	5.2E-05
			Benzo(a)pyrene	9.6E-05	NA	8.3E-05	1.8E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	8.8E-06	NA	7.5E-06	1.6E-05	Kidney	1.1E-03	NA	9.6E-04	2.1E-03
			Benzo(k)fluoranthene	9.1E-07	NA	7.8E-07	1.7E-06	Kidney	1.2E-03	NA	9.9E-04	2.2E-03
			Carbazole	1.6E-07	NA	1.4E-07	3.0E-07	N/A	NA	NA	NA	NA
			Chrysene	1.0E-07	NA	9.0E-08	1.9E-07	Kidney	1.3E-03	NA	1.1E-03	2.5E-03
			Dibenzo(a,h)anthracene	2.0E-06	NA	1.8E-06	3.8E-06	Kidney	2.6E-05	NA	2.2E-05	4.8E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	2.0E-03	NA	1.9E-03	3.9E-03
			Indeno(1,2,3-cd)pyrene	5.5E-06	NA	4.7E-06	1.0E-05	Body Weight	4.2E-04	NA	3.6E-04	7.8E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	2.1E-03	NA	1.8E-03	4.0E-03
		Exposure Point Total		1.3E-04	NA	1.0E-04	2.3E-04		2.8E-01	NA	1.7E-01	4.6E-01
	Exposure Medium Total			1.3E-04	NA	1.0E-04	2.3E-04		2.8E-01	NA	1.7E-01	4.6E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	7.8E-04	NA	7.8E-04
		South Jersey Port property	Arsenic	NA	3.3E-08	NA	3.3E-08	N/A	NA	NA	NA	NA
		Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	5.8E-03	NA	5.8E-03
			Cadmium	NA	1.8E-09	NA	1.8E-09	Kidney	NA	1.4E-05	NA	1.4E-05
			Chromium	NA	2.6E-07	NA	2.6E-07	Respiratory	NA	7.6E-03	NA	7.6E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.9E-03	NA	3.9E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.9E-06	NA	1.9E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	South Jersey Port property Surface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	2.9E-07	NA	2.9E-07		NA	1.8E-02	NA	1.8E-02
	Exposure Medium Total			NA	2.9E-07	NA	2.9E-07		NA	1.8E-02	NA	1.8E-02
Medium Total				1.3E-04	2.9E-07	1.0E-04	2.3E-04		2.8E-01	1.8E-02	1.7E-01	4.7E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	5.0E-03	NA	3.3E-04	5.3E-03
			Antimony	NA	NA	NA	NA	Circulatory	6.5E-03	NA	2.8E-03	9.3E-03
			Arsenic	5.0E-05	NA	9.9E-06	6.0E-05	Skin, Circulatory	3.1E-01	NA	6.2E-02	3.7E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	7.8E-02	NA	7.3E-02	1.5E-01
			Cadmium	NA	NA	NA	NA	Kidney	7.0E-02	NA	9.2E-03	7.9E-02
			Chromium	NA	NA	NA	NA	N/A	1.2E-02	NA	3.1E-02	4.3E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.2E-03	NA	2.1E-04	3.4E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	6.6E-02	NA	4.4E-03	7.1E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.6E-03	NA	2.6E-03	4.2E-03
			Mercury	NA	NA	NA	NA	Immune	2.9E-03	NA	2.7E-03	5.6E-03
			Zinc	NA	NA	NA	NA	Circulatory	8.2E-03	NA	5.4E-04	8.7E-03
			Benzo(a)anthracene	5.7E-06	NA	4.9E-06	1.1E-05	Kidney	7.3E-04	NA	6.3E-04	1.4E-03
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.4E-06	NA	4.6E-06	1.0E-05	Kidney	6.9E-04	NA	5.9E-04	1.3E-03
			Benzo(k)fluoranthene	4.8E-07	NA	4.1E-07	8.9E-07	Kidney	6.1E-04	NA	5.2E-04	1.1E-03
			Carbazole	1.0E-07	NA	8.8E-08	1.9E-07	N/A	NA	NA	NA	NA
			Chrysene	5.1E-08	NA	4.4E-08	9.5E-08	Kidney	6.6E-04	NA	5.6E-04	1.2E-03
			Dibenzo(a,h)anthracene	3.5E-05	NA	3.0E-05	6.5E-05	Kidney	4.5E-04	NA	3.8E-04	8.3E-04
			Dibenzofuran	NA	NA	NA	NA	Kidney	7.0E-03	NA	6.0E-03	1.3E-02
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	8.9E-04	NA	8.5E-04	1.7E-03
			Indeno(1,2,3-cd)pyrene	3.4E-06	NA	2.9E-06	6.4E-06	Body Weight	2.6E-04	NA	2.2E-04	4.9E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	7.3E-04	NA	6.2E-04	1.3E-03
			Phenanthrene	NA	NA	NA	NA	Kidney	1.2E-03	NA	1.1E-03	2.3E-03
			Pyrene	NA	NA	NA	NA	Kidney	1.0E-03	NA	8.8E-04	1.9E-03
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Surface Soil (cont.)	Benzene	5.8E-11	NA	0.0E+00	5.8E-11	Circulatory	7.3E-07	NA	0.0E+00	7.3E-07
		Exposure Point Total		1.5E-04	NA	9.2E-05	2.4E-04		5.8E-01	NA	2.0E-01	7.8E-01
	Exposure Medium Total			1.5E-04	NA	9.2E-05	2.4E-04		5.8E-01	NA	2.0E-01	7.8E-01
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	6.8E-04	NA	6.8E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	9.9E-08	NA	9.9E-08	N/A	NA	NA	NA	NA

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TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	7.6E-03	NA	7.6E-03
			Cadmium	NA	3.1E-08	NA	3.1E-08	Kidney	NA	2.4E-04	NA	2.4E-04
			Chromium	NA	1.0E-07	NA	1.0E-07	Respiratory	NA	3.0E-03	NA	3.0E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.0E-03	NA	3.0E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.0E-06	NA	2.0E-06
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	7.5E-02	NA	7.5E-02
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.0E-09	NA	2.0E-09	Circulatory	NA	2.4E-05	NA	2.4E-05
		Exposure Point Total		NA	2.3E-07	NA	2.3E-07		NA	9.0E-02	NA	9.0E-02
	Exposure Medium Total			NA	2.3E-07	NA	2.3E-07		NA	9.0E-02	NA	9.0E-02
Medium Total				1.5E-04	2.3E-07	9.2E-05	2.4E-04		5.8E-01	9.0E-02	2.0E-01	8.7E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.0E-01	NA	4.5E-04	1.0E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	1.9E-02	NA	1.2E-02	3.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium	NA	NA	NA	NA	N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.3E-02	NA	5.7E-05	1.3E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Mercury	NA	NA	NA	NA	Immune	6.8E-03	NA	4.4E-04	7.2E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.4E-02	NA	3.3E-04	1.5E-02
			Selenium	NA	NA	NA	NA	Skin	1.4E-02	NA	6.2E-05	1.4E-02

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TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.8E-02	NA	1.0E-04	3.8E-02
			Chlordane - alpha	2.7E-08	NA	7.5E-08	1.0E-07	Liver	4.4E-04	NA	1.2E-03	1.6E-03
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06	Liver	4.2E-03	NA	3.9E-03	8.1E-03
			Heptachlor Epoxide	3.1E-07	NA	2.0E-07	5.1E-07	Liver	7.4E-03	NA	4.6E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.0E-02	NA	1.3E-03	1.1E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Nitrosodiphenylamine-n	1.9E-07	NA	8.2E-08	2.7E-07	Body Weight, Developmental, Reproductive	5.3E-03	NA	2.3E-03	7.6E-03
			Phenol	NA	NA	NA	NA	Body Weight	3.2E-02	NA	2.0E-03	3.4E-02
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06	Circulatory	8.3E-02	NA	1.7E-02	9.9E-02
			Chloroethane	1.3E-08	NA	9.9E-10	1.4E-08	Fetotoxicity	3.2E-05	NA	2.4E-06	3.5E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	7.2E-03	NA	8.7E-03	1.6E-02
			Dichlorobenzene-1,4	7.7E-08	NA	6.8E-08	1.5E-07	Liver, Developmental	3.0E-04	NA	2.6E-04	5.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.9E-03	NA	2.0E-04	2.1E-03
			Dichloroethane-1,2	3.0E-07	NA	1.9E-08	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.7E-04	NA	3.0E-05	5.0E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.4E-03	NA	2.8E-04	2.7E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Dichloropropane-1,2	2.1E-07	NA	2.7E-08	2.3E-07	Kidney	4.2E-04	NA	5.6E-05	4.8E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.2E-03	NA	9.1E-04	2.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.9E-03	NA	1.7E-04	4.1E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06	Liver	7.9E-04	NA	6.2E-04	1.4E-03
			Trichloroethane-1,1,2	8.6E-08	NA	1.1E-08	9.6E-08	Circulatory	1.1E-03	NA	1.3E-04	1.2E-03
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	4.0E-06	NA	9.2E-07	5.0E-06	Liver, Kidney, Fetotoxicity	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05	Liver	4.6E-02	NA	3.1E-03	4.9E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	9.2E-04	NA	7.9E-04	1.7E-03
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.0E+01	NA	2.0E+01
		Upper PRM Aquifer	Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.2E-05	NA	2.2E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	3.4E-07	NA	3.4E-07	Liver	NA	1.9E-04	NA	1.9E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.4E-03	NA	6.4E-03
			Dichloroethane-1,2	NA	1.5E-06	NA	1.5E-06	Gastrointestinal, Liver, Kidney	NA	3.1E-02	NA	3.1E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.6E-02	NA	3.6E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.9E-03	NA	1.9E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.8E-03	NA	1.8E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.3E-03	NA	1.3E-03
			Tetrachloroethylene	NA	2.8E-07	NA	2.8E-07	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	4.0E-07	NA	4.0E-07	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05	CNS, Liver, Endocrine	NA	1.4E-02	NA	1.4E-02
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06	Liver	NA	2.3E-02	NA	2.3E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.1E-02	NA	3.1E-02
		Chemical Total		NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	4.1E-05	NA	4.1E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	4.1E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.6E-02	NA	1.6E-04	3.6E-02
			Antimony	NA	NA	NA	NA	Circulatory	7.1E-02	NA	2.1E-03	7.3E-02
			Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	4.1E-02	NA	2.6E-03	4.4E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.3E-02	NA	9.5E-03	6.2E-02
			Chromium	NA	NA	NA	NA	N/A	3.5E-02	NA	1.2E-02	4.7E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.7E-02	NA	6.6E-05	3.7E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.0E-02	NA	2.7E-04	6.0E-02
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.4E-01	NA	2.7E-02	2.7E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Benzene	6.3E-08	NA	1.3E-08	7.6E-08	Circulatory	8.1E-04	NA	1.6E-04	9.7E-04
			Dichloroethane-1,2	2.8E-07	NA	1.8E-08	2.9E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.3E-04	NA	2.7E-05	4.5E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.1E-02	NA	3.6E-03	3.5E-02
			Dichloropropane-1,2	1.8E-07	NA	2.3E-08	2.0E-07	Kidney	3.6E-04	NA	4.8E-05	4.1E-04
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06	Liver	9.8E-04	NA	7.7E-04	1.7E-03
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06	Liver, Kidney, Fetotoxicity	4.9E-02	NA	1.1E-02	6.0E-02
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05	Liver	2.9E-02	NA	2.0E-03	3.1E-02
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.4E+00	NA	1.0E-01	7.5E+00
	Air	Emissions from	Benzene	NA	1.5E-07	NA	1.5E-07	Circulatory	NA	1.8E-03	NA	1.8E-03
		Middle PRM Aquifer	Dichloroethane-1,2	NA	1.3E-06	NA	1.3E-06	Gastrointestinal, Liver, Kidney	NA	2.9E-02	NA	2.9E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	3.0E-02	NA	3.0E-02
			Tetrachloroethylene	NA	3.5E-07	NA	3.5E-07	N/A	NA	NA	NA	NA

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TABLE 9.17.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	1.0E-05	NA	1.0E-05	CNS, Liver, Endocrine	NA	7.0E-03	NA	7.0E-03
			Vinyl chloride	NA	2.3E-06	NA	2.3E-06	Liver	NA	1.5E-02	NA	1.5E-02
		Chemical Total		NA	1.4E-05	NA	1.4E-05		NA	8.3E-02	NA	8.3E-02
	Exposure Medium Total			NA	1.4E-05	NA	7.5E-05		NA	8.3E-02	NA	7.5E+00
Medium Total				7.0E-05	1.4E-05	5.3E-06	9.0E-05		7.4E+00	8.3E-02	1.0E-01	7.6E+00

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Table 9.17.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.3E-04	2.9E-07	1.0E-04	**2.3E-04**	2.8E-01	1.8E-02	1.7E-01	4.7E-01
Subsurface Soil	1.5E-04	2.3E-07	9.2E-05	**2.4E-04**	5.8E-01	9.0E-02	2.0E-01	8.7E-01
Upper PRM Aquifer	**1.9E-02**	4.1E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.4E-05	5.3E-06	9.0E-05	**7.4E+00**	8.3E-02	1.0E-01	**7.6E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	4.1E-05	**2.0E-04**	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.3E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	**2.0E-04**	1.5E-05	1.1E-04	**3.2E-04**	**7.7E+00**	1.0E-01	2.7E-01	**8.1E+00**
Subsurface Soil + Upper PRM Aquifer	**1.9E-02**	4.1E-05	**1.9E-04**	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.3E+00**	**1.5E+02**
Subsurface Soil + Middle PRM Aquifer	**2.2E-04**	1.4E-05	9.7E-05	**3.3E-04**	**8.0E+00**	1.7E-01	3.0E-01	**8.5E+00**

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Table 9.17.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	8E-04	2E-03	7E-01	NA	7E-01	8E-04	7E-01	2E-03
Total Circulatory HI Across Media =	3E-01	6E-01	**1E+02**	**7E+00**	**1E+02**	**7E+00**	**1E+02**	**8E+00**
Total CNS HI Across Media =	2E-02	9E-02	**2E+01**	3E-01	**2E+01**	3E-01	**2E+01**	4E-01
Total Developmental HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Fetotoxicity HI Across Media =	6E-03	8E-03	1E-01	6E-02	1E-01	7E-02	1E-01	7E-02
Total Gastrointestinal HI Across Media =	7E-02	7E-02	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Immune HI Across Media =	5E-03	6E-03	7E-03	NA	1E-02	5E-03	1E-02	6E-03
Total Kidney HI Across Media =	1E-01	3E-01	**3E+00**	3E-01	**3E+00**	4E-01	**3E+00**	5E-01
Total Liver HI Across Media =	7E-02	7E-02	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Lungs HI Across Media =	NA	NA	5E-04	5E-04	5E-04	5E-04	5E-04	5E-04
Total Reproductive HI Across Media =	NA	NA	8E-03	NA	8E-03	NA	8E-03	NA
Total Respiratory HI Across Media =	8E-03	8E-02	**2E+01**	3E-02	**2E+01**	4E-02	**2E+01**	1E-01
Total Sensitizer HI Across Media =	NA	NA	NA	4E-02	NA	4E-02	NA	4E-02
Total Skin HI Across Media =	1E-01	4E-01	**1E+02**	1E-01	**1E+02**	2E-01	**1E+02**	5E-01
Total Thyroid HI Across Media =	NA	NA	2E-02	NA	2E-02	NA	2E-02	NA
Total Endocrine HI Across Media =	NA	NA	1E-02	7E-03	1E-02	7E-03	1E-02	7E-03

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TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	1.4E-02	NA	2.7E-04	1.4E-02
			Arsenic	1.6E-06	NA	9.7E-08	1.7E-06	Skin, Circulatory	1.5E-02	NA	9.0E-04	1.6E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.4E-01	NA	4.0E-02	1.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	9.5E-03	NA	3.8E-04	9.9E-03
			Chromium	NA	NA	NA	NA	N/A	1.0E-02	NA	8.4E-03	1.9E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	9.1E-03	NA	1.8E-04	9.2E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.5E-01	NA	3.0E-03	1.5E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	4.9E-03	NA	2.4E-03	7.3E-03
			Mercury	NA	NA	NA	NA	Immune	6.6E-03	NA	1.9E-03	8.5E-03
			Benzo(a)anthracene	2.1E-08	NA	5.4E-09	2.6E-08	Kidney	6.6E-06	NA	1.7E-06	8.3E-06
			Benzo(a)pyrene	9.1E-06	NA	2.4E-06	1.2E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	8.3E-07	NA	2.2E-07	1.1E-06	Kidney	2.7E-04	NA	6.9E-05	3.4E-04
			Benzo(k)fluoranthene	8.6E-08	NA	2.2E-08	1.1E-07	Kidney	2.8E-04	NA	7.2E-05	3.5E-04
			Carbazole	1.5E-08	NA	4.0E-09	1.9E-08	N/A	NA	NA	NA	NA
			Chrysene	9.9E-09	NA	2.6E-09	1.3E-08	Kidney	3.2E-04	NA	8.3E-05	4.0E-04
			Dibenzo(a,h)anthracene	1.9E-07	NA	5.0E-08	2.4E-07	Kidney	6.2E-06	NA	1.6E-06	7.8E-06
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	4.7E-04	NA	1.4E-04	6.0E-04
			Indeno(1,2,3-cd)pyrene	5.2E-07	NA	1.4E-07	6.6E-07	Body Weight	8.3E-05	NA	2.2E-05	1.0E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	5.1E-04	NA	1.3E-04	6.4E-04
		Exposure Point Total		1.2E-05	NA	2.9E-06	1.5E-05		3.6E-01	NA	5.8E-02	4.2E-01
	Exposure Medium Total			1.2E-05	NA	2.9E-06	1.5E-05		3.6E-01	NA	5.8E-02	4.2E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	4.7E-04	NA	4.7E-04
		South Jersey Port property	Arsenic	NA	8.1E-10	NA	8.1E-10	N/A	NA	NA	NA	NA
		Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.5E-04	NA	3.5E-04
			Cadmium	NA	4.3E-11	NA	4.3E-11	Kidney	NA	1.8E-06	NA	1.8E-06
			Chromium	NA	6.3E-09	NA	6.3E-09	Respiratory	NA	4.6E-03	NA	4.6E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.4E-03	NA	2.4E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.2E-06	NA	1.2E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	South Jersey Port property	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Surface Soil (cont.)	Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

301212

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		NA	7.1E-09	NA	7.1E-09		NA	7.8E-03	NA	7.8E-03
	Exposure Medium Total			NA	7.1E-09	NA	7.1E-09		NA	7.8E-03	NA	7.8E-03
Medium Total				1.2E-05	7.1E-09	2.9E-06	1.5E-05		3.6E-01	7.8E-03	5.8E-02	4.3E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	1.2E-02	NA	2.4E-04	1.2E-02
			Antimony	NA	NA	NA	NA	Body Weight	3.1E-02	NA	6.2E-04	3.1E-02
			Arsenic	4.8E-06	NA	2.9E-07	5.1E-06	Skin, Circulatory	4.4E-02	NA	2.7E-03	4.7E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E-01	NA	3.7E-03	1.9E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.7E-01	NA	3.3E-04	1.7E-01
			Chromium	NA	NA	NA	NA	N/A	4.2E-03	NA	8.4E-05	4.3E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	7.6E-03	NA	1.5E-04	7.7E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.6E-01	NA	3.1E-03	1.6E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.8E-03	NA	7.5E-05	3.8E-03
			Mercury	NA	NA	NA	NA	Immune	6.9E-03	NA	1.4E-04	7.0E-03
			Zinc	NA	NA	NA	NA	Circulatory	1.9E-02	NA	3.9E-04	2.0E-02
			Benzo(a)anthracene	5.4E-07	NA	1.4E-07	6.8E-07	Kidney	1.7E-04	NA	4.5E-05	2.2E-04
			Benzo(a)pyrene	4.3E-06	NA	1.1E-06	5.5E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.1E-07	NA	1.3E-07	6.5E-07	Kidney	1.6E-04	NA	4.3E-05	2.1E-04
			Benzo(k)fluoranthene	4.5E-08	NA	1.2E-08	5.7E-08	Kidney	1.5E-04	NA	3.8E-05	1.8E-04
			Carbazole	9.7E-09	NA	2.5E-09	1.2E-08	N/A	NA	NA	NA	NA
			Chrysene	4.9E-09	NA	1.3E-09	6.1E-09	Kidney	1.6E-04	NA	4.1E-05	2.0E-04
			Dibenzo(a,h)anthracene	3.3E-06	NA	8.6E-07	4.2E-06	Kidney	1.1E-04	NA	2.8E-05	1.3E-04
			Dibenzofuran	NA	NA	NA	NA	Kidney	1.7E-02	NA	4.3E-03	2.1E-02
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	2.1E-04	NA	5.5E-05	2.7E-04
			Indeno(1,2,3-cd)pyrene	3.2E-07	NA	8.4E-08	4.1E-07	Body Weight	5.2E-05	NA	1.3E-05	6.5E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	1.7E-03	NA	4.5E-04	2.2E-03
			Phenanthrene	NA	NA	NA	NA	Kidney	3.0E-04	NA	7.7E-05	3.7E-04
			Pyrene	NA	NA	NA	NA	Kidney	2.4E-04	NA	6.3E-05	3.1E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Surface Soil (cont.)	Benzene	5.5E-12	NA	0.0E+00	5.5E-12	Circulatory, Immune	2.3E-06	NA	0.0E+00	2.3E-06
		Exposure Point Total		1.4E-05	NA	2.7E-06	1.7E-05		6.6E-01	NA	1.7E-02	6.7E-01
	Exposure Medium Total			1.4E-05	NA	2.7E-06	1.7E-05		6.6E-01	NA	1.7E-02	6.7E-01
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	4.1E-04	NA	4.1E-04
			Antimony	NA	NA	NA	NA	N/A	NA	2.7E-06	NA	2.7E-06
			Arsenic	NA	2.4E-09	NA	2.4E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.6E-04	NA	4.6E-04
			Cadmium	NA	7.4E-10	NA	7.4E-10	Kidney	NA	3.2E-05	NA	3.2E-05
			Chromium	NA	2.5E-09	NA	2.5E-09	Respiratory	NA	1.8E-03	NA	1.8E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Manganese	NA	NA	NA	NA	CNS	NA	1.8E-03	NA	1.8E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.2E-06	NA	1.2E-06
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.0E-02	NA	2.0E-02
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.2E-10	NA	2.2E-10	Circulatory	NA	3.3E-05	NA	3.3E-05
		Exposure Point Total		NA	5.9E-09	NA	5.9E-09		NA	2.4E-02	NA	2.4E-02
	Exposure Medium Total			NA	5.9E-09	NA	5.9E-09		NA	2.4E-02	NA	2.4E-02
Medium Total				1.4E-05	5.9E-09	2.7E-06	1.7E-05		6.6E-01	2.4E-02	1.7E-02	7.0E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	7.0E-04	7.0E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	1.2E-02	1.2E-02
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	5.3E-06	5.3E-06	Skin, Circulatory	NA	NA	4.9E-02	4.9E-02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	1.3E-01	1.3E-01
			Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	7.5E-03	7.5E-03
			Cadmium	NA	NA	NA	NA	Kidney	NA	NA	1.8E-02	1.8E-02
			Chromium	NA	NA	NA	NA	N/A	NA	NA	1.2E-02	1.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	8.9E-05	8.9E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	2.7E-02	2.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	2.4E-02	2.4E-02
			Mercury	NA	NA	NA	NA	Immune	NA	NA	6.7E-04	6.7E-04
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	5.0E-04	5.0E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	9.5E-05	9.5E-05
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	4.1E-04	4.1E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	2.2E-02	2.2E-02
			Zinc	NA	NA	NA	NA	Circulatory	NA	NA	1.6E-04	1.6E-04
			Chlordane - alpha	NA	NA	8.2E-10	8.2E-10	Liver	NA	NA	2.7E-03	2.7E-03
			Dieldrin	NA	NA	1.2E-08	1.2E-08	Liver	NA	NA	1.1E-03	1.1E-03
			Heptachlor Epoxide	NA	NA	2.1E-09	2.1E-09	Liver	NA	NA	1.3E-03	1.3E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	5.8E-05	5.8E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	1.6E-02	1.6E-02

301214

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Ether, bis(2-chloroethyl)	NA	NA	3.4E-08	3.4E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	5.8E-02	5.8E-02
			Nitrosodiphenylamine-n	NA	NA	1.0E-09	1.0E-09	Body Weight, Developmental, Reproductive	NA	NA	7.1E-04	7.1E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	5.1E-04	5.1E-04
			Benzene	NA	NA	2.7E-08	2.7E-08	Circulatory, Immune	NA	NA	1.1E-02	1.1E-02
			Chloroethane	NA	NA	2.4E-11	2.4E-11	Fetotoxicity	NA	NA	1.4E-06	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	2.9E-03	2.9E-03
			Dichlorobenzene-1,4	NA	NA	9.4E-10	9.4E-10	Liver, Developmental	NA	NA	9.2E-05	9.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	9.5E-06	9.5E-06
			Dichloroethane-1,2	NA	NA	3.8E-10	3.8E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	1.5E-05	1.5E-05
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	1.4E-04	1.4E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	NA	NA	6.7E-04	6.7E-04
			Dichloropropane-1,2	NA	NA	4.8E-10	4.8E-10	Kidney	NA	NA	2.5E-05	2.5E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	3.8E-04	3.8E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	8.1E-06	8.1E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	NA	1.5E-08	1.5E-08	Liver	NA	NA	2.0E-05	2.0E-05
			Trichloroethane-1,1,2	NA	NA	1.7E-10	1.7E-10	Circulatory	NA	NA	5.3E-06	5.3E-06
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	NA	NA	1.4E-08	1.4E-08	Liver, Kidney, Fetotoxicity	NA	NA	8.4E-03	8.4E-03
			Vinyl chloride	NA	NA	1.2E-07	1.2E-07	Liver	NA	NA	1.9E-03	1.9E-03
			Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	3.2E-04	3.2E-04
		Exposure Point Total		NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Exposure Medium Total			NA	NA	5.5E-06	5.5E-06		NA	NA	4.1E-01	4.1E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.0E+01	NA	3.0E+01
			Benzene	NA	1.2E-06	NA	1.2E-06	Circulatory	NA	1.8E-01	NA	1.8E-01
			Chloroethane	NA	NA	NA	NA	Developmental	NA	4.8E-05	NA	4.8E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	2.3E-08	NA	2.3E-08	Liver	NA	3.2E-04	NA	3.2E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	1.3E-03	NA	1.3E-03
			Dichloroethane-1,2	NA	1.1E-07	NA	1.1E-07	Gastrointestinal, Liver, Kidney	NA	6.0E-02	NA	6.0E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-02	NA	2.0E-02
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	3.2E-03	NA	3.2E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	2.5E-03	NA	2.5E-03
			Tetrachloroethylene	NA	2.0E-08	NA	2.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	2.8E-08	NA	2.8E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	2.5E-02	NA	2.5E-02
			Vinyl chloride	NA	7.1E-08	NA	7.1E-08	Liver	NA	1.1E-02	NA	1.1E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.1E-02	NA	6.1E-02

301215

TABLE 9.18.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
	Exposure Medium Total			NA	2.9E-06	NA	2.9E-06		NA	3.1E+01	NA	3.1E+01
Medium Total				NA	2.9E-06	5.5E-06	8.4E-06		NA	3.1E+01	4.1E-01	3.1E+01

301216

Table 9.18.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.2E-05	7.1E-09	2.9E-06	1.5E-05	3.6E-01	7.8E-03	5.8E-02	4.3E-01
Subsurface Soil	1.4E-05	5.9E-09	2.7E-06	1.7E-05	6.6E-01	2.4E-02	1.7E-02	7.0E-01
Upper PRM Aquifer	NA	2.9E-06	5.5E-06	8.4E-06	NA	**3.1E+01**	4.1E-01	**3.1E+01**
Surface Soil + Upper PRM Aquifer	1.2E-05	2.9E-06	8.4E-06	2.4E-05	3.6E-01	**3.1E+01**	4.7E-01	**3.2E+01**
Subsurface Soil + Upper PRM Aquifer	1.4E-05	2.9E-06	8.1E-06	2.5E-05	6.6E-01	**3.1E+01**	4.3E-01	**3.2E+01**

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Table 9.18.RME Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	South Jersey Port property			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Body Weight HI Across Media =	1E-04	3E-02	9E-02	9E-02	1E-01
Total Circulatory HI Across Media =	3E-01	4E-01	4E-01	8E-01	8E-01
Total CNS HI Across Media =	2E-02	4E-02	**3E+01**	**3E+01**	**3E+01**
Total Developmental HI Across Media =	NA	NA	4E-03	4E-03	4E-03
Total Fetotoxicity HI Across Media =	3E-04	5E-04	1E-02	1E-02	1E-02
Total Gastrointestinal HI Across Media =	2E-01	2E-01	9E-02	3E-01	3E-01
Total General HI Across Media =	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Immune HI Across Media =	9E-03	7E-03	1E-02	2E-02	2E-02
Total Kidney HI Across Media =	2E-01	4E-01	2E-01	4E-01	6E-01
Total Liver HI Across Media =	2E-01	2E-01	1E-01	3E-01	3E-01
Total Lungs HI Across Media =	NA	NA	1E-05	1E-05	1E-05
Total Reproductive HI Across Media =	NA	NA	7E-04	7E-04	7E-04
Total Respiratory HI Across Media =	5E-03	2E-02	**3E+01**	**3E+01**	**3E+01**
Total Sensitizer HI Across Media =	NA	NA	NA	NA	NA
Total Skin HI Across Media =	2E-02	5E-02	5E-02	7E-02	1E-01
Total Thyroid HI Across Media =	NA	NA	3E-03	3E-03	3E-03
Total Endocrine HI Across Media =	NA	NA	3E-02	3E-02	3E-02

TABLE 10.1.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	5.0E-05	NA	1.4E-05	6.4E-05	Skin, Circulatory	8.6E-01	NA	2.4E-01	1.1E+00
			Barium					Kidney, Circulatory	4.9E-01	NA	6.5E-01	1.1E+00
			Chromium					N/A	9.0E-02	NA	3.3E-01	4.2E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.6E-01	NA	1.5E-02	1.7E-01
			Aldrin	8.3E-07	NA	7.6E-07	1.6E-06	Liver				
			Dieldrin	2.4E-06	NA	2.2E-06	4.7E-06	Liver				
			Pcb-Aroclor 1254	2.5E-06	NA	3.2E-06	5.7E-06	Immune	4.9E-01	NA	6.3E-01	1.1E+00
			Benzo(a)anthracene	5.6E-06	NA	6.7E-06	1.2E-05	Kidney				
			Benzo(a)pyrene	5.3E-05	NA	6.3E-05	1.2E-04	N/A				
			Benzo(b)fluoranthene	6.0E-06	NA	7.1E-06	1.3E-05	Kidney				
			Dibenzo(a,h)anthracene	3.6E-06	NA	4.3E-06	8.0E-06	Kidney				
			Indeno(1,2,3-cd)pyrene	1.4E-06	NA	1.7E-06	3.1E-06	Body Weight				
		Exposure Point Total		1.3E-04	NA	1.0E-04	2.3E-04		2.1E+00	NA	1.9E+00	3.9E+00
	Exposure Medium Total			1.3E-04	NA	1.0E-04	2.3E-04		2.1E+00	NA	1.9E+00	3.9E+00
Medium Total				1.3E-04	0.0E+00	1.0E-04	2.3E-04		2.1E+00	0.0E+00	1.9E+00	3.9E+00
Receptor Total				1.3E-04	0.0E+00	1.0E-04	2.3E-04		2.1E+00	0.0E+00	1.9E+00	3.9E+00

Total Circulatory HI Across Media =	2E+00
Total Gastrointestinal HI Across Media =	2E-01
Total Immune HI Across Media =	1E+00
Total Kidney HI Across Media =	1E+00
Total Liver HI Across Media =	2E-01
Total Skin HI Across Media =	1E+00

301219

TABLE 10.2.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	1.5E-04	NA	3.0E-05	1.8E-04	Skin, Circulatory	9.3E-01	NA	1.8E-01	1.1E+00
			Barium					Kidney, Circulatory	5.3E-01	NA	5.0E-01	1.0E+00
			Chromium					N/A	9.7E-02	NA	2.6E-01	3.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.7E-01	NA	1.1E-02	1.8E-01
			Aldrin	2.5E-06	NA	1.6E-06	4.1E-06					
			Dieldrin	7.3E-06	NA	4.8E-06	1.2E-05					
			Pcb-Aroclor 1254	7.5E-06	NA	6.9E-06	1.4E-05	Immune	5.2E-01	NA	4.8E-01	1.0E+00
			Pcb-Aroclor 1260	1.6E-06	NA	1.4E-06	3.0E-06	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	1.7E-05	NA	1.4E-05	3.1E-05					
			Benzo(a)pyrene	1.6E-04	NA	1.4E-04	3.0E-04					
			Benzo(b)fluoranthene	1.8E-05	NA	1.5E-05	3.3E-05					
			Benzo(k)fluoranthene	8.8E-07	NA	7.6E-07	1.6E-06					
			Dibenzo(a,h)anthracene	1.1E-05	NA	9.3E-06	2.0E-05					
			Indeno(1,2,3-cd)pyrene	4.3E-06	NA	3.7E-06	7.9E-06					
			Tetrachloroethylene	2.3E-06	NA	0.0E+00	2.3E-06					
		Exposure Point Total		3.8E-04	NA	2.2E-04	6.0E-04		2.3E+00	NA	1.4E+00	3.7E+00
	Exposure Medium Total			3.8E-04	NA	2.2E-04	6.0E-04		2.3E+00	NA	1.4E+00	3.7E+00
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Surface Soil (cont.)	Benzene	NA	2.5E-06	NA	2.5E-06					
			Chloroform	NA	2.6E-06	NA	2.6E-06					
			Tetrachloroethylene	NA	5.3E-06	NA	5.3E-06					
			Trichloroethylene	NA	2.7E-05	NA	2.7E-05					
		Exposure Point Total		NA	3.7E-05	NA	3.7E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	3.7E-05	NA	3.7E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				3.8E-04	3.7E-05	2.2E-04	6.4E-04		2.3E+00	0.0E+00	1.4E+00	3.7E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Arsenic	3.8E-04	NA	7.6E-05	4.6E-04	Skin, Circulatory	2.4E+00	NA	4.7E-01	2.9E+00
			Barium					Kidney, Circulatory	3.0E-01	NA	2.8E-01	5.9E-01
			Chromium					N/A	8.8E-01	NA	2.3E+00	3.2E+00
			Mercury					Immune	9.1E-02	NA	8.6E-02	1.8E-01
			Aldrin	1.0E-06	NA	6.8E-07	1.7E-06					
			Dieldrin	1.0E-06	NA	6.6E-07	1.7E-06					
			Pcb-Aroclor 1254	7.5E-06	NA	7.0E-06	1.4E-05	Immune	5.3E-01	NA	4.9E-01	1.0E+00
			Benzo(a)anthracene	5.0E-06	NA	4.3E-06	9.3E-06					
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05					
			Benzo(b)fluoranthene	5.5E-06	NA	4.7E-06	1.0E-05					
			Dibenzo(a,h)anthracene	1.0E-05	NA	8.9E-06	1.9E-05					
			Indeno(1,2,3-cd)pyrene	2.5E-06	NA	2.1E-06	4.6E-06					
			Tetrachloroethylene	4.3E-06	NA	0.0E+00	4.3E-06					

301220

TABLE 10.2.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	1.6E-05	NA	0.0E+00	1.6E-05	Liver, Kidney, Fetotoxicity	3.7E-01	NA	0.0E+00	3.7E-01
		Exposure Point Total		4.8E-04	NA	1.4E-04	6.3E-04		4.6E+00	NA	3.7E+00	8.2E+00
	Exposure Medium Total			4.8E-04	NA	1.4E-04	6.3E-04		4.6E+00	NA	3.7E+00	8.2E+00
Subsurface Soil	Ambient Air	Emissions from	Chromium	NA	7.8E-06	NA	7.8E-06	Respiratory	NA	2.3E-01	NA	2.3E-01
		Martin Aaron property	Benzene	NA	3.9E-06	NA	3.9E-06					
		Subsurface Soil	Chloroform	NA	4.1E-06	NA	4.1E-06					
			Tetrachloroethylene	NA	1.0E-05	NA	1.0E-05					
			Trichloroethylene	NA	9.3E-04	NA	9.3E-04	CNS, Liver, Endocrine	NA	6.5E-01	NA	6.5E-01
		Exposure Point Total		NA	9.6E-04	NA	9.6E-04		NA	8.8E-01	NA	8.8E-01
	Exposure Medium Total			NA	9.6E-04	NA	9.6E-04		NA	8.8E-01	NA	8.8E-01
Medium Total				4.8E-04	9.6E-04	1.4E-04	1.6E-03		4.6E+00	8.8E-01	3.7E+00	9.1E+00
			Antimony					Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
			Barium					Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
			Cadmium					Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium					N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Manganese					CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Thallium					Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium					Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06					
			Cresol-p					CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05					
			Naphthalene					Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06					
			Dichloroethylene-1,2 cis					Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06					
			Trichloroethylene	4.0E-06	NA	9.2E-07	5.0E-06	Liver, Kidney, Fetotoxicity	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05					
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.0E+01	NA	2.0E+01
		Upper PRM Aquifer	Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05					
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06					

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TABLE 10.2.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	3.9E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Manganese					CNS	2.4E-01	NA	2.7E-02	2.7E-01
			Thallium					Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06					
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06					
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05					
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Air	Emissions from Middle PRM Aquifer	Trichloroethylene	NA	1.0E-05	NA	1.0E-05					
			Vinyl chloride	NA	2.3E-06	NA	2.3E-06					
		Chemical Total		NA	1.2E-05	NA	1.2E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.2E-05	NA	7.5E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				7.0E-05	1.2E-05	5.3E-06	8.7E-05		7.0E+00	0.0E+00	5.7E-02	7.0E+00

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Table 10.2.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**3.8E-04**	3.7E-05	**2.2E-04**	**6.4E-04**	**2.3E+00**	0.0E+00	**1.4E+00**	**3.7E+00**
Subsurface Soil	**4.8E-04**	**9.6E-04**	1.4E-04	**1.6E-03**	**4.6E+00**	8.8E-01	**3.7E+00**	**9.1E+00**
Upper PRM Aquifer	**1.9E-02**	3.9E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.2E-05	5.3E-06	8.7E-05	**7.0E+00**	0.0E+00	5.7E-02	**7.0E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	7.6E-05	**3.2E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.5E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	**4.5E-04**	4.9E-05	**2.3E-04**	**7.3E-04**	**9.2E+00**	0.0E+00	**1.5E+00**	**1.1E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	**1.0E-03**	**2.4E-04**	**2.1E-02**	**1.3E+02**	**2.1E+01**	**4.7E+00**	**1.6E+02**
Subsurface Soil + Middle PRM Aquifer	**5.5E-04**	**9.7E-04**	1.5E-04	**1.7E-03**	**1.2E+01**	8.8E-01	**3.7E+00**	**1.6E+01**

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Table 10.2.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	6E-01	NA	6E-01	NA	6E-01	NA
Total Circulatory HI Across Media =	**2E+00**	**3E+00**	**1E+02**	**7E+00**	**1E+02**	**9E+00**	**1E+02**	**1E+01**
Total CNS HI Across Media =	NA	7E-01	**2E+01**	3E-01	**2E+01**	3E-01	**2E+01**	9E-01
Total Fetotoxicity HI Across Media =	NA	4E-01	1E-01	NA	1E-01	NA	5E-01	4E-01
Total Gastrointestinal HI Across Media =	2E-01	NA	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Immune HI Across Media =	1E+00	1E+00	NA	NA	1E+00	1E+00	1E+00	1E+00
Total Kidney HI Across Media =	1E+00	1E+00	**3E+00**	NA	**4E+00**	1E+00	**3E+00**	1E+00
Total Liver HI Across Media =	2E-01	1E+00	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**5E+00**	**6E+00**
Total Respiratory HI Across Media =	NA	2E-01	**2E+01**	NA	**2E+01**	NA	**2E+01**	2E-01
Total Skin HI Across Media =	1E+00	**3E+00**	**1E+02**	1E-01	**1E+02**	1E+00	**1E+02**	**3E+00**
Total Endocrine HI Across Media =	NA	7E-01	NA	NA	NA	NA	7E-01	7E-01

TABLE 10.3.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	2.0E-04	NA	2.4E-05	2.3E-04	Skin, Circulatory	1.3E+00	NA	1.6E-01	1.5E+00
			Barium					Kidney, Circulatory	7.4E-01	NA	4.2E-01	1.2E+00
			Chromium					N/A	1.4E-01	NA	2.2E-01	3.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.4E-01	NA	9.5E-03	2.5E-01
			Aldrin	3.3E-06	NA	1.3E-06	4.7E-06					
			Dieldrin	9.8E-06	NA	3.9E-06	1.4E-05					
			Pcb-Aroclor 1254	1.0E-05	NA	5.6E-06	1.6E-05	Immune	7.3E-01	NA	4.1E-01	1.1E+00
			Pcb-Aroclor 1260	2.1E-06	NA	1.2E-06	3.3E-06					
			Benzo(a)anthracene	2.3E-05	NA	1.2E-05	3.4E-05					
			Benzo(a)pyrene	2.1E-04	NA	1.1E-04	3.2E-04					
			Benzo(b)fluoranthene	2.4E-05	NA	1.2E-05	3.6E-05					
			Benzo(k)fluoranthene	1.2E-06	NA	6.2E-07	1.8E-06					
			Dibenzo(a,h)anthracene	1.5E-05	NA	7.6E-06	2.2E-05					
			Indeno(1,2,3-cd)pyrene	5.7E-06	NA	3.0E-06	8.7E-06					
			Tetrachloroethylene	3.1E-06	NA	0.0E+00	3.1E-06					
		Exposure Point Total		5.1E-04	NA	1.8E-04	6.9E-04		3.2E+00	NA	1.2E+00	4.4E+00
	Exposure Medium Total			5.1E-04	NA	1.8E-04	6.9E-04		3.2E+00	NA	1.2E+00	4.4E+00
	Ambient Air	Emissions from Martin Aaron property Surface Soil	Benzene	NA	3.4E-06	NA	3.4E-06					
			Chloroform	NA	3.4E-06	NA	3.4E-06					
			Tetrachloroethylene	NA	7.2E-06	NA	7.2E-06					
			Trichloroethylene	NA	3.6E-05	NA	3.6E-05					
		Exposure Point Total		NA	5.0E-05	NA	5.0E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	5.0E-05	NA	5.0E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				5.1E-04	5.0E-05	1.8E-04	7.4E-04		3.2E+00	0.0E+00	1.2E+00	4.4E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Arsenic	5.2E-04	NA	6.2E-05	5.8E-04	Skin, Circulatory	3.4E+00	NA	4.0E-01	3.8E+00
			Barium					Kidney, Circulatory	4.2E-01	NA	2.4E-01	6.6E-01
			Chromium					N/A	1.2E+00	NA	2.0E+00	3.2E+00
			Iron					Circulatory, Gastrointestinal, Liver	1.2E-01	NA	4.9E-03	1.3E-01
			Mercury					Immune	1.3E-01	NA	7.3E-02	2.0E-01
			Aldrin	1.4E-06	NA	5.5E-07	1.9E-06					
			Dieldrin	1.3E-06	NA	5.4E-07	1.9E-06					
			Pcb-Aroclor 1254	1.0E-05	NA	5.6E-06	1.6E-05	Immune	7.4E-01	NA	4.1E-01	1.1E+00
			Benzo(a)anthracene	6.7E-06	NA	3.5E-06	1.0E-05					
			Benzo(a)pyrene	6.2E-05	NA	3.2E-05	9.4E-05					
			Benzo(b)fluoranthene	7.4E-06	NA	3.8E-06	1.1E-05					
			Dibenzo(a,h)anthracene	1.4E-05	NA	7.2E-06	2.1E-05					
			Indeno(1,2,3-cd)pyrene	3.3E-06	NA	1.7E-06	5.1E-06					
			Tetrachloroethylene	5.8E-06	NA	0.0E+00	5.8E-06					
			Trichloroethylene	2.1E-05	NA	0.0E+00	2.1E-05	Liver, Kidney, Fetotoxicity	5.2E-01	NA	0.0E+00	5.2E-01

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TABLE 10.3.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		6.5E-04	NA	1.2E-04	7.7E-04		6.5E+00	NA	3.1E+00	9.6E+00
	Exposure Medium Total			6.5E-04	NA	1.2E-04	7.7E-04		6.5E+00	NA	3.1E+00	9.6E+00
	Ambient Air	Emissions from	Chromium	NA	1.0E-05	NA	1.0E-05	Respiratory	NA	3.2E-01	NA	3.2E-01
		Martin Aaron property	Naphthalene					CNS; Respiratory	NA	2.3E-01	NA	2.3E-01
		Subsurface Soil	Benzene	NA	5.2E-06	NA	5.2E-06					
			Chloroform	NA	5.5E-06	NA	5.5E-06					
			Tetrachloroethylene	NA	1.3E-05	NA	1.3E-05					
			Trichloroethylene	NA	1.2E-03	NA	1.2E-03	CNS, Liver, Endocrine	NA	9.1E-01	NA	9.1E-01
		Exposure Point Total		NA	1.3E-03	NA	1.3E-03		NA	1.5E+00	NA	1.5E+00
	Exposure Medium Total			NA	1.3E-03	NA	1.3E-03		NA	1.5E+00	NA	1.5E+00
Medium Total				6.5E-04	1.3E-03	1.2E-04	2.0E-03		6.5E+00	1.5E+00	3.1E+00	1.1E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony					Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
			Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
			Barium					Kidney, Circulatory	3.8E+00	NA	1.2E-01	3.9E+00
			Cadmium					Kidney	7.2E-01	NA	6.5E-02	7.9E-01
			Chromium					N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Manganese					CNS	3.9E-01	NA	2.2E-02	4.1E-01
			Thallium					Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium					Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Zinc					Circulatory	1.1E-01	NA	1.4E-04	1.1E-01
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06					
			Cresol-p					CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04					
			Naphthalene					Body Weight	4.9E-01	NA	2.2E-01	7.1E-01
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Dichloroethylene-1,2 cis					Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06					
			Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Exposure Medium Total			5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
		Upper PRM Aquifer	Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06					
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05					
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06					

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TABLE 10.3.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.4E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.5E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Antimony					Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium					Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium					Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium					N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Copper					Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
			Manganese					CNS	6.7E-01	NA	3.8E-02	7.1E-01
			Thallium					Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06					
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04					
		Chemical Total		1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Air	Emissions from Middle PRM Aquifer	Dichloroethane-1,2	NA	1.8E-06	NA	1.8E-06					
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05					
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06					
		Chemical Total		NA	1.8E-05	NA	1.8E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.8E-05	NA	1.9E-04		NA	0.0E+00	NA	0.0E+00
Medium Total				1.9E-04	1.8E-05	7.1E-06	2.1E-04		2.0E+01	0.0E+00	1.3E-01	2.0E+01

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Table 10.3.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**5.1E-04**	5.0E-05	**1.8E-04**	**7.4E-04**	**3.2E+00**	0.0E+00	**1.2E+00**	**4.4E+00**
Subsurface Soil	**6.5E-04**	**1.3E-03**	1.2E-04	**2.0E-03**	**6.5E+00**	**1.5E+00**	**3.1E+00**	**1.1E+01**
Upper PRM Aquifer	**5.1E-02**	5.4E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.5E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.8E-05	7.1E-06	**2.1E-04**	**2.0E+01**	0.0E+00	1.3E-01	**2.0E+01**
Surface Soil + Upper PRM Aquifer	**5.2E-02**	1.0E-04	**3.1E-04**	**5.2E-02**	**3.6E+02**	**2.8E+01**	**2.8E+00**	**3.9E+02**
Surface Soil + Middle PRM Aquifer	**7.0E-04**	6.8E-05	**1.9E-04**	**9.6E-04**	**2.4E+01**	0.0E+00	**1.3E+00**	**2.5E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	**1.3E-03**	**2.5E-04**	**5.4E-02**	**3.6E+02**	**2.9E+01**	**4.6E+00**	**3.9E+02**
Subsurface Soil + Middle PRM Aquifer	**8.4E-04**	**1.3E-03**	1.2E-04	**2.3E-03**	**2.7E+01**	**1.5E+00**	**3.2E+00**	**3.2E+01**

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Table 10.3.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	**2E+00**	NA	**2E+00**	NA	**2E+00**	NA
Total Circulatory HI Across Media =	**3E+00**	**5E+00**	**3E+02**	**2E+01**	**4E+02**	**2E+01**	**4E+02**	**2E+01**
Total CNS HI Across Media =	NA	1E+00	**3E+01**	7E-01	**3E+01**	7E-01	**3E+01**	**2E+00**
Total Fetotoxicity HI Across Media =	NA	5E-01	3E-01	2E-01	3E-01	2E-01	8E-01	7E-01
Total Gastrointestinal HI Across Media =	2E-01	1E-01	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Immune HI Across Media =	1E+00	1E+00	NA	NA	1E+00	1E+00	1E+00	1E+00
Total Kidney HI Across Media =	1E+00	1E+00	**7E+00**	6E-01	**8E+00**	**2E+00**	**8E+00**	**2E+00**
Total Liver HI Across Media =	2E-01	**2E+00**	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Respiratory HI Across Media =	NA	5E-01	**3E+01**	NA	**3E+01**	NA	**3E+01**	5E-01
Total Skin HI Across Media =	1E+00	**4E+00**	**3E+02**	3E-01	**3E+02**	**2E+00**	**3E+02**	**4E+00**
Total Endocrine HI Across Media =	NA	9E-01	NA	NA	NA	NA	9E-01	9E-01

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TABLE 10.4.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Antimony					Body Weight	3.0E-01	NA	5.6E-02	3.6E-01
			Arsenic	4.7E-04	NA	3.9E-05	5.1E-04	Skin, Circulatory	7.3E-01	NA	6.1E-02	7.9E-01
			Barium					Kidney, Circulatory	6.9E+00	NA	2.8E+00	9.7E+00
			Cadmium					Kidney	2.6E-01	NA	1.5E-02	2.8E-01
			Chromium					N/A	1.9E-01	NA	2.1E-01	4.0E-01
			Copper					Kidney, Gastrointestinal	1.8E-01	NA	5.1E-03	1.9E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.2E+00	NA	6.3E-02	2.3E+00
			Aldrin	7.8E-06	NA	2.2E-06	1.0E-05	Liver	1.8E-01	NA	5.0E-02	2.3E-01
			Chlordane - alpha	1.5E-06	NA	1.7E-07	1.7E-06	Liver	8.5E-01	NA	9.6E-02	9.5E-01
			Chlordane - gamma (technical mixture)	1.7E-06	NA	1.9E-07	1.9E-06	Liver	9.4E-01	NA	1.1E-01	1.0E+00
			DDE-4,4'	2.8E-06	NA	2.4E-07	3.1E-06	Reproductive, Fetotoxicity	3.2E-01	NA	2.7E-02	3.5E-01
			Dieldrin	2.3E-05	NA	6.4E-06	2.9E-05	Liver	3.3E-01	NA	9.3E-02	4.3E-01
			Pcb-Aroclor 1254	2.3E-05	NA	9.2E-06	3.3E-05	Immune	2.7E+00	NA	1.1E+00	3.8E+00
			Pcb-Aroclor 1260	4.9E-06	NA	1.9E-06	6.8E-06					
			Benzo(a)anthracene	5.3E-05	NA	1.9E-05	7.2E-05					
			Benzo(a)pyrene	5.0E-04	NA	1.8E-04	6.8E-04					
			Benzo(b)fluoranthene	5.6E-05	NA	2.0E-05	7.6E-05					
			Benzo(k)fluoranthene	2.8E-06	NA	1.0E-06	3.8E-06					
			Dibenzo(a,h)anthracene	3.4E-05	NA	1.2E-05	4.7E-05					
			Indeno(1,2,3-cd)pyrene	1.3E-05	NA	4.9E-06	1.8E-05					
(cont.)	(cont.)	Surface Soil (cont.)	Tetrachloroethylene	7.2E-06	NA	0.0E+00	7.2E-06					
			Trichloroethylene					Liver, Kidney, Fetotoxicity	1.4E-01	NA	0.0E+00	1.4E-01
		Exposure Point Total		1.2E-03	NA	3.0E-04	1.5E-03		1.6E+01	NA	4.6E+00	2.1E+01
	Exposure Medium Total			1.2E-03	NA	3.0E-04	1.5E-03		1.6E+01	NA	4.6E+00	2.1E+01
	Ambient Air	Emissions from Martin Aaron property Surface Soil	Naphthalene					CNS; Respiratory	NA	1.2E-01	NA	1.2E-01
			Benzene	NA	2.0E-06	NA	2.0E-06					
			Chloroform	NA	2.0E-06	NA	2.0E-06					
			Tetrachloroethylene	NA	4.2E-06	NA	4.2E-06					
			Toluene					CNS	NA	1.1E-01	NA	1.1E-01
			Trichloroethylene	NA	2.1E-05	NA	2.1E-05					
			Xylenes, total					CNS	NA	1.5E-01	NA	1.5E-01
		Exposure Point Total		NA	2.9E-05	NA	2.9E-05		NA	3.8E-01	NA	3.8E-01
	Exposure Medium Total			NA	2.9E-05	NA	2.9E-05		NA	3.8E-01	NA	3.8E-01
Medium Total				1.2E-03	2.9E-05	3.0E-04	1.5E-03		1.6E+01	3.8E-01	4.6E+00	2.1E+01
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Antimony					Body Weight	6.5E-01	NA	1.2E-01	7.7E-01
			Arsenic	1.2E-03	NA	1.0E-04	1.3E-03	Skin, Circulatory	1.9E+00	NA	1.6E-01	2.0E+00
			Barium					Kidney, Circulatory	3.9E+00	NA	1.6E+00	5.5E+00
			Cadmium					Kidney	2.4E-01	NA	1.4E-02	2.6E-01
			Chromium					N/A	1.7E+00	NA	1.9E+00	3.7E+00

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TABLE 10.4.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Copper					Kidney, Gastrointestinal	1.6E-01	NA	4.6E-03	1.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.1E+00	NA	3.2E-02	1.2E+00
			Mercury					Immune	1.2E+00	NA	4.8E-01	1.7E+00
			Aldrin	3.2E-06	NA	9.0E-07	4.1E-06					
			Chlordane - alpha					Liver	3.4E-01	NA	3.8E-02	3.8E-01
			Chlordane - gamma (technical mixture)					Liver	4.0E-01	NA	4.5E-02	4.5E-01
			DDE-4,4'	1.8E-06	NA	1.5E-07	2.0E-06	Reproductive, Fetotoxicity	2.1E-01	NA	1.7E-02	2.2E-01
			Dieldrin	3.1E-06	NA	8.8E-07	4.0E-06					
			Pcb-Aroclor 1254	2.4E-05	NA	9.3E-06	3.3E-05	Immune	2.8E+00	NA	1.1E+00	3.8E+00
			Benzo(a)anthracene	1.6E-05	NA	5.7E-06	2.1E-05					
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04					
			Benzo(b)fluoranthene	1.7E-05	NA	6.3E-06	2.4E-05					
			Dibenzo(a,h)anthracene	3.2E-05	NA	1.2E-05	4.4E-05					
			Indeno(1,2,3-cd)pyrene	7.8E-06	NA	2.8E-06	1.1E-05					
			Tetrachloroethylene	1.4E-05	NA	0.0E+00	1.4E-05					
			Trichloroethylene	5.0E-05	NA	0.0E+00	5.0E-05	Liver, Kidney, Fetotoxicity	4.8E+00	NA	0.0E+00	4.8E+00
		Exposure Point Total		1.5E-03	NA	1.9E-04	1.7E-03		1.9E+01	NA	5.5E+00	2.5E+01
	Exposure Medium Total			1.5E-03	NA	1.9E-04	1.7E-03		1.9E+01	NA	5.5E+00	2.5E+01
	Ambient Air	Emissions from	Chromium	NA	6.2E-06	NA	6.2E-06	Respiratory	NA	7.5E-01	NA	7.5E-01
		Martin Aaron property	Naphthalene					CNS; Respiratory	NA	5.4E-01	NA	5.4E-01
		Subsurface Soil	Benzene	NA	3.1E-06	NA	3.1E-06					
			Bromomethane					Respiratory	NA	1.2E-01	NA	1.2E-01
			Chloroform	NA	3.2E-06	NA	3.2E-06					
			Tetrachloroethylene	NA	8.0E-06	NA	8.0E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	7.4E-04	NA	7.4E-04	CNS, Liver, Endocrine	NA	2.1E+00	NA	2.1E+00
			Xylenes, total					CNS	NA	2.2E-01	NA	2.2E-01
		Exposure Point Total		NA	7.6E-04	NA	7.6E-04		NA	3.8E+00	NA	3.8E+00
	Exposure Medium Total			NA	7.6E-04	NA	7.6E-04		NA	3.8E+00	NA	3.8E+00
Medium Total				1.5E-03	7.6E-04	1.9E-04	2.5E-03		1.9E+01	3.8E+00	5.5E+00	2.9E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony					Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
			Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
			Barium					Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00
			Cadmium					Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium					N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Manganese					CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Thallium					Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium					Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc					Circulatory	2.5E-01	NA	4.4E-04	2.5E-01

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TABLE 10.4.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06					
			Cresol-p					CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00
			Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05	N/A	NA	NA	NA	NA
			Naphthalene					Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Phenol					Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06					
			Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
		Exposure Point Total		3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Exposure Medium Total			3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
		Upper PRM Aquifer	Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06					
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01
			Dichloropropane-1,2					Respiratory	NA	2.2E-01	NA	2.2E-01
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total					CNS	NA	6.2E-01	NA	6.2E-01
		Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.7E-05	3.0E-02		9.0E+01	4.0E+02	1.6E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	2.3E-01	NA	7.0E-04	2.4E-01
			Antimony					Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05					
			Barium					Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium					Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Cobalt					Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper					Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01
			Manganese					CNS	1.6E+00	NA	1.2E-01	1.7E+00
			Thallium					Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Tetrachloroethylene	3.0E-06	NA	1.1E-06	4.1E-06					
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01

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TABLE 10.4.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Air	Emissions from Middle PRM Aquifer	Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloropropane-1,2					Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06					
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	1.2E+00
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.1E-01	4.1E+01

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Table 10.4.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**1.2E-03**	2.9E-05	**3.0E-04**	**1.5E-03**	**1.6E+01**	3.8E-01	**4.6E+00**	**2.1E+01**
Subsurface Soil	**1.5E-03**	**7.6E-04**	**1.9E-04**	**2.5E-03**	**1.9E+01**	**3.8E+00**	**5.5E+00**	**2.9E+01**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.7E-05	**3.0E-02**	**9.0E+01**	**4.0E+02**	**1.6E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.1E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.1E-02**	**2.3E-04**	**4.0E-04**	**3.2E-02**	**1.1E+02**	**4.0E+02**	**6.2E+00**	**5.1E+02**
Surface Soil + Middle PRM Aquifer	**1.3E-03**	9.7E-05	**3.0E-04**	**1.7E-03**	**5.6E+01**	**1.6E+00**	**4.9E+00**	**6.2E+01**
Subsurface Soil + Upper PRM Aquifer	**3.1E-02**	**9.5E-04**	**2.9E-04**	**3.3E-02**	**1.1E+02**	**4.0E+02**	**7.1E+00**	**5.2E+02**
Subsurface Soil + Middle PRM Aquifer	**1.6E-03**	**8.2E-04**	**2.0E-04**	**2.6E-03**	**5.9E+01**	**5.0E+00**	**5.8E+00**	**7.0E+01**

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Table 10.4.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	4E-01	8E-01	**5E+00**	9E-01	**6E+00**	1E+00	**6E+00**	**2E+00**
Total Circulatory HI Across Media =	**1E+01**	**9E+00**	**8E+01**	**4E+01**	**1E+02**	**5E+01**	**9E+01**	**4E+01**
Total CNS HI Across Media =	4E-01	**3E+00**	**4E+02**	**2E+00**	**4E+02**	**2E+00**	**4E+02**	**5E+00**
Total Fetotoxicity HI Across Media =	5E-01	**5E+00**	7E-01	4E-01	1E+00	8E-01	**6E+00**	**5E+00**
Total Gastrointestinal HI Across Media =	**2E+00**	1E+00	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Immune HI Across Media =	**4E+00**	**5E+00**	8E-01	NA	**5E+00**	**4E+00**	**6E+00**	**5E+00**
Total Kidney HI Across Media =	**1E+01**	**1E+01**	**1E+01**	**2E+00**	**2E+01**	**1E+01**	**2E+01**	**1E+01**
Total Liver HI Across Media =	**5E+00**	**9E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**4E+01**	**5E+01**
Total Reproductive HI Across Media =	3E-01	2E-01	NA	NA	3E-01	3E-01	2E-01	2E-01
Total Respiratory HI Across Media =	1E-01	1E+00	**4E+02**	2E-01	**4E+02**	3E-01	**4E+02**	**2E+00**
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	8E-01	**2E+00**	**5E+01**	NA	**5E+01**	8E-01	**5E+01**	**2E+00**
Total Endocrine HI Across Media =	NA	**2E+00**	3E-01	1E-01	3E-01	1E-01	**2E+00**	**2E+00**

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TABLE 10.5.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	1.4E-05	NA	8.5E-07	1.5E-05	Skin, Circulatory	1.3E-01	NA	8.0E-03	1.4E-01
			Barium					Kidney, Circulatory	1.3E+00	NA	3.6E-01	1.6E+00
			Iron					Circulatory, Gastrointestinal, Liver	4.1E-01	NA	8.1E-03	4.1E-01
			Chlordane - alpha					Liver	1.6E-01	NA	1.2E-02	1.7E-01
			Chlordane - gamma (technical mixture)					Liver	1.7E-01	NA	1.4E-02	1.8E-01
			Pcb-Aroclor 1254					Immune	5.0E-01	NA	1.4E-01	6.4E-01
			Benzo(a)anthracene	1.6E-06	NA	4.2E-07	2.0E-06					
			Benzo(a)pyrene	1.5E-05	NA	3.9E-06	1.9E-05					
			Benzo(b)fluoranthene	1.7E-06	NA	4.4E-07	2.1E-06					
		Exposure Point Total		3.3E-05	NA	5.6E-06	3.8E-05		2.6E+00	NA	5.4E-01	3.2E+00
	Exposure Medium Total			3.3E-05	NA	5.6E-06	3.8E-05		2.6E+00	NA	5.4E-01	3.2E+00
Medium Total				3.3E-05	0.0E+00	5.6E-06	3.8E-05		2.6E+00	0.0E+00	5.4E-01	3.2E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Antimony					Body Weight	1.2E-01	NA	2.4E-03	1.2E-01
			Arsenic	3.7E-05	NA	2.2E-06	3.9E-05	Skin, Circulatory	3.4E-01	NA	2.0E-02	3.6E-01
			Barium					Kidney, Circulatory	7.2E-01	NA	1.4E-02	7.3E-01
			Chromium					N/A	3.1E-01	NA	6.3E-03	3.2E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.1E-01	NA	4.1E-03	2.1E-01
			Mercury					Immune	2.2E-01	NA	4.3E-03	2.2E-01
			Pcb-Aroclor 1254					Immune	5.0E-01	NA	1.4E-01	6.4E-01
			Benzo(a)pyrene	4.4E-06	NA	1.1E-06	5.5E-06					
			Trichloroethylene	1.5E-06	NA	0.0E+00	1.5E-06	Liver, Kidney, Fetotoxicity	8.8E-01	NA	0.0E+00	8.8E-01
		Exposure Point Total		4.2E-05	NA	3.3E-06	4.6E-05		3.3E+00	NA	1.9E-01	3.5E+00
	Exposure Medium Total			4.2E-05	NA	3.3E-06	4.6E-05		3.3E+00	NA	1.9E-01	3.5E+00
(cont.)	(cont.) Ambient Air	Martin Aaron property Emissions from Subsurface Soil	Chromium					Respiratory	NA	1.4E-01	NA	1.4E-01
			Trichloroethylene	NA	1.0E-04	NA	1.0E-04	CNS, Liver, Endocrine	NA	1.8E+00	NA	1.8E+00
		Exposure Point Total		NA	1.0E-04	NA	1.0E-04		NA	1.9E+00	NA	1.9E+00
	Exposure Medium Total			NA	1.0E-04	NA	1.0E-04		NA	1.9E+00	NA	1.9E+00
Medium Total				4.2E-05	1.0E-04	3.3E-06	1.5E-04		3.3E+00	1.9E+00	1.9E-01	5.4E+00
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	5.3E-06	5.3E-06					
			Barium					Kidney, Circulatory	NA	NA	1.3E-01	1.3E-01
		Exposure Point Total		NA	NA	5.3E-06	5.3E-06		NA	NA	1.3E-01	1.3E-01
	Exposure Medium Total			NA	NA	5.3E-06	5.3E-06		NA	NA	1.3E-01	1.3E-01
Medium Total				NA	0.0E+00	5.3E-06	5.3E-06		NA	0.0E+00	1.3E-01	1.3E-01

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Table 10.5.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	3.3E-05	0.0E+00	5.6E-06	3.8E-05	**2.6E+00**	0.0E+00	5.4E-01	**3.2E+00**
Subsurface Soil	4.2E-05	1.0E-04	3.3E-06	1.5E-04	**3.3E+00**	**1.9E+00**	1.9E-01	**5.4E+00**
Upper PRM Aquifer	NA	0.0E+00	5.3E-06	5.3E-06	NA	0.0E+00	1.3E-01	1.3E-01
Surface Soil + Upper PRM Aquifer	3.3E-05	0.0E+00	1.1E-05	4.4E-05	**2.6E+00**	0.0E+00	6.7E-01	**3.3E+00**
Subsurface Soil + Upper PRM Aquifer	4.2E-05	1.0E-04	8.6E-06	**1.5E-04**	**3.3E+00**	**1.9E+00**	3.3E-01	**5.5E+00**

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Table 10.5.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe:	Future
Receptor Population:	Construction Worker
Receptor Age:	Adult

	Martin Aaron property			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Circulatory HI Across Media =	**2E+00**	1E+00	1E-01	**2E+00**	1E+00
Total CNS HI Across Media =	NA	**2E+00**	NA	NA	**2E+00**
Total Fetotoxicity HI Across Media =	NA	9E-01	NA	NA	9E-01
Total Gastrointestinal HI Across Media =	4E-01	2E-01	NA	4E-01	2E-01
Total Immune HI Across Media =	6E-01	9E-01	NA	6E-01	9E-01
Total Kidney HI Across Media =	**2E+00**	**2E+00**	1E-01	**2E+00**	**2E+00**
Total Liver HI Across Media =	8E-01	**3E+00**	NA	8E-01	**3E+00**
Total Skin HI Across Media =	1E-01	4E-01	NA	1E-01	4E-01
Total Endocrine HI Across Media =	NA	**2E+00**	NA	NA	**2E+00**

TABLE 10.6.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Subsurface Soil	Arsenic	2.0E-05	NA	2.3E-06	2.2E-05	Skin, Circulatory	1.3E-01	NA	1.5E-02	1.4E-01
			Barium					Kidney, Circulatory	3.1E-01	NA	1.8E-01	4.9E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.5E-01	NA	6.0E-03	1.6E-01
			Benzo(a)pyrene	5.1E-06	NA	2.7E-06	7.8E-06					
		Exposure Point Total		2.5E-05	NA	5.0E-06	3.0E-05		5.9E-01	NA	2.0E-01	7.9E-01
	Exposure Medium Total			2.5E-05	NA	5.0E-06	3.0E-05		5.9E-01	NA	2.0E-01	7.9E-01
Medium Total				2.5E-05	0.0E+00	5.0E-06	3.0E-05		5.9E-01	0.0E+00	2.0E-01	7.9E-01
Subsurface Soil	Subsurface Soil	Middle PRM Aquifer	Arsenic	8.7E-04	NA	1.0E-04	9.8E-04	Skin, Circulatory	5.7E+00	NA	6.8E-01	6.3E+00
			Barium					Kidney, Circulatory	3.6E-01	NA	2.1E-01	5.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.8E-01	NA	1.1E-02	2.9E-01
			Benzo(a)pyrene	5.5E-06	NA	2.8E-06	8.3E-06					
			Dibenzo(a,h)anthracene	1.2E-06	NA	6.4E-07	1.9E-06					
		Exposure Point Total		8.8E-04	NA	1.1E-04	9.9E-04		6.3E+00	NA	9.0E-01	7.2E+00
	Exposure Medium Total			8.8E-04	NA	1.1E-04	9.9E-04		6.3E+00	NA	9.0E-01	7.2E+00
	Ambient Air	Emissions from Junkyard Subsurface Soil	Arsenic	NA	1.7E-06	NA	1.7E-06					
		Exposure Point Total		NA	1.7E-06	NA	1.7E-06		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.7E-06	NA	1.7E-06		NA	0.0E+00	NA	0.0E+00
Medium Total				8.8E-04	1.7E-06	1.1E-04	9.9E-04		6.3E+00	0.0E+00	9.0E-01	7.2E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony					Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
			Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
			Barium					Kidney, Circulatory	3.8E+00	NA	1.2E-01	3.9E+00
			Cadmium					Kidney	7.2E-01	NA	6.5E-02	7.9E-01
			Chromium					N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Manganese					CNS	3.9E-01	NA	2.2E-02	4.1E-01
			Thallium					Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium					Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Zinc					Circulatory	1.1E-01	NA	1.4E-04	1.1E-01
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06					
			Cresol-p					CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04					
			Naphthalene					Body Weight	4.9E-01	NA	2.2E-01	7.1E-01
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Dichloroethylene-1,2 cis					Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06					

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TABLE 10.6.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Exposure Medium Total			5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
		Upper PRM Aquifer	Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06					
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05					
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06					
		Chemical Total		NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.4E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.5E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Antimony					Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium					Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium					Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium					N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Copper					Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
			Manganese					CNS	6.7E-01	NA	3.8E-02	7.1E-01
			Thallium					Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06					
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04					
		Chemical Total		1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Air	Emissions from	Dichloroethane-1,2	NA	1.8E-06	NA	1.8E-06					
		Middle PRM Aquifer	Trichloroethylene	NA	1.4E-05	NA	1.4E-05					
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06					
		Chemical Total		NA	1.8E-05	NA	1.8E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.8E-05	NA	1.9E-04		NA	0.0E+00	NA	0.0E+00
Medium Total				1.9E-04	1.8E-05	7.1E-06	2.1E-04		2.0E+01	0.0E+00	1.3E-01	2.0E+01

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Table 10.6.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	2.5E-05	0.0E+00	5.0E-06	3.0E-05	5.9E-01	0.0E+00	2.0E-01	7.9E-01
Subsurface Soil	**8.8E-04**	1.7E-06	1.1E-04	**9.9E-04**	**6.3E+00**	0.0E+00	9.0E-01	**7.2E+00**
Upper PRM Aquifer	**5.1E-02**	5.4E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.5E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.8E-05	7.1E-06	**2.1E-04**	**2.0E+01**	0.0E+00	1.3E-01	**2.0E+01**
Surface Soil + Upper PRM Aquifer	**5.1E-02**	5.4E-05	1.4E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.7E+00**	**3.8E+02**
Surface Soil + Middle PRM Aquifer	**2.1E-04**	1.8E-05	1.2E-05	**2.4E-04**	**2.1E+01**	0.0E+00	3.3E-01	**2.1E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	5.5E-05	**2.4E-04**	**5.3E-02**	**3.6E+02**	**2.8E+01**	**2.4E+00**	**3.9E+02**
Subsurface Soil + Middle PRM Aquifer	**1.1E-03**	2.0E-05	1.2E-04	**1.2E-03**	**2.7E+01**	0.0E+00	1.0E+00	**2.8E+01**

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Table 10.6.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	**2E+00**	NA	**2E+00**	NA	**2E+00**	NA
Total Circulatory HI Across Media =	8E-01	**7E+00**	**3E+02**	**2E+01**	**3E+02**	**2E+01**	**4E+02**	**3E+01**
Total CNS HI Across Media =	NA	NA	**3E+01**	7E-01	**3E+01**	7E-01	**3E+01**	7E-01
Total Fetotoxicity HI Across Media =	NA	NA	3E-01	2E-01	3E-01	2E-01	3E-01	2E-01
Total Gastrointestinal HI Across Media =	2E-01	3E-01	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Kidney HI Across Media =	5E-01	6E-01	**7E+00**	6E-01	**7E+00**	1E+00	**7E+00**	1E+00
Total Liver HI Across Media =	2E-01	3E-01	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**2E+01**
Total Respiratory HI Across Media =	NA	NA	**3E+01**	NA	**3E+01**	NA	**3E+01**	NA
Total Skin HI Across Media =	1E-01	**6E+00**	**3E+02**	3E-01	**3E+02**	5E-01	**3E+02**	**7E+00**

TABLE 10.7.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony					Body Weight	2.6E-01	NA	4.9E-02	3.1E-01
			Arsenic	4.6E-05	NA	3.8E-06	4.9E-05					
			Barium					Kidney, Circulatory	2.9E+00	NA	1.2E+00	4.1E+00
			Cadmium					Kidney	2.3E-01	NA	1.3E-02	2.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.4E+00	NA	3.9E-02	1.4E+00
			Mercury					Immune	1.0E-01	NA	4.1E-02	1.4E-01
			Benzo(a)anthracene	1.3E-06	NA	4.7E-07	1.7E-06					
			Benzo(a)pyrene	1.2E-05	NA	4.4E-06	1.6E-05					
			Benzo(b)fluoranthene	1.2E-06	NA	4.4E-07	1.6E-06					
		Exposure Point Total		6.0E-05	NA	9.1E-06	6.9E-05		4.9E+00	NA	1.3E+00	6.2E+00
	Exposure Medium Total			6.0E-05	NA	9.1E-06	6.9E-05		4.9E+00	NA	1.3E+00	6.2E+00
Medium Total				6.0E-05	0.0E+00	9.1E-06	6.9E-05		4.9E+00	0.0E+00	1.3E+00	6.2E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum					CNS	1.2E-01	NA	3.3E-03	1.2E-01
			Antimony					Body Weight	2.6E-01	NA	4.9E-02	3.1E-01
			Arsenic	2.0E-03	NA	1.7E-04	2.2E-03	Skin, Circulatory	3.2E+00	NA	2.7E-01	3.4E+00
			Barium					Kidney, Circulatory	3.4E+00	NA	1.4E+00	4.7E+00
			Cadmium					Kidney	3.2E-01	NA	1.8E-02	3.3E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.6E+00	NA	7.3E-02	2.7E+00
			Mercury					Immune	1.0E-01	NA	4.1E-02	1.4E-01
			Benzo(a)anthracene	1.4E-06	NA	5.2E-07	2.0E-06					
			Benzo(a)pyrene	1.3E-05	NA	4.7E-06	1.7E-05					
			Benzo(b)fluoranthene	1.5E-06	NA	5.5E-07	2.1E-06					
			Dibenzo(a,h)anthracene	2.9E-06	NA	1.0E-06	3.9E-06					
		Exposure Point Total		2.1E-03	NA	1.8E-04	2.2E-03		9.9E+00	NA	1.8E+00	1.2E+01
	Exposure Medium Total			2.1E-03	NA	1.8E-04	2.2E-03		9.9E+00	NA	1.8E+00	1.2E+01
Medium Total				2.1E-03	0.0E+00	1.8E-04	2.2E-03		9.9E+00	0.0E+00	1.8E+00	1.2E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony					Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
			Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
			Barium					Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00
			Cadmium					Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium					N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Manganese					CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Thallium					Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium					Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc					Circulatory	2.5E-01	NA	4.4E-04	2.5E-01
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06					

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TABLE 10.7.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cresol-p					CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00
			Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05					
			Naphthalene	NA	NA	NA	NA	Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Phenol					Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06					
			Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
		Exposure Point Total		3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Exposure Medium Total			3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
		Upper PRM Aquifer	Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06					
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01
			Dichloropropane-1,2					Respiratory	NA	2.2E-01	NA	2.2E-01
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06					
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.2E-01	NA	6.2E-01
		Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.7E-05	3.0E-02		9.0E+01	4.0E+02	1.6E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	2.3E-01	NA	7.0E-04	2.4E-01
			Antimony					Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05					
			Barium					Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium					Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Cobalt					Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper					Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01
			Manganese					CNS	1.6E+00	NA	1.2E-01	1.7E+00
			Thallium					Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Tetrachloroethylene	3.0E-06	NA	1.1E-06	4.1E-06					
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01

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TABLE 10.7.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Air	Emissions from Middle PRM Aquifer	Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloropropane-1,2					Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	1.2E+00
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.1E-01	4.1E+01

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Table 10.7.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	6.0E-05	0.0E+00	9.1E-06	6.9E-05	**4.9E+00**	0.0E+00	**1.3E+00**	**6.2E+00**
Subsurface Soil	**2.1E-03**	0.0E+00	**1.8E-04**	**2.2E-03**	**9.9E+00**	0.0E+00	**1.8E+00**	**1.2E+01**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.7E-05	**3.0E-02**	**9.0E+01**	**4.0E+02**	**1.6E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.1E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	1.1E-04	**3.0E-02**	**9.5E+01**	**4.0E+02**	**2.9E+00**	**5.0E+02**
Surface Soil + Middle PRM Aquifer	**1.7E-04**	6.8E-05	1.3E-05	**2.5E-04**	**4.4E+01**	**1.2E+00**	**1.6E+00**	**4.7E+01**
Subsurface Soil + Upper PRM Aquifer	**3.2E-02**	**2.0E-04**	**2.8E-04**	**3.2E-02**	**1.0E+02**	**4.0E+02**	**3.4E+00**	**5.0E+02**
Subsurface Soil + Middle PRM Aquifer	**2.2E-03**	6.8E-05	**1.8E-04**	**2.4E-03**	**4.9E+01**	**1.2E+00**	**2.1E+00**	**5.3E+01**

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Table 10.7.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	3E-01	3E-01	**5E+00**	9E-01	**6E+00**	1E+00	**6E+00**	1E+00
Total Circulatory HI Across Media =	**6E+00**	**1E+01**	**8E+01**	**4E+01**	**9E+01**	**4E+01**	**9E+01**	**5E+01**
Total CNS HI Across Media =	NA	1E-01	**4E+02**	**2E+00**	**4E+02**	**2E+00**	**4E+02**	**2E+00**
Total Fetotoxicity HI Across Media =	NA	NA	7E-01	4E-01	7E-01	4E-01	7E-01	4E-01
Total Gastrointestinal HI Across Media =	1E+00	**3E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Immune HI Across Media =	1E-01	1E-01	8E-01	NA	9E-01	1E-01	9E-01	1E-01
Total Kidney HI Across Media =	**4E+00**	**5E+00**	**1E+01**	**2E+00**	**2E+01**	**6E+00**	**2E+01**	**7E+00**
Total Liver HI Across Media =	1E+00	**3E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Respiratory HI Across Media =	NA	NA	**4E+02**	2E-01	**4E+02**	2E-01	**4E+02**	2E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	NA	**3E+00**	**5E+01**	NA	**5E+01**	NA	**5E+01**	**3E+00**
Total Endocrine HI Across Media =	NA	NA	3E-01	1E-01	3E-01	1E-01	3E-01	1E-01

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TABLE 10.8.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Subsurface Soil	Arsenic	1.5E-05	NA	2.9E-06	1.7E-05	Skin, Circulatory	9.0E-02	NA	1.8E-02	1.1E-01
			Barium					Kidney, Circulatory	2.2E-01	NA	2.1E-01	4.3E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.1E-01	NA	7.1E-03	1.1E-01
			Benzo(a)pyrene	3.8E-06	NA	3.3E-06	7.1E-06					
		Exposure Point Total		1.8E-05	NA	6.2E-06	2.5E-05		4.2E-01	NA	2.4E-01	6.6E-01
	Exposure Medium Total			1.8E-05	NA	6.2E-06	2.5E-05		4.2E-01	NA	2.4E-01	6.6E-01
Medium Total				1.8E-05	0.0E+00	6.2E-06	2.5E-05		4.2E-01	0.0E+00	2.4E-01	6.6E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Arsenic	6.5E-04	NA	1.3E-04	7.8E-04	Skin, Circulatory	4.0E+00	NA	8.0E-01	4.8E+00
			Barium					Kidney, Circulatory	2.6E-01	NA	2.4E-01	5.0E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.0E-01	NA	1.3E-02	2.1E-01
			Benzo(a)pyrene	4.1E-06	NA	3.5E-06	7.6E-06					
			Dibenzo(a,h)anthracene	9.2E-07	NA	7.9E-07	1.7E-06					
		Exposure Point Total		6.5E-04	NA	1.3E-04	7.9E-04		4.5E+00	NA	1.1E+00	5.6E+00
	Exposure Medium Total			6.5E-04	NA	1.3E-04	7.9E-04		4.5E+00	NA	1.1E+00	5.6E+00
Medium Total				6.5E-04	0.0E+00	1.3E-04	7.9E-04		4.5E+00	0.0E+00	1.1E+00	5.6E+00
Groundwater	Groundwater	Upper PRM Aquifer	Antimony					Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
			Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
			Barium					Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
			Cadmium					Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium					N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Manganese					CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Thallium					Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium					Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06					
			Cresol-p					CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05					
			Naphthalene					Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06					
			Dichloroethylene-1,2 cis					Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06					
			Trichloroethylene	4.0E-06	NA	9.2E-07	5.0E-06	Liver, Kidney, Fetotoxicity	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05					
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.0E+01	NA	2.0E+01

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TABLE 10.8.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Upper PRM Aquifer	Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05					
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06					
		Chemical Total		NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	3.9E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Manganese					CNS	2.4E-01	NA	2.7E-02	2.7E-01
			Thallium					Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06					
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06					
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05					
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Air	Emissions from Middle PRM Aquifer	Trichloroethylene	NA	1.0E-05	NA	1.0E-05					
			Vinyl chloride	NA	2.3E-06	NA	2.3E-06					
		Chemical Total		NA	1.2E-05	NA	1.2E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.2E-05	NA	7.5E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				7.0E-05	1.2E-05	5.3E-06	8.7E-05		7.0E+00	0.0E+00	5.7E-02	7.0E+00

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Table 10.8.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	1.8E-05	0.0E+00	6.2E-06	2.5E-05	4.2E-01	0.0E+00	2.4E-01	6.6E-01
Subsurface Soil	**6.5E-04**	0.0E+00	1.3E-04	**7.9E-04**	**4.5E+00**	0.0E+00	**1.1E+00**	**5.6E+00**
Upper PRM Aquifer	**1.9E-02**	3.9E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.2E-05	5.3E-06	8.7E-05	**7.0E+00**	0.0E+00	5.7E-02	**7.0E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	3.9E-05	1.0E-04	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.3E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	8.8E-05	1.2E-05	1.1E-05	1.1E-04	**7.4E+00**	0.0E+00	2.9E-01	**7.7E+00**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	3.9E-05	**2.3E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.1E+00**	**1.5E+02**
Subsurface Soil + Middle PRM Aquifer	**7.2E-04**	1.2E-05	1.4E-04	**8.8E-04**	**1.1E+01**	0.0E+00	**1.1E+00**	**1.3E+01**

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Table 10.8.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	6E-01	NA	6E-01	NA	6E-01	NA
Total Circulatory HI Across Media =	7E-01	**6E+00**	**1E+02**	**7E+00**	**1E+02**	**7E+00**	**1E+02**	**1E+01**
Total CNS HI Across Media =	NA	NA	**2E+01**	3E-01	**2E+01**	3E-01	**2E+01**	3E-01
Total Fetotoxicity HI Across Media =	NA	NA	1E-01	NA	1E-01	NA	1E-01	NA
Total Gastrointestinal HI Across Media =	1E-01	2E-01	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Kidney HI Across Media =	4E-01	5E-01	**3E+00**	NA	**3E+00**	4E-01	**3E+00**	5E-01
Total Liver HI Across Media =	1E-01	2E-01	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Respiratory HI Across Media =	NA	NA	**2E+01**	NA	**2E+01**	NA	**2E+01**	NA
Total Skin HI Across Media =	1E-01	**5E+00**	**1E+02**	1E-01	**1E+02**	2E-01	**1E+02**	**5E+00**

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TABLE 10.9.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Barium					Kidney, Circulatory	5.3E-01	NA	1.5E-01	6.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.5E-01	NA	5.1E-03	2.6E-01
		Exposure Point Total		0.0E+00	NA	0.0E+00	0.0E+00		7.9E-01	NA	1.6E-01	9.4E-01
	Exposure Medium Total			0.0E+00	NA	0.0E+00	0.0E+00		7.9E-01	NA	1.6E-01	9.4E-01
Medium Total				0.0E+00	0.0E+00	0.0E+00	0.0E+00		7.9E-01	0.0E+00	1.6E-01	9.4E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Arsenic	6.2E-05	NA	3.7E-06	6.5E-05	Skin, Circulatory	5.8E-01	NA	3.5E-02	6.1E-01
			Barium					Kidney, Circulatory	6.1E-01	NA	1.2E-02	6.3E-01
			Iron					Circulatory, Gastrointestinal, Liver	4.7E-01	NA	9.4E-03	4.8E-01
		Exposure Point Total		6.2E-05	NA	3.7E-06	6.5E-05		1.7E+00	NA	5.6E-02	1.7E+00
	Exposure Medium Total			6.2E-05	NA	3.7E-06	6.5E-05		1.7E+00	NA	5.6E-02	1.7E+00
Medium Total				6.2E-05	0.0E+00	3.7E-06	6.5E-05		1.7E+00	0.0E+00	5.6E-02	1.7E+00
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	5.3E-06	5.3E-06	Kidney, Circulatory	NA	NA	1.3E-01	1.3E-01
			Barium									
		Exposure Point Total		NA	NA	5.3E-06	5.3E-06		NA	NA	1.3E-01	1.3E-01
	Exposure Medium Total			NA	NA	5.3E-06	5.3E-06		NA	NA	1.3E-01	1.3E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	3.0E+01	NA	3.0E+01
			Benzene					Circulatory	NA	1.8E-01	NA	1.8E-01
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	3.0E+01	NA	3.0E+01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	3.0E+01	NA	3.0E+01
Medium Total				NA	0.0E+00	5.3E-06	5.3E-06		NA	3.0E+01	1.3E-01	3.1E+01

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Table 10.9.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	0.0E+00	0.0E+00	0.0E+00	0.0E+00	7.9E-01	0.0E+00	1.6E-01	9.4E-01
Subsurface Soil	6.2E-05	0.0E+00	3.7E-06	6.5E-05	**1.7E+00**	0.0E+00	5.6E-02	**1.7E+00**
Upper PRM Aquifer	NA	0.0E+00	5.3E-06	5.3E-06	NA	**3.0E+01**	1.3E-01	**3.1E+01**
Surface Soil + Upper PRM Aquifer	0.0E+00	0.0E+00	5.3E-06	5.3E-06	7.9E-01	**3.0E+01**	2.9E-01	**3.2E+01**
Subsurface Soil + Upper PRM Aquifer	6.2E-05	0.0E+00	9.0E-06	7.1E-05	**1.7E+00**	**3.0E+01**	1.9E-01	**3.2E+01**

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Table 10.9.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Junkyard			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Circulatory HI Across Media =	9E-01	**2E+00**	3E-01	1E+00	**2E+00**
Total CNS HI Across Media =	NA	NA	**3E+01**	**3E+01**	**3E+01**
Total Gastrointestinal HI Across Media =	3E-01	5E-01	NA	3E-01	5E-01
Total Kidney HI Across Media =	7E-01	6E-01	1E-01	8E-01	8E-01
Total Liver HI Across Media =	3E-01	5E-01	NA	3E-01	5E-01
Total Respiratory HI Across Media =	NA	NA	**3E+01**	**3E+01**	**3E+01**
Total Skin HI Across Media =	NA	6E-01	NA	NA	6E-01

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TABLE 10.10.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	2.4E-04	NA	2.9E-05	2.7E-04	Skin, Circulatory	1.5E+00	NA	1.9E-01	1.7E+00
			Barium					Kidney, Circulatory	4.4E-01	NA	2.5E-01	6.9E-01
			Chromium					N/A	1.9E-01	NA	3.0E-01	4.9E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.3E-01	NA	5.0E-03	1.3E-01
			Pcb-Aroclor 1254	3.0E-06	NA	1.7E-06	4.7E-06	Immune	2.2E-01	NA	1.2E-01	3.4E-01
			Benzo(a)anthracene	8.2E-06	NA	4.3E-06	1.2E-05					
			Benzo(a)pyrene	6.2E-05	NA	3.2E-05	9.4E-05					
			Benzo(b)fluoranthene	5.5E-06	NA	2.8E-06	8.3E-06					
			Dibenzo(a,h)anthracene	6.9E-06	NA	3.6E-06	1.0E-05					
			Indeno(1,2,3-cd)pyrene	2.0E-06	NA	1.0E-06	3.0E-06					
		Exposure Point Total		3.3E-04	NA	7.4E-05	4.0E-04		2.5E+00	NA	8.7E-01	3.4E+00
	Exposure Medium Total			3.3E-04	NA	7.4E-05	4.0E-04		2.5E+00	NA	8.7E-01	3.4E+00
	Ambient Air	Emissions from Surface Soil	Chromium	NA	1.6E-06	NA	1.6E-06					
		Exposure Point Total		NA	1.6E-06	NA	1.6E-06		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.6E-06	NA	1.6E-06		NA	0.0E+00	NA	0.0E+00
Medium Total				3.3E-04	1.6E-06	7.4E-05	4.0E-04		2.5E+00	0.0E+00	8.7E-01	3.4E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	2.6E-04	NA	3.1E-05	2.9E-04	Skin, Circulatory	1.7E+00	NA	2.0E-01	1.9E+00
			Barium					Kidney, Circulatory	6.9E-01	NA	3.9E-01	1.1E+00
			Chromium					N/A	1.3E-01	NA	2.0E-01	3.3E-01
			Dieldrin	1.7E-06	NA	6.8E-07	2.4E-06					
			Heptachlor Epoxide	1.9E-06	NA	7.4E-07	2.6E-06					
			Pcb-Aroclor 1254	1.8E-06	NA	1.0E-06	2.8E-06	Immune	1.3E-01	NA	7.3E-02	2.0E-01
			Benzo(a)anthracene	8.2E-06	NA	4.3E-06	1.2E-05					
			Benzo(a)pyrene	6.2E-05	NA	3.2E-05	9.4E-05					
			Benzo(b)fluoranthene	5.5E-06	NA	2.8E-06	8.3E-06					
			Dibenzo(a,h)anthracene	8.2E-06	NA	4.3E-06	1.2E-05					
			Indeno(1,2,3-cd)pyrene	2.2E-06	NA	1.1E-06	3.3E-06					
		Exposure Point Total		3.5E-04	NA	7.8E-05	4.3E-04		2.6E+00	NA	8.7E-01	3.5E+00
	Exposure Medium Total			3.5E-04	NA	7.8E-05	4.3E-04		2.6E+00	NA	8.7E-01	3.5E+00
Medium Total				3.5E-04	0.0E+00	7.8E-05	4.3E-04		2.6E+00	0.0E+00	8.7E-01	3.5E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony					Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
			Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
			Barium					Kidney, Circulatory	3.8E+00	NA	1.2E-01	3.9E+00
			Cadmium					Kidney	7.2E-01	NA	6.5E-02	7.9E-01

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TABLE 10.10.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Chromium					N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Manganese					CNS	3.9E-01	NA	2.2E-02	4.1E-01
			Thallium					Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium					Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Zinc					Circulatory	1.1E-01	NA	1.4E-04	1.1E-01
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06					
			Cresol-p					CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04					
			Naphthalene					Body Weight	4.9E-01	NA	2.2E-01	7.1E-01
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Dichloroethylene-1,2 cis					Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06					
			Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Exposure Medium Total			5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
		Upper PRM Aquifer	Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06					
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05					
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06					
		Chemical Total		NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.4E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.5E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Antimony					Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium					Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium					Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium					N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Copper					Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
			Manganese					CNS	6.7E-01	NA	3.8E-02	7.1E-01
			Thallium					Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06					
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04					

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TABLE 10.10.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Air	Emissions from Middle PRM Aquifer	Dichloroethane-1,2	NA	1.8E-06	NA	1.8E-06					
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05					
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06					
		Chemical Total		NA	1.8E-05	NA	1.8E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.8E-05	NA	1.9E-04		NA	0.0E+00	NA	0.0E+00
Medium Total				1.9E-04	1.8E-05	7.1E-06	2.1E-04		2.0E+01	0.0E+00	1.3E-01	2.0E+01

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Table 10.10.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**3.3E-04**	1.6E-06	7.4E-05	**4.0E-04**	**2.5E+00**	0.0E+00	8.7E-01	**3.4E+00**
Subsurface Soil	**3.5E-04**	0.0E+00	7.8E-05	**4.3E-04**	**2.6E+00**	0.0E+00	8.7E-01	**3.5E+00**
Upper PRM Aquifer	**5.1E-02**	5.4E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.5E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.8E-05	7.1E-06	**2.1E-04**	**2.0E+01**	0.0E+00	1.3E-01	**2.0E+01**
Surface Soil + Upper PRM Aquifer	**5.2E-02**	5.5E-05	**2.0E-04**	**5.2E-02**	**3.6E+02**	**2.8E+01**	**2.4E+00**	**3.9E+02**
Surface Soil + Middle PRM Aquifer	**5.1E-04**	2.0E-05	8.1E-05	**6.1E-04**	**2.3E+01**	0.0E+00	1.0E+00	**2.4E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	5.4E-05	**2.1E-04**	**5.2E-02**	**3.6E+02**	**2.8E+01**	**2.4E+00**	**3.9E+02**
Subsurface Soil + Middle PRM Aquifer	**5.4E-04**	1.8E-05	8.5E-05	**6.4E-04**	**2.3E+01**	0.0E+00	1.0E+00	**2.4E+01**

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Table 10.10.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	**2E+00**	NA	**2E+00**	NA	**2E+00**	NA
Total Circulatory HI Across Media =	**3E+00**	**3E+00**	**3E+02**	**2E+01**	**4E+02**	**2E+01**	**4E+02**	**2E+01**
Total CNS HI Across Media =	NA	NA	**3E+01**	7E-01	**3E+01**	7E-01	**3E+01**	7E-01
Total Fetotoxicity HI Across Media =	NA	NA	3E-01	2E-01	3E-01	2E-01	3E-01	2E-01
Total Gastrointestinal HI Across Media =	1E-01	NA	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**1E+01**
Total Immune HI Across Media =	3E-01	2E-01	NA	NA	3E-01	3E-01	2E-01	2E-01
Total Kidney HI Across Media =	7E-01	1E+00	**7E+00**	6E-01	**7E+00**	1E+00	**8E+00**	**2E+00**
Total Liver HI Across Media =	1E-01	NA	**1E+01**	**1E+01**	**1E+01**	**2E+01**	**1E+01**	**1E+01**
Total Respiratory HI Across Media =	NA	NA	**3E+01**	NA	**3E+01**	NA	**3E+01**	NA
Total Skin HI Across Media =	**2E+00**	**2E+00**	**3E+02**	3E-01	**3E+02**	**2E+00**	**3E+02**	**2E+00**

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TABLE 10.11.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony					Body Weight	2.2E-01	NA	4.1E-02	2.6E-01
			Arsenic	5.6E-04	NA	4.7E-05	6.0E-04	Skin, Circulatory	8.7E-01	NA	7.3E-02	9.4E-01
			Barium					Kidney, Circulatory	4.1E+00	NA	1.7E+00	5.8E+00
			Chromium					N/A	2.6E-01	NA	3.0E-01	5.6E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.2E+00	NA	3.3E-02	1.2E+00
			Mercury					Immune	2.4E-01	NA	9.7E-02	3.4E-01
			Aldrin	1.4E-06	NA	3.8E-07	1.7E-06					
			Dieldrin	2.1E-06	NA	5.9E-07	2.7E-06					
			Pcb-Aroclor 1254	7.0E-06	NA	2.7E-06	9.8E-06	Immune	8.2E-01	NA	3.2E-01	1.1E+00
			Benzo(a)anthracene	1.9E-05	NA	7.0E-06	2.6E-05					
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04					
			Benzo(b)fluoranthene	1.3E-05	NA	4.7E-06	1.7E-05					
			Benzo(k)fluoranthene	1.4E-06	NA	5.2E-07	2.0E-06					
			Dibenzo(a,h)anthracene	1.6E-05	NA	5.8E-06	2.2E-05					
			Indeno(1,2,3-cd)pyrene	4.6E-06	NA	1.7E-06	6.2E-06					
		Exposure Point Total		7.7E-04	NA	1.2E-04	8.9E-04		7.7E+00	NA	2.5E+00	1.0E+01
	Exposure Medium Total			7.7E-04	NA	1.2E-04	8.9E-04		7.7E+00	NA	2.5E+00	1.0E+01
			Chromium					Respiratory	NA	1.1E-01	NA	1.1E-01
Medium Total				7.7E-04	0.0E+00	1.2E-04	8.9E-04		7.7E+00	1.1E-01	2.5E+00	1.0E+01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Antimony					Body Weight	1.5E-01	NA	2.8E-02	1.8E-01
			Arsenic	6.0E-04	NA	5.0E-05	6.5E-04	Skin, Circulatory	9.3E-01	NA	7.8E-02	1.0E+00
			Barium					Kidney, Circulatory	6.4E+00	NA	2.6E+00	9.0E+00
			Chromium					N/A	1.8E-01	NA	2.0E-01	3.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	8.7E-01	NA	2.4E-02	9.0E-01
			Mercury					Immune	7.7E-02	NA	3.1E-02	1.1E-01
			Chlordane - alpha	2.4E-06	NA	2.7E-07	2.7E-06	Liver	1.3E+00	NA	1.5E-01	1.5E+00
			Chlordane - gamma (technical mixture)	2.8E-06	NA	3.1E-07	3.1E-06	Liver	1.5E+00	NA	1.7E-01	1.7E+00
			Dieldrin	4.0E-06	NA	1.1E-06	5.1E-06					
			Heptachlor Epoxide	4.3E-06	NA	1.2E-06	5.6E-06	Liver	4.3E-01	NA	1.2E-01	5.5E-01
			Pcb-Aroclor 1254	4.2E-06	NA	1.6E-06	5.8E-06	Immune	4.9E-01	NA	1.9E-01	6.8E-01
			Pcb-Aroclor 1260	1.4E-06	NA	5.6E-07	2.0E-06					
			Benzo(a)anthracene	1.9E-05	NA	7.0E-06	2.6E-05					
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04					
			Benzo(b)fluoranthene	1.3E-05	NA	4.7E-06	1.7E-05					
			Benzo(k)fluoranthene	1.5E-06	NA	5.5E-07	2.1E-06					
			Dibenzo(a,h)anthracene	1.9E-05	NA	7.0E-06	2.6E-05					
			Indeno(1,2,3-cd)pyrene	5.1E-06	NA	1.9E-06	7.0E-06					
		Exposure Point Total		8.2E-04	NA	1.3E-04	9.5E-04		1.2E+01	NA	3.6E+00	1.6E+01

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TABLE 10.11.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total			8.2E-04	NA	1.3E-04	9.5E-04		1.2E+01	NA	3.6E+00	1.6E+01
Medium Total				8.2E-04	0.0E+00	1.3E-04	9.5E-04		1.2E+01	0.0E+00	3.6E+00	1.6E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony					Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
			Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
			Barium					Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00
			Cadmium					Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium					N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Manganese					CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Thallium					Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium					Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc					Circulatory	2.5E-01	NA	4.4E-04	2.5E-01
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06					
			Cresol-p					CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00
			Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05					
			Naphthalene					Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Phenol					Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06					
			Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
		Exposure Point Total		3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Exposure Medium Total			3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
			Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06					
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01
			Dichloropropane-1,2					Respiratory	NA	2.2E-01	NA	2.2E-01
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06					
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total					CNS	NA	6.2E-01	NA	6.2E-01
		Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.7E-05	3.0E-02		9.0E+01	4.0E+02	1.6E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	2.3E-01	NA	7.0E-04	2.4E-01

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TABLE 10.11.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Antimony					Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05					
			Barium					Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium					Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Cobalt					Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper					Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01
			Manganese					CNS	1.6E+00	NA	1.2E-01	1.7E+00
			Thallium					Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Tetrachloroethylene	3.0E-06	NA	1.1E-06	4.1E-06					
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01
	Air	Middle PRM Aquifer	Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloropropane-1,2					Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06					
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	1.2E+00
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.1E-01	4.1E+01

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Table 10.11.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**7.7E-04**	0.0E+00	1.2E-04	**8.9E-04**	**7.7E+00**	1.1E-01	**2.5E+00**	**1.0E+01**
Subsurface Soil	**8.2E-04**	0.0E+00	1.3E-04	**9.5E-04**	**1.2E+01**	0.0E+00	**3.6E+00**	**1.6E+01**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.7E-05	**3.0E-02**	**9.0E+01**	**4.0E+02**	**1.6E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.1E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.1E-02**	**2.0E-04**	**2.2E-04**	**3.1E-02**	**9.8E+01**	**4.0E+02**	**4.1E+00**	**5.0E+02**
Surface Soil + Middle PRM Aquifer	**8.7E-04**	6.8E-05	1.3E-04	**1.1E-03**	**4.7E+01**	**1.3E+00**	**2.8E+00**	**5.1E+01**
Subsurface Soil + Upper PRM Aquifer	**3.1E-02**	**2.0E-04**	**2.3E-04**	**3.1E-02**	**1.0E+02**	**4.0E+02**	**5.2E+00**	**5.1E+02**
Subsurface Soil + Middle PRM Aquifer	**9.3E-04**	6.8E-05	1.3E-04	**1.1E-03**	**5.2E+01**	**1.2E+00**	**3.9E+00**	**5.7E+01**

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Table 10.11.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	3E-01	2E-01	**5E+00**	9E-01	**6E+00**	1E+00	**6E+00**	1E+00
Total Circulatory HI Across Media =	**8E+00**	**1E+01**	**8E+01**	**4E+01**	**9E+01**	**4E+01**	**9E+01**	**5E+01**
Total CNS HI Across Media =	NA	NA	**4E+02**	**2E+00**	**4E+02**	**2E+00**	**4E+02**	**2E+00**
Total Fetotoxicity HI Across Media =	NA	NA	7E-01	4E-01	7E-01	4E-01	7E-01	4E-01
Total Gastrointestinal HI Across Media =	1E+00	9E-01	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Immune HI Across Media =	1E+00	8E-01	8E-01	NA	**2E+00**	1E+00	**2E+00**	8E-01
Total Kidney HI Across Media =	**6E+00**	**9E+00**	**1E+01**	**2E+00**	**2E+01**	**8E+00**	**2E+01**	**1E+01**
Total Liver HI Across Media =	1E+00	**5E+00**	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Respiratory HI Across Media =	1E-01	NA	**4E+02**	2E-01	**4E+02**	3E-01	**4E+02**	2E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	9E-01	1E+00	**5E+01**	NA	**5E+01**	9E-01	**5E+01**	1E+00
Total Endocrine HI Across Media =	NA	NA	3E-01	1E-01	3E-01	1E-01	3E-01	1E-01

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TABLE 10.12.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	1.8E-04	NA	3.5E-05	2.1E-04	Skin, Circulatory	1.1E+00	NA	2.2E-01	1.3E+00
			Barium					Kidney, Circulatory	3.2E-01	NA	3.0E-01	6.1E-01
			Chromium					N/A	1.3E-01	NA	3.6E-01	4.9E-01
			Pcb-Aroclor 1254	2.2E-06	NA	2.1E-06	4.3E-06	Immune	1.6E-01	NA	1.4E-01	3.0E-01
			Benzo(a)anthracene	6.1E-06	NA	5.3E-06	1.1E-05					
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05					
			Benzo(b)fluoranthene	4.1E-06	NA	3.5E-06	7.6E-06					
			Dibenzo(a,h)anthracene	5.1E-06	NA	4.4E-06	9.5E-06					
			Indeno(1,2,3-cd)pyrene	1.5E-06	NA	1.2E-06	2.7E-06					
		Exposure Point Total		2.4E-04	NA	9.1E-05	3.3E-04		1.7E+00	NA	1.0E+00	2.7E+00
	Exposure Medium Total			2.4E-04	NA	9.1E-05	3.3E-04		1.7E+00	NA	1.0E+00	2.7E+00
Medium Total				2.4E-04	0.0E+00	9.1E-05	3.3E-04		1.7E+00	0.0E+00	1.0E+00	2.7E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	1.9E-04	NA	3.8E-05	2.3E-04	Skin, Circulatory	1.2E+00	NA	2.4E-01	1.4E+00
			Barium					Kidney, Circulatory	4.9E-01	NA	4.7E-01	9.6E-01
			Chromium					N/A	9.1E-02	NA	2.4E-01	3.3E-01
			Dieldrin	1.3E-06	NA	8.4E-07	2.1E-06					
			Heptachlor Epoxide	1.4E-06	NA	9.1E-07	2.3E-06					
			Pcb-Aroclor 1254	1.3E-06	NA	1.2E-06	2.6E-06	Immune	9.3E-02	NA	8.6E-02	1.8E-01
			Benzo(a)anthracene	6.1E-06	NA	5.3E-06	1.1E-05					
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05					
			Benzo(b)fluoranthene	4.1E-06	NA	3.5E-06	7.6E-06					
			Dibenzo(a,h)anthracene	6.1E-06	NA	5.3E-06	1.1E-05					
			Indeno(1,2,3-cd)pyrene	1.6E-06	NA	1.4E-06	3.0E-06					
		Exposure Point Total		2.6E-04	NA	9.6E-05	3.5E-04		1.9E+00	NA	1.0E+00	2.9E+00
	Exposure Medium Total			2.6E-04	NA	9.6E-05	3.5E-04		1.9E+00	NA	1.0E+00	2.9E+00
Medium Total				2.6E-04	0.0E+00	9.6E-05	3.5E-04		1.9E+00	0.0E+00	1.0E+00	2.9E+00
Groundwater	Groundwater	Upper PRM Aquifer	Antimony					Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
			Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
			Barium					Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
			Cadmium					Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium					N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Manganese					CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Thallium					Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium					Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06					
			Cresol-p					CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01

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TABLE 10.12.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05					
			Naphthalene					Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06					
			Dichloroethylene-1,2 cis					Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06					
			Trichloroethylene	4.0E-06	NA	9.2E-07	5.0E-06	Liver, Kidney, Fetotoxicity	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05					
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.0E+01	NA	2.0E+01
		Upper PRM Aquifer	Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05					
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06					
		Chemical Total		NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	3.9E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Manganese					CNS	2.4E-01	NA	2.7E-02	2.7E-01
			Thallium					Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06					
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06					
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05					
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Air	Emissions from	Trichloroethylene	NA	1.0E-05	NA	1.0E-05					
		Middle PRM Aquifer	Vinyl chloride	NA	2.3E-06	NA	2.3E-06					
		Chemical Total		NA	1.3E-05	NA	1.3E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.3E-05	NA	7.5E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				7.0E-05	1.3E-05	5.3E-06	8.8E-05		7.0E+00	0.0E+00	5.7E-02	7.0E+00

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Table 10.12.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**2.4E-04**	0.0E+00	9.1E-05	**3.3E-04**	**1.7E+00**	0.0E+00	1.0E+00	**2.7E+00**
Subsurface Soil	**2.6E-04**	0.0E+00	9.6E-05	**3.5E-04**	**1.9E+00**	0.0E+00	1.0E+00	**2.9E+00**
Upper PRM Aquifer	**1.9E-02**	3.9E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.3E-05	5.3E-06	8.8E-05	**7.0E+00**	0.0E+00	5.7E-02	**7.0E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	3.9E-05	**1.9E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.1E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	**3.1E-04**	1.3E-05	9.6E-05	**4.2E-04**	**8.7E+00**	0.0E+00	**1.1E+00**	**9.8E+00**
Subsurface Soil + Upper PRM Aquifer	**1.9E-02**	3.9E-05	**1.9E-04**	**2.0E-02**	**1.3E+02**	**2.0E+01**	**2.1E+00**	**1.5E+02**
Subsurface Soil + Middle PRM Aquifer	**3.3E-04**	1.3E-05	1.0E-04	**4.4E-04**	**8.8E+00**	0.0E+00	**1.1E+00**	**9.9E+00**

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Table 10.12.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	6E-01	NA	6E-01	NA	6E-01	NA
Total Circulatory HI Across Media =	**2E+00**	**2E+00**	**1E+02**	**7E+00**	**1E+02**	**9E+00**	**1E+02**	**9E+00**
Total CNS HI Across Media =	NA	NA	**2E+01**	3E-01	**2E+01**	3E-01	**2E+01**	3E-01
Total Fetotoxicity HI Across Media =	NA	NA	1E-01	NA	1E-01	NA	1E-01	NA
Total Gastrointestinal HI Across Media =	NA	NA	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Immune HI Across Media =	3E-01	2E-01	NA	NA	3E-01	3E-01	2E-01	2E-01
Total Kidney HI Across Media =	6E-01	1E+00	**3E+00**	NA	**3E+00**	6E-01	**3E+00**	1E+00
Total Liver HI Across Media =	NA	NA	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Respiratory HI Across Media =	NA	NA	**2E+01**	NA	**2E+01**	NA	**2E+01**	NA
Total Skin HI Across Media =	1E+00	1E+00	**1E+02**	1E-01	**1E+02**	1E+00	**1E+02**	**2E+00**

TABLE 10.13.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Arsenic	1.7E-05	NA	1.0E-06	1.8E-05	Skin, Circulatory	1.6E-01	NA	9.5E-03	1.7E-01
			Barium					Kidney, Circulatory	7.5E-01	NA	2.1E-01	9.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.1E-01	NA	4.3E-03	2.2E-01
			Pcb-Aroclor 1254					Immune	1.5E-01	NA	4.2E-02	1.9E-01
			Benzo(a)pyrene	4.4E-06	NA	1.1E-06	5.5E-06					
		Exposure Point Total		2.1E-05	NA	2.1E-06	2.3E-05		1.3E+00	NA	2.7E-01	1.5E+00
	Exposure Medium Total			2.1E-05	NA	2.1E-06	2.3E-05		1.3E+00	NA	2.7E-01	1.5E+00
Medium Total				2.1E-05	0.0E+00	2.1E-06	2.3E-05		1.3E+00	0.0E+00	2.7E-01	1.5E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	1.8E-05	NA	1.1E-06	1.9E-05	Skin, Circulatory	1.7E-01	NA	1.0E-02	1.8E-01
			Barium					Kidney, Circulatory	1.2E+00	NA	2.3E-02	1.2E+00
			Iron					Circulatory, Gastrointestinal, Liver	1.6E-01	NA	3.2E-03	1.6E-01
			Chlordane - alpha					Liver	2.4E-01	NA	2.0E-02	2.6E-01
			Chlordane - gamma (technical mixture)					Liver	2.8E-01	NA	2.2E-02	3.0E-01
			Pcb-Aroclor 1254					Immune	8.9E-02	NA	2.5E-02	1.1E-01
			Benzo(a)pyrene	4.4E-06	NA	1.1E-06	5.5E-06					
		Exposure Point Total		2.3E-05	NA	2.2E-06	2.5E-05		2.1E+00	NA	1.0E-01	2.2E+00
	Exposure Medium Total			2.3E-05	NA	2.2E-06	2.5E-05		2.1E+00	NA	1.0E-01	2.2E+00
Medium Total				2.3E-05	0.0E+00	2.2E-06	2.5E-05		2.1E+00	0.0E+00	1.0E-01	2.2E+00
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	5.3E-06	5.3E-06					
		Exposure Point Total		NA	NA	5.3E-06	5.3E-06		NA	NA	0.0E+00	0.0E+00
	Exposure Medium Total			NA	NA	5.3E-06	5.3E-06		NA	NA	0.0E+00	0.0E+00
Medium Total				NA	0.0E+00	5.3E-06	5.3E-06		NA	0.0E+00	0.0E+00	0.0E+00

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Table 10.13.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	2.1E-05	0.0E+00	2.1E-06	2.3E-05	**1.3E+00**	0.0E+00	2.7E-01	**1.5E+00**
Subsurface Soil	2.3E-05	0.0E+00	2.2E-06	2.5E-05	**2.1E+00**	0.0E+00	1.0E-01	**2.2E+00**
Upper PRM Aquifer	NA	0.0E+00	5.3E-06	5.3E-06	NA	0.0E+00	0.0E+00	0.0E+00
Surface Soil + Upper PRM Aquifer	2.1E-05	0.0E+00	7.4E-06	2.9E-05	**1.3E+00**	0.0E+00	2.7E-01	**1.5E+00**
Subsurface Soil + Upper PRM Aquifer	2.3E-05	0.0E+00	7.5E-06	3.0E-05	**2.1E+00**	0.0E+00	1.0E-01	**2.2E+00**

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Table 10.13.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Row Homes and Industrial Area			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Circulatory HI Across Media =	1E+00	**2E+00**	NA	1E+00	**2E+00**
Total Gastrointestinal HI Across Media =	2E-01	2E-01	NA	2E-01	2E-01
Total Immune HI Across Media =	2E-01	1E-01	NA	2E-01	1E-01
Total Kidney HI Across Media =	1E+00	1E+00	NA	1E+00	1E+00
Total Liver HI Across Media =	2E-01	7E-01	NA	2E-01	7E-01
Total Skin HI Across Media =	2E-01	2E-01	NA	2E-01	2E-01

301271

Table 10.14.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	5.7E-06	NA	1.6E-06	7.2E-06	Skin, Circulatory	9.8E-02	NA	2.7E-02	1.2E-01
			Barium					Kidney, Circulatory	5.5E-02	NA	7.2E-02	1.3E-01
			Chromium					N/A	2.7E-02	NA	1.0E-01	1.3E-01
			Benzo(a)pyrene	3.2E-05	NA	3.8E-05	7.1E-05					
			Benzo(b)fluoranthene	2.9E-06	NA	3.5E-06	6.4E-06					
			Indeno(1,2,3-cd)pyrene	1.8E-06	NA	2.2E-06	4.0E-06					
		Exposure Point Total		4.4E-05	NA	4.6E-05	8.8E-05		1.8E-01	NA	2.0E-01	3.8E-01
	Exposure Medium Total			4.4E-05	NA	4.6E-05	8.8E-05		1.8E-01	NA	2.0E-01	3.8E-01
Medium Total				4.4E-05	0.0E+00	4.6E-05	8.9E-05		1.8E-01	0.0E+00	2.0E-01	3.8E-01
Receptor Total				4.4E-05	0.0E+00	4.6E-05	8.9E-05		1.8E-01	0.0E+00	2.0E-01	3.8E-01

Total Circulatory HI Across Media =	3E-01
Total Skin HI Across Media =	1E-01

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Table 10.15.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	2.3E-05	NA	2.7E-06	2.5E-05	Skin, Circulatory	1.5E-01	NA	1.8E-02	1.7E-01
			Barium	NA				Kidney, Circulatory	8.2E-02	NA	4.7E-02	1.3E-01
			Chromium	NA				N/A	4.1E-02	NA	6.6E-02	1.1E-01
			Benzo(a)pyrene	1.3E-04	NA	6.7E-05	2.0E-04					
			Benzo(b)fluoranthene	1.2E-05	NA	6.1E-06	1.8E-05					
			Benzo(k)fluoranthene	1.2E-06	NA	6.3E-07	1.9E-06					
			Dibenzo(a,h)anthracene	2.7E-06	NA	1.4E-06	4.2E-06					
			Indeno(1,2,3-cd)pyrene	7.4E-06	NA	3.8E-06	1.1E-05					
		Exposure Point Total		1.8E-04	NA	8.2E-05	2.6E-04		2.7E-01	NA	1.3E-01	4.0E-01
	Exposure Medium Total			1.8E-04	NA	8.2E-05	2.6E-04		2.7E-01	NA	1.3E-01	4.0E-01
Medium Total				1.8E-04	0.0E+00	8.2E-05	2.6E-04		2.7E-01	0.0E+00	1.3E-01	4.0E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Arsenic	6.7E-05	NA	8.1E-06	7.5E-05	Skin, Circulatory	4.4E-01	NA	5.2E-02	4.9E-01
			Barium					Kidney, Circulatory	1.1E-01	NA	6.2E-02	1.7E-01
			Cadmium	NA				Kidney	9.8E-02	NA	7.8E-03	1.1E-01
			Benzo(a)anthracene	7.7E-06	NA	4.0E-06	1.2E-05					
			Benzo(a)pyrene	6.1E-05	NA	3.2E-05	9.3E-05					
			Benzo(b)fluoranthene	7.3E-06	NA	3.8E-06	1.1E-05					
			Dibenzo(a,h)anthracene	4.7E-05	NA	2.4E-05	7.1E-05					
			Indeno(1,2,3-cd)pyrene	4.6E-06	NA	2.4E-06	7.0E-06					
		Exposure Point Total		2.0E-04	NA	7.4E-05	2.7E-04		6.4E-01	NA	1.2E-01	7.7E-01
	Exposure Medium Total			2.0E-04	NA	7.4E-05	2.7E-04		6.4E-01	NA	1.2E-01	7.7E-01
Medium Total				2.0E-04	0.0E+00	7.4E-05	2.7E-04		6.4E-01	0.0E+00	1.2E-01	7.7E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	2.8E-01	NA	6.3E-04	2.8E-01
			Antimony					Circulatory	3.7E-01	NA	5.6E-03	3.8E-01
			Arsenic	5.1E-02	NA	1.1E-04	5.1E-02	Skin, Circulatory	3.3E+02	NA	7.4E-01	3.3E+02
			Barium					Kidney, Circulatory	3.8E+00	NA	1.2E-01	3.9E+00
			Cadmium					Kidney	7.2E-01	NA	6.5E-02	7.9E-01
			Chromium					N/A	4.1E-01	NA	7.3E-02	4.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.1E+01	NA	2.4E-02	1.1E+01
			Manganese					CNS	3.9E-01	NA	2.2E-02	4.1E-01
			Thallium					Circulatory	1.6E+00	NA	3.7E-03	1.7E+00
			Vanadium					Kidney	1.6E+00	NA	1.4E-01	1.7E+00
			Chlordane - alpha	7.4E-08				Liver	1.2E-03	NA	1.7E-03	2.9E-03
			Dieldrin	3.3E-06	NA	1.5E-06	4.7E-06					
			Cresol-p					CNS, Respiratory, Body Weight	7.7E-01	NA	4.9E-02	8.2E-01
			Ether, bis(2-chloroethyl)	1.5E-04	NA	2.9E-06	1.6E-04					
			Naphthalene					Body Weight	4.9E-01	NA	2.2E-01	7.1E-01

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Table 10.15.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzene	1.7E-05	NA	1.8E-06	1.9E-05	Circulatory	2.3E-01	NA	2.3E-02	2.6E-01
			Dichloroethylene-1,2 cis					Circulatory	3.3E-01	NA	1.9E-02	3.5E-01
			Tetrachloroethylene	4.1E-06	NA	1.6E-06	5.7E-06					
			Trichloroethylene	1.1E-05	NA	1.2E-06	1.2E-05	Liver, Kidney, Fetotoxicity	2.6E-01	NA	3.0E-02	2.9E-01
			Vinyl chloride	2.0E-04	NA	6.8E-06	2.0E-04	Liver	1.3E-01	NA	4.4E-03	1.3E-01
		Exposure Point Total		5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Exposure Medium Total			5.1E-02	NA	1.3E-04	5.1E-02		3.5E+02	NA	1.5E+00	3.5E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.8E+01	NA	2.8E+01
		Upper PRM Aquifer	Benzene	NA	2.1E-05	NA	2.1E-05	Circulatory	NA	2.6E-01	NA	2.6E-01
			Dichloroethane-1,2	NA	2.0E-06	NA	2.0E-06					
			Trichloroethylene	NA	2.6E-05	NA	2.6E-05					
			Vinyl chloride	NA	4.9E-06	NA	4.9E-06					
		Chemical Total		NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
	Exposure Medium Total			NA	5.4E-05	NA	5.4E-05		NA	2.8E+01	NA	2.8E+01
Medium Total				5.1E-02	5.4E-05	1.3E-04	5.2E-02		3.5E+02	2.8E+01	1.5E+00	3.8E+02
Groundwater	Groundwater	Middle PRM Aquifer	Antimony					Circulatory	2.0E-01	NA	3.0E-03	2.0E-01
			Arsenic	4.9E-05	NA	1.1E-07	4.9E-05	Skin, Circulatory	3.2E-01	NA	7.2E-04	3.2E-01
			Barium	NA				Kidney, Circulatory	1.2E-01	NA	3.7E-03	1.2E-01
			Cadmium					Kidney	1.5E-01	NA	1.3E-02	1.6E-01
			Chromium	NA				N/A	9.7E-02	NA	1.7E-02	1.1E-01
			Copper					Kidney, Gastrointestinal	1.7E-01	NA	3.8E-04	1.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.5E+01	NA	3.3E-02	1.5E+01
			Manganese					CNS	6.7E-01	NA	3.8E-02	7.1E-01
			Thallium					Circulatory	3.8E+00	NA	8.6E-03	3.8E+00
			Tetrachloroethylene	5.1E-06	NA	2.0E-06	7.1E-06					
			Trichloroethylene	5.6E-06	NA	6.4E-07	6.3E-06	Liver, Kidney, Fetotoxicity	1.4E-01	NA	1.6E-02	1.5E-01
			Vinyl chloride	1.3E-04	NA	4.3E-06	1.3E-04					
		Chemical Total		1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Exposure Medium Total			1.9E-04	NA	7.1E-06	1.9E-04		2.0E+01	NA	1.3E-01	2.0E+01
	Air	Emissions from	Dichloroethane-1,2	NA	1.8E-06	NA	1.8E-06					
		Middle PRM Aquifer	Trichloroethylene	NA	1.4E-05	NA	1.4E-05					
			Vinyl chloride	NA	3.1E-06	NA	3.1E-06					
		Chemical Total		NA	1.8E-05	NA	1.8E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.8E-05	NA	1.9E-04		NA	0.0E+00	NA	0.0E+00
Medium Total				1.9E-04	1.8E-05	7.1E-06	2.1E-04		2.0E+01	0.0E+00	1.3E-01	2.0E+01

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Table 10.15.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	**1.8E-04**	0.0E+00	8.2E-05	**2.6E-04**	2.7E-01	0.0E+00	1.3E-01	4.0E-01
Subsurface Soil	**2.0E-04**	0.0E+00	7.4E-05	**2.7E-04**	6.4E-01	0.0E+00	1.2E-01	7.7E-01
Upper PRM Aquifer	**5.1E-02**	5.4E-05	1.3E-04	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.5E+00**	**3.8E+02**
Middle PRM Aquifer	**1.9E-04**	1.8E-05	7.1E-06	**2.1E-04**	**2.0E+01**	0.0E+00	1.3E-01	**2.0E+01**
Surface Soil + Upper PRM Aquifer	**5.2E-02**	5.4E-05	**2.1E-04**	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.7E+00**	**3.8E+02**
Surface Soil + Middle PRM Aquifer	**3.6E-04**	1.8E-05	8.9E-05	**4.7E-04**	**2.1E+01**	0.0E+00	2.6E-01	**2.1E+01**
Subsurface Soil + Upper PRM Aquifer	**5.2E-02**	5.4E-05	**2.0E-04**	**5.2E-02**	**3.5E+02**	**2.8E+01**	**1.7E+00**	**3.8E+02**
Subsurface Soil + Middle PRM Aquifer	**3.8E-04**	1.8E-05	8.1E-05	**4.8E-04**	**2.1E+01**	0.0E+00	2.6E-01	**2.1E+01**

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Table 10.15.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	**2E+00**	NA	**2E+00**	NA	**2E+00**	NA
Total Circulatory HI Across Media =	3E-01	7E-01	**3E+02**	**2E+01**	**3E+02**	**2E+01**	**3E+02**	**2E+01**
Total CNS HI Across Media =	NA	NA	**3E+01**	7E-01	**3E+01**	7E-01	**3E+01**	7E-01
Total Fetotoxicity HI Across Media =	NA	NA	3E-01	2E-01	3E-01	2E-01	3E-01	2E-01
Total Gastrointestinal HI Across Media =	NA	NA	**1E+01**	**1E+01**	**1E+01**	**1E+01**	**1E+01**	**1E+01**
Total Kidney HI Across Media =	1E-01	3E-01	**7E+00**	6E-01	**7E+00**	7E-01	**7E+00**	9E-01
Total Liver HI Across Media =	NA	NA	**1E+01**	**1E+01**	**1E+01**	**1E+01**	**1E+01**	**1E+01**
Total Respiratory HI Across Media =	NA	NA	**3E+01**	NA	**3E+01**	NA	**3E+01**	NA
Total Skin HI Across Media =	2E-01	5E-01	**3E+02**	3E-01	**3E+02**	5E-01	**3E+02**	8E-01

Table 10.16.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	5.3E-05	NA	4.5E-06	5.8E-05					
			Barium					Kidney, Circulatory	7.7E-01	NA	3.1E-01	1.1E+00
			Chromium					N/A	5.8E-02	NA	6.5E-02	1.2E-01
			Iron					Circulatory, Gastrointestinal, Liver	8.2E-01	NA	2.3E-02	8.4E-01
			Benzo(a)pyrene	3.0E-04	NA	1.1E-04	4.1E-04					
			Benzo(b)fluoranthene	2.8E-05	NA	1.0E-05	3.8E-05					
			Benzo(k)fluoranthene	2.8E-06	NA	1.0E-06	3.9E-06					
			Dibenzo(a,h)anthracene	6.4E-06	NA	2.3E-06	8.7E-06					
			Indeno(1,2,3-cd)pyrene	1.7E-05	NA	6.2E-06	2.3E-05					
		Exposure Point Total		4.1E-04	NA	1.3E-04	5.4E-04		1.6E+00	NA	4.0E-01	2.0E+00
	Exposure Medium Total			4.1E-04	NA	1.3E-04	5.4E-04		1.6E+00	NA	4.0E-01	2.0E+00
Medium Total				4.1E-04	0.0E+00	1.3E-04	5.4E-04		1.6E+00	0.0E+00	4.0E-01	2.0E+00
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Antimony					Body Weight	1.7E-01	NA	3.2E-02	2.0E-01
			Arsenic	1.6E-04	NA	1.3E-05	1.7E-04	Skin, Circulatory	2.4E-01	NA	2.1E-02	2.7E-01
			Barium					Kidney, Circulatory	1.0E+00	NA	4.1E-01	1.4E+00
			Cadmium					Kidney	9.1E-01	NA	5.1E-02	9.6E-01
			Iron					Circulatory, Gastrointestinal, Liver	8.7E-01	NA	2.4E-02	8.9E-01
			Zinc					Circulatory	1.1E-01	NA	3.0E-03	1.1E-01
			Benzo(a)anthracene	1.8E-05	NA	6.5E-06	2.4E-05					
			Benzo(a)pyrene	1.4E-04	NA	5.2E-05	2.0E-04					
			Benzo(b)fluoranthene	1.7E-05	NA	6.2E-06	2.3E-05					
			Benzo(k)fluoranthene	1.5E-06	NA	5.4E-07	2.0E-06					
			Dibenzo(a,h)anthracene	1.1E-04	NA	4.0E-05	1.5E-04					
			Dibenzofuran					Kidney	9.1E-02	NA	3.3E-02	1.2E-01
			Indeno(1,2,3-cd)pyrene	1.1E-05	NA	3.9E-06	1.5E-05					
		Exposure Point Total		4.6E-04	NA	1.2E-04	5.8E-04		3.4E+00	NA	5.7E-01	4.0E+00
	Exposure Medium Total			4.6E-04	NA	1.2E-04	5.8E-04		3.4E+00	NA	5.7E-01	4.0E+00
	Ambient Air	Emissions from Subsurface Soil	Naphthalene					CNS; Respiratory	NA	2.5E-01	NA	2.5E-01
		Exposure Point Total		NA	0.0E+00	NA	0.0E+00		NA	2.5E-01	NA	2.5E-01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	2.5E-01	NA	2.5E-01
Medium Total				4.6E-04	0.0E+00	1.2E-04	5.8E-04		3.4E+00	2.5E-01	5.7E-01	4.2E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	6.6E-01	NA	2.0E-03	6.6E-01
			Antimony					Body Weight	1.7E+00	NA	3.4E-02	1.8E+00
			Arsenic	3.0E-02	NA	8.8E-05	3.0E-02	Skin, Circulatory	4.6E+01	NA	1.4E-01	4.6E+01
			Barium					Kidney, Circulatory	8.8E+00	NA	3.7E-01	9.2E+00

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Table 10.16.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium					Kidney	8.4E-01	NA	5.0E-02	8.9E-01
			Chromium					N/A	1.4E-01	NA	3.4E-02	1.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.5E+01	NA	7.4E-02	2.5E+01
			Manganese					CNS	9.0E-01	NA	6.7E-02	9.7E-01
			Thallium					Liver, Circulatory	3.8E-01	NA	1.1E-03	3.9E-01
			Vanadium					Kidney	5.3E-01	NA	6.1E-02	5.9E-01
			Zinc					Circulatory	2.5E-01	NA	4.4E-04	2.5E-01
			Dieldrin	1.9E-06	NA	8.5E-07	2.8E-06					
			Cresol-p					CNS, Respiratory, Body Weight	1.8E+00	NA	1.1E-01	1.9E+00
			Ether, bis(2-chloroethyl)	9.0E-05	NA	1.6E-06	9.2E-05					
			Naphthalene					Body Weight	1.2E+00	NA	5.0E-01	1.6E+00
			Phenol					Body Weight	1.0E-01	NA	3.3E-03	1.1E-01
			Benzene	1.0E-05	NA	1.0E-06	1.1E-05	Circulatory, Immune	7.2E-01	NA	7.1E-02	7.9E-01
			Tetrachloroethylene	2.4E-06	NA	9.2E-07	3.3E-06					
			Trichloroethylene	6.3E-06	NA	7.1E-07	7.1E-06	Liver, Kidney, Fetotoxicity	6.2E-01	NA	6.9E-02	6.9E-01
			Vinyl chloride	1.2E-04	NA	3.9E-06	1.2E-04	Liver	3.0E-01	NA	1.0E-02	3.1E-01
		Exposure Point Total		3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Exposure Medium Total			3.0E-02	NA	9.7E-05	3.0E-02		9.0E+01	NA	1.6E+00	9.2E+01
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	3.9E+02	NA	3.9E+02
		Upper PRM Aquifer	Benzene	NA	7.5E-05	NA	7.5E-05	Circulatory	NA	1.9E+00	NA	1.9E+00
			Dichlorobenzene-1,4	NA	1.6E-06	NA	1.6E-06					
			Dichloroethane-1,2	NA	7.0E-06	NA	7.0E-06	Gastrointestinal, Liver, Kidney	NA	6.3E-01	NA	6.3E-01
			Dichloropropane-1,2					Respiratory	NA	2.2E-01	NA	2.2E-01
			Trichloroethane-1,1,2	NA	1.9E-06	NA	1.9E-06	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	9.3E-05	NA	9.3E-05	CNS, Liver, Endocrine	NA	2.7E-01	NA	2.7E-01
			Vinyl chloride	NA	1.7E-05	NA	1.7E-05	Liver	NA	4.6E-01	NA	4.6E-01
			Xylenes, total					CNS	NA	6.2E-01	NA	6.2E-01
		Chemical Total		NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
	Exposure Medium Total			NA	2.0E-04	NA	2.0E-04		NA	4.0E+02	NA	4.0E+02
Medium Total				3.0E-02	2.0E-04	9.7E-05	3.0E-02		9.0E+01	4.0E+02	1.6E+00	4.9E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	2.3E-01	NA	7.0E-04	2.4E-01
			Antimony					Body Weight	9.3E-01	NA	1.8E-02	9.5E-01
			Arsenic	2.9E-05	NA	8.5E-08	2.9E-05					
			Barium					Kidney, Circulatory	2.7E-01	NA	1.1E-02	2.8E-01
			Cadmium					Kidney	1.7E-01	NA	1.0E-02	1.8E-01
			Cobalt					Sensitizer	2.4E-01	NA	2.9E-04	2.4E-01
			Copper					Kidney, Gastrointestinal	3.9E-01	NA	1.2E-03	3.9E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+01	NA	1.0E-01	3.4E+01

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Table 10.16.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Manganese					CNS	1.6E+00	NA	1.2E-01	1.7E+00
			Thallium					Liver, Circulatory	8.9E-01	NA	2.6E-03	8.9E-01
			Tetrachloroethylene	3.0E-06	NA	1.1E-06	4.1E-06					
			Trichloroethylene	3.3E-06	NA	3.7E-07	3.7E-06	Liver, Kidney, Fetotoxicity	3.2E-01	NA	3.6E-02	3.6E-01
			Vinyl chloride	7.4E-05	NA	2.5E-06	7.6E-05	Liver	1.9E-01	NA	6.4E-03	2.0E-01
		Chemical Total		1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01
	Exposure Medium Total			1.1E-04	NA	4.1E-06	1.1E-04		4.0E+01	NA	3.1E-01	4.0E+01
	Air	Emissions from Middle PRM Aquifer	Dichloroethane-1,2	NA	6.4E-06	NA	6.4E-06	Gastrointestinal, Liver, Kidney	NA	5.7E-01	NA	5.7E-01
			Dichloropropane-1,2					Respiratory	NA	1.9E-01	NA	1.9E-01
			Tetrachloroethylene	NA	1.7E-06	NA	1.7E-06					
			Trichloroethylene	NA	4.8E-05	NA	4.8E-05	CNS, Liver, Endocrine	NA	1.4E-01	NA	1.4E-01
			Vinyl chloride	NA	1.1E-05	NA	1.1E-05	Liver	NA	3.0E-01	NA	3.0E-01
		Chemical Total		NA	6.8E-05	NA	6.8E-05		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.8E-05	NA	1.1E-04		NA	1.2E+00	NA	1.2E+00
Medium Total				1.1E-04	6.8E-05	4.1E-06	1.8E-04		4.0E+01	1.2E+00	3.1E-01	4.1E+01

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Table 10.16.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	**4.1E-04**	0.0E+00	1.3E-04	**5.4E-04**	**1.6E+00**	0.0E+00	4.0E-01	**2.0E+00**
Subsurface Soil	**4.6E-04**	0.0E+00	1.2E-04	**5.8E-04**	**3.4E+00**	2.5E-01	5.7E-01	**4.2E+00**
Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	9.7E-05	**3.0E-02**	**9.0E+01**	**4.0E+02**	**1.6E+00**	**4.9E+02**
Middle PRM Aquifer	1.1E-04	6.8E-05	4.1E-06	**1.8E-04**	**4.0E+01**	**1.2E+00**	3.1E-01	**4.1E+01**
Surface Soil + Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	**2.3E-04**	**3.1E-02**	**9.2E+01**	**4.0E+02**	**2.0E+00**	**4.9E+02**
Surface Soil + Middle PRM Aquifer	**5.2E-04**	6.8E-05	1.4E-04	**7.2E-04**	**4.1E+01**	**1.2E+00**	7.0E-01	**4.3E+01**
Subsurface Soil + Upper PRM Aquifer	**3.0E-02**	**2.0E-04**	**2.2E-04**	**3.1E-02**	**9.4E+01**	**4.0E+02**	**2.2E+00**	**5.0E+02**
Subsurface Soil + Middle PRM Aquifer	**5.7E-04**	6.8E-05	1.3E-04	**7.6E-04**	**4.3E+01**	**1.4E+00**	8.8E-01	**4.5E+01**

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Table 10.16.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	2E-01	**5E+00**	9E-01	**5E+00**	9E-01	**6E+00**	1E+00
Total Circulatory HI Across Media =	**2E+00**	**3E+00**	**8E+01**	**4E+01**	**9E+01**	**4E+01**	**9E+01**	**4E+01**
Total CNS HI Across Media =	NA	2E-01	**4E+02**	**2E+00**	**4E+02**	**2E+00**	**4E+02**	**2E+00**
Total Fetotoxicity HI Across Media =	NA	NA	7E-01	4E-01	7E-01	4E-01	7E-01	4E-01
Total Gastrointestinal HI Across Media =	8E-01	9E-01	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Immune HI Across Media =	NA	NA	8E-01	NA	8E-01	NA	8E-01	NA
Total Kidney HI Across Media =	1E+00	**3E+00**	**1E+01**	**2E+00**	**1E+01**	**3E+00**	**1E+01**	**4E+00**
Total Liver HI Across Media =	8E-01	9E-01	**3E+01**	**4E+01**	**3E+01**	**4E+01**	**3E+01**	**4E+01**
Total Respiratory HI Across Media =	NA	2E-01	**4E+02**	2E-01	**4E+02**	2E-01	**4E+02**	4E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	NA	3E-01	**5E+01**	NA	**5E+01**	NA	**5E+01**	3E-01
Total Endocrine HI Across Media =	NA	NA	3E-01	1E-01	3E-01	1E-01	3E-01	1E-01

Table 10.17.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	1.7E-05	NA	3.4E-06	2.0E-05	Skin, Circulatory	1.1E-01	NA	2.1E-02	1.3E-01
			Barium					Kidney, Circulatory	5.9E-02	NA	5.6E-02	1.1E-01
			Chromium					N/A	2.9E-02	NA	7.8E-02	1.1E-01
			Benzo(a)pyrene	9.6E-05	NA	8.3E-05	1.8E-04					
			Benzo(b)fluoranthene	8.8E-06	NA	7.5E-06	1.6E-05					
			Benzo(k)fluoranthene	9.1E-07	NA	7.8E-07	1.7E-06					
			Dibenzo(a,h)anthracene	2.0E-06	NA	1.8E-06	3.8E-06					
			Indeno(1,2,3-cd)pyrene	5.5E-06	NA	4.7E-06	1.0E-05					
		Exposure Point Total		1.3E-04	NA	1.0E-04	2.3E-04		1.9E-01	NA	1.5E-01	3.5E-01
	Exposure Medium Total			1.3E-04	NA	1.0E-04	2.3E-04		1.9E-01	NA	1.5E-01	3.5E-01
Medium Total				1.3E-04	0.0E+00	1.0E-04	2.3E-04		1.9E-01	0.0E+00	1.5E-01	3.5E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Arsenic	5.0E-05	NA	9.9E-06	6.0E-05	Skin, Circulatory	3.1E-01	NA	6.2E-02	3.7E-01
			Barium					Kidney, Circulatory	7.8E-02	NA	7.3E-02	1.5E-01
			Benzo(a)anthracene	5.7E-06	NA	4.9E-06	1.1E-05					
			Benzo(a)pyrene	4.6E-05	NA	3.9E-05	8.5E-05					
			Benzo(b)fluoranthene	5.4E-06	NA	4.6E-06	1.0E-05					
			Dibenzo(a,h)anthracene	3.5E-05	NA	3.0E-05	6.5E-05					
			Indeno(1,2,3-cd)pyrene	3.4E-06	NA	2.9E-06	6.4E-06					
		Exposure Point Total		1.5E-04	NA	9.2E-05	2.4E-04		3.9E-01	NA	1.4E-01	5.2E-01
	Exposure Medium Total			1.5E-04	NA	9.2E-05	2.4E-04		3.9E-01	NA	1.4E-01	5.2E-01
Medium Total				1.5E-04	0.0E+00	9.2E-05	2.4E-04		3.9E-01	0.0E+00	1.4E-01	5.2E-01
Groundwater	Groundwater	Upper PRM Aquifer	Antimony					Circulatory	1.3E-01	NA	4.0E-03	1.4E-01
			Arsenic	1.9E-02	NA	8.5E-05	1.9E-02	Skin, Circulatory	1.2E+02	NA	5.3E-01	1.2E+02
			Barium					Kidney, Circulatory	1.3E+00	NA	8.7E-02	1.4E+00
			Cadmium					Kidney	2.6E-01	NA	4.6E-02	3.0E-01
			Chromium					N/A	1.5E-01	NA	5.2E-02	2.0E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.8E+00	NA	1.7E-02	3.9E+00
			Manganese					CNS	1.4E-01	NA	1.6E-02	1.5E-01
			Thallium					Circulatory	5.9E-01	NA	2.6E-03	5.9E-01
			Vanadium					Kidney	5.7E-01	NA	9.9E-02	6.7E-01
			Dieldrin	1.2E-06	NA	1.1E-06	2.3E-06					
			Cresol-p					CNS, Respiratory, Body Weight	2.8E-01	NA	3.5E-02	3.1E-01
			Ether, bis(2-chloroethyl)	5.8E-05	NA	2.1E-06	6.0E-05					
			Naphthalene					Body Weight	1.8E-01	NA	1.5E-01	3.3E-01
			Benzene	6.5E-06	NA	1.3E-06	7.8E-06					
			Dichloroethylene-1,2 cis					Circulatory	1.2E-01	NA	1.4E-02	1.3E-01
			Tetrachloroethylene	1.5E-06	NA	1.2E-06	2.7E-06					
			Trichloroethylene	*4.0E-06*	NA	*9.2E-07*	*5.0E-06*	*Liver, Kidney, Fetotoxicity*	9.4E-02	NA	2.1E-02	1.2E-01
			Vinyl chloride	7.4E-05	NA	5.0E-06	7.9E-05					

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Table 10.17.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Exposure Medium Total			1.9E-02	NA	9.7E-05	1.9E-02		1.3E+02	NA	1.1E+00	1.3E+02
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	2.0E+01	NA	2.0E+01
		Upper PRM Aquifer	Benzene	NA	1.5E-05	NA	1.5E-05	Circulatory	NA	1.9E-01	NA	1.9E-01
			Trichloroethylene	NA	1.9E-05	NA	1.9E-05					
			Vinyl chloride	NA	3.6E-06	NA	3.6E-06					
		Chemical Total		NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
	Exposure Medium Total			NA	3.9E-05	NA	3.9E-05		NA	2.0E+01	NA	2.0E+01
Medium Total				1.9E-02	3.9E-05	9.7E-05	1.9E-02		1.3E+02	2.0E+01	1.1E+00	1.5E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	1.8E-05	NA	8.3E-08	1.8E-05	Skin, Circulatory	1.1E-01	NA	5.1E-04	1.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.3E+00	NA	2.4E-02	5.3E+00
			Manganese					CNS	2.4E-01	NA	2.7E-02	2.7E-01
			Thallium					Circulatory	1.4E+00	NA	6.1E-03	1.4E+00
			Tetrachloroethylene	1.9E-06	NA	1.5E-06	3.4E-06					
			Trichloroethylene	2.1E-06	NA	4.8E-07	2.6E-06					
			Vinyl chloride	4.7E-05	NA	3.2E-06	5.0E-05					
		Chemical Total		7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Exposure Medium Total			7.0E-05	NA	5.3E-06	7.5E-05		7.0E+00	NA	5.7E-02	7.0E+00
	Air	Emissions from	Trichloroethylene	NA	1.0E-05	NA	1.0E-05					
		Middle PRM Aquifer	Vinyl chloride	NA	2.3E-06	NA	2.3E-06					
		Chemical Total		NA	1.2E-05	NA	1.2E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.2E-05	NA	7.5E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				7.0E-05	1.2E-05	5.3E-06	8.7E-05		7.0E+00	0.0E+00	5.7E-02	7.0E+00

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Table 10.17.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.3E-04	0.0E+00	1.0E-04	**2.3E-04**	1.9E-01	0.0E+00	1.5E-01	3.5E-01
Subsurface Soil	1.5E-04	0.0E+00	9.2E-05	**2.4E-04**	3.9E-01	0.0E+00	1.4E-01	5.2E-01
Upper PRM Aquifer	**1.9E-02**	3.9E-05	9.7E-05	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.1E+00**	**1.5E+02**
Middle PRM Aquifer	7.0E-05	1.2E-05	5.3E-06	8.7E-05	**7.0E+00**	0.0E+00	5.7E-02	**7.0E+00**
Surface Soil + Upper PRM Aquifer	**1.9E-02**	3.9E-05	**2.0E-04**	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.2E+00**	**1.5E+02**
Surface Soil + Middle PRM Aquifer	**2.0E-04**	1.2E-05	1.1E-04	**3.2E-04**	**7.2E+00**	0.0E+00	2.1E-01	**7.4E+00**
Subsurface Soil + Upper PRM Aquifer	**1.9E-02**	3.9E-05	**1.9E-04**	**1.9E-02**	**1.3E+02**	**2.0E+01**	**1.2E+00**	**1.5E+02**
Subsurface Soil + Middle PRM Aquifer	**2.1E-04**	1.2E-05	9.7E-05	**3.2E-04**	**7.4E+00**	0.0E+00	1.9E-01	**7.5E+00**

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Table 10.17.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	6E-01	NA	6E-01	NA	6E-01	NA
Total Circulatory HI Across Media =	2E-01	5E-01	**1E+02**	**7E+00**	**1E+02**	**7E+00**	**1E+02**	**7E+00**
Total CNS HI Across Media =	NA	NA	**2E+01**	3E-01	**2E+01**	3E-01	**2E+01**	3E-01
Total Fetotoxicity HI Across Media =	NA	NA	1E-01	NA	1E-01	NA	1E-01	NA
Total Gastrointestinal HI Across Media =	NA	NA	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Kidney HI Across Media =	1E-01	2E-01	**3E+00**	NA	**3E+00**	1E-01	**3E+00**	2E-01
Total Liver HI Across Media =	NA	NA	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Respiratory HI Across Media =	NA	NA	**2E+01**	NA	**2E+01**	NA	**2E+01**	NA
Total Skin HI Across Media =	1E-01	4E-01	**1E+02**	1E-01	**1E+02**	2E-01	**1E+02**	5E-01

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Table 10.18.RME
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	1.6E-06	NA	9.7E-08	1.7E-06					
			Barium					Kidney, Circulatory	1.4E-01	NA	4.0E-02	1.8E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.5E-01	NA	3.0E-03	1.5E-01
			Benzo(a)pyrene	9.1E-06	NA	2.4E-06	1.2E-05					
		Exposure Point Total		1.1E-05	NA	2.5E-06	1.3E-05		2.9E-01	NA	4.3E-02	3.3E-01
	Exposure Medium Total			1.1E-05	NA	2.5E-06	1.3E-05		2.9E-01	NA	4.3E-02	3.3E-01
Medium Total				1.1E-05	0.0E+00	2.5E-06	1.3E-05		2.9E-01	0.0E+00	4.3E-02	3.3E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Arsenic	4.8E-06	NA	2.9E-07	5.1E-06					
			Barium					Kidney, Circulatory	1.8E-01	NA	3.7E-03	1.9E-01
			Cadmium					Kidney	1.7E-01	NA	3.3E-04	1.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.6E-01	NA	3.1E-03	1.6E-01
			Benzo(a)pyrene	4.3E-06	NA	1.1E-06	5.5E-06					
			Dibenzo(a,h)anthracene	3.3E-06	NA	8.6E-07	4.2E-06					
		Exposure Point Total		1.2E-05	NA	2.3E-06	1.5E-05		5.1E-01	NA	7.2E-03	5.1E-01
	Exposure Medium Total			1.2E-05	NA	2.3E-06	1.5E-05		5.1E-01	NA	7.2E-03	5.1E-01
Medium Total				1.2E-05	0.0E+00	2.3E-06	1.5E-05		5.1E-01	0.0E+00	7.2E-03	5.1E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	5.3E-06	5.3E-06					
		Exposure Point Total		NA	NA	5.3E-06	5.3E-06		NA	NA	0.0E+00	0.0E+00
	Exposure Medium Total			NA	NA	5.3E-06	5.3E-06		NA	NA	0.0E+00	0.0E+00
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	3.0E+01	NA	3.0E+01
			Benzene					Circulatory	NA	1.8E-01	NA	1.8E-01
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	3.0E+01	NA	3.0E+01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	3.0E+01	NA	3.0E+01
Medium Total				NA	0.0E+00	5.3E-06	5.3E-06		NA	3.0E+01	0.0E+00	3.0E+01

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Table 10.18.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.1E-05	0.0E+00	2.5E-06	1.3E-05	2.9E-01	0.0E+00	4.3E-02	3.3E-01
Subsurface Soil	1.2E-05	0.0E+00	2.3E-06	1.5E-05	5.1E-01	0.0E+00	7.2E-03	5.1E-01
Upper PRM Aquifer	NA	0.0E+00	5.3E-06	5.3E-06	NA	**3.0E+01**	0.0E+00	**3.0E+01**
Surface Soil + Upper PRM Aquifer	1.1E-05	0.0E+00	7.7E-06	1.8E-05	2.9E-01	**3.0E+01**	4.3E-02	**3.1E+01**
Subsurface Soil + Upper PRM Aquifer	1.2E-05	0.0E+00	7.5E-06	2.0E-05	5.1E-01	**3.0E+01**	7.2E-03	**3.1E+01**

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Table 10.18.RME Supplement
RISK SUMMARY
REASONABLE MAXIMUM EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	South Jersey Port property			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Circulatory HI Across Media =	3E-01	3E-01	2E-01	5E-01	5E-01
Total CNS HI Across Media =	NA	NA	**3E+01**	**3E+01**	**3E+01**
Total Gastrointestinal HI Across Media =	2E-01	2E-01	NA	2E-01	2E-01
Total Kidney HI Across Media =	2E-01	4E-01	NA	2E-01	4E-01
Total Liver HI Across Media =	2E-01	2E-01	NA	2E-01	2E-01
Total Respiratory HI Across Media =	NA	NA	**3E+01**	**3E+01**	**3E+01**

TABLE 7.1.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion	Aluminum	6.0E+03	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	1.4E-03	mg/kg/day	1.0E+00	mg/kg/day	1.4E-03
				Antimony	4.7E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	4.0E-04	mg/kg/day	2.7E-03
				Arsenic	2.9E+02	MG/KG	8.4E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.3E-05	6.5E-05	mg/kg/day	3.0E-04	mg/kg/day	2.2E-01
				Barium	3.8E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	8.7E-03	mg/kg/day	7.0E-02	mg/kg/day	1.2E-01
				Cadmium	2.0E+01	MG/KG	6.0E-07	mg/kg/day	NA	NA	NA	4.7E-06	mg/kg/day	1.0E-03	mg/kg/day	4.7E-03
				Chromium	3.0E+02	MG/KG	8.7E-06	mg/kg/day	NA	NA	NA	6.8E-05	mg/kg/day	3.0E-03	mg/kg/day	2.3E-02
				Copper	5.7E+02	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	4.0E-02	mg/kg/day	3.3E-03
				Iron	5.2E+04	MG/KG	1.5E-03	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	3.0E-01	mg/kg/day	4.0E-02
				Lead	1.4E+03	MG/KG	4.2E-05	mg/kg/day	NA	NA	NA	3.3E-04	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	1.4E-01	mg/kg/day	8.4E-04
				Mercury	9.1E-01	MG/KG	2.7E-08	mg/kg/day	NA	NA	NA	2.1E-07	mg/kg/day	3.0E-04	mg/kg/day	6.9E-04
				Nickel	7.6E+01	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	2.0E-02	mg/kg/day	8.7E-04
				Silver	1.5E+01	MG/KG	4.4E-07	mg/kg/day	NA	NA	NA	3.4E-06	mg/kg/day	5.0E-03	mg/kg/day	6.8E-04
				Zinc	2.3E+03	MG/KG	6.9E-05	mg/kg/day	NA	NA	NA	5.3E-04	mg/kg/day	3.0E-01	mg/kg/day	1.8E-03
				Aldrin	4.2E-01	MG/KG	1.2E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.1E-07	9.5E-08	mg/kg/day	3.0E-05	mg/kg/day	3.2E-03
				Chlordane - alpha	4.0E+00	MG/KG	1.2E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.1E-08	9.1E-07	mg/kg/day	5.0E-04	mg/kg/day	1.8E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.3E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.5E-08	1.0E-06	mg/kg/day	5.0E-04	mg/kg/day	2.0E-03
				DDE-4,4'	7.6E+00	MG/KG	2.2E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	7.5E-08	1.7E-06	mg/kg/day	3.0E-04	mg/kg/day	5.8E-03
				DDT-4,4'	1.6E+00	MG/KG	4.6E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.6E-08	3.6E-07	mg/kg/day	5.0E-04	mg/kg/day	7.2E-04
				Dieldrin	1.3E+00	MG/KG	3.8E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.1E-07	3.0E-07	mg/kg/day	5.0E-05	mg/kg/day	5.9E-03
				Heptachlor	9.5E-02	MG/KG	2.8E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.3E-08	2.2E-08	mg/kg/day	5.0E-04	mg/kg/day	4.3E-05
				Pcb-Aroclor 1248	2.3E-01	MG/KG	6.8E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.4E-08	5.3E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.3E-07	2.4E-06	mg/kg/day	2.0E-05	mg/kg/day	1.2E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	6.5E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.3E-07	5.1E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	8.5E-08	mg/kg/day	NA	NA	NA	6.6E-07	mg/kg/day	1.0E-01	mg/kg/day	6.6E-06
				Benzo(a)anthracene	6.6E+01	MG/KG	1.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-06	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.0E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	1.8E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.3E-05	1.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-06	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.3E-04
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	7.4E-08	7.9E-06	mg/kg/day	3.0E-02	mg/kg/day	2.6E-04
				Chrysene	6.4E+01	MG/KG	1.9E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.4E-08	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	4.9E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.1E-07	9.7E-07	mg/kg/day	3.0E-02	mg/kg/day	3.2E-05
				Fluoranthene	1.5E+02	MG/KG	4.4E-06	mg/kg/day	NA	NA	NA	3.4E-05	mg/kg/day	4.0E-02	mg/kg/day	8.5E-04
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	4.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.6E-07	3.8E-06	mg/kg/day	5.0E-02	mg/kg/day	7.6E-05
				Naphthalene	7.2E+00	MG/KG	2.1E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	2.0E-02	mg/kg/day	8.3E-05
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	4.4E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	6.2E-09	3.4E-06	mg/kg/day	2.0E-02	mg/kg/day	1.7E-04
				Benzene	3.9E+00	MG/KG	1.1E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	6.2E-09	8.8E-07	mg/kg/day	4.0E-03	mg/kg/day	2.2E-04
				Chloroform	1.4E+00	MG/KG	4.1E-08	mg/kg/day	NA	NA	NA	3.2E-07	mg/kg/day	1.0E-02	mg/kg/day	3.2E-05
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	1.0E-02	mg/kg/day	2.5E-04
				Tetrachloroethylene	1.2E+01	MG/KG	3.6E-07	mg/kg/day	5.4E-01	1/(mg/kg-day)	1.9E-07	2.8E-06	mg/kg/day	1.0E-02	mg/kg/day	2.8E-04
				Toluene	7.3E+01	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	2.0E-01	mg/kg/day	8.4E-05
				Trichloroethylene	3.2E+00	MG/KG	9.5E-08	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.8E-08	7.4E-07	mg/kg/day	3.0E-04	mg/kg/day	2.5E-03
				Vinyl chloride	3.2E-01	MG/KG	9.4E-09	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.4E-08	7.3E-08	mg/kg/day	3.0E-03	mg/kg/day	2.4E-05

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TABLE 7.1.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Xylenes, total	2.9E+01	MG/KG	8.6E-07	mg/kg/day	NA	NA	NA	6.7E-06	mg/kg/day	2.0E-01	mg/kg/day	3.3E-05
			Exp. Route Total								3.2E-05					5.7E-01
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Dermal													
				Aluminum	6.0E+03	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	1.0E+00	mg/kg/day	2.0E-04
				Antimony	4.7E+00	MG/KG	2.0E-08	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	6.0E-05	mg/kg/day	2.7E-03
				Arsenic	2.9E+02	MG/KG	3.7E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.6E-06	2.9E-05	mg/kg/day	3.0E-04	mg/kg/day	9.6E-02
				Barium	3.8E+04	MG/KG	1.6E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	4.9E-03	mg/kg/day	2.6E-01
				Cadmium	2.0E+01	MG/KG	8.9E-09	mg/kg/day	NA	NA	NA	6.9E-08	mg/kg/day	5.0E-05	mg/kg/day	1.4E-03
				Chromium	3.0E+02	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	7.5E-05	mg/kg/day	1.3E-01
				Copper	5.7E+02	MG/KG	2.5E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	4.0E-02	mg/kg/day	4.9E-04
				Iron	5.2E+04	MG/KG	2.3E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	3.0E-01	mg/kg/day	5.9E-03
				Lead	1.4E+03	MG/KG	6.2E-06	mg/kg/day	NA	NA	NA	4.8E-05	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	5.6E-03	mg/kg/day	3.1E-03
				Mercury	9.1E-01	MG/KG	4.0E-09	mg/kg/day	NA	NA	NA	3.1E-08	mg/kg/day	2.1E-05	mg/kg/day	1.5E-03
				Nickel	7.6E+01	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	8.0E-04	mg/kg/day	3.2E-03
				Silver	1.5E+01	MG/KG	6.5E-08	mg/kg/day	NA	NA	NA	5.0E-07	mg/kg/day	2.0E-04	mg/kg/day	2.5E-03
				Zinc	2.3E+03	MG/KG	1.0E-05	mg/kg/day	NA	NA	NA	7.9E-05	mg/kg/day	3.0E-01	mg/kg/day	2.6E-04
				Aldrin	4.2E-01	MG/KG	1.8E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.1E-07	1.4E-07	mg/kg/day	3.0E-05	mg/kg/day	4.7E-03
				Chlordane - alpha	4.0E+00	MG/KG	7.0E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.4E-08	5.4E-07	mg/kg/day	5.0E-04	mg/kg/day	1.1E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	7.7E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.7E-08	6.0E-07	mg/kg/day	5.0E-04	mg/kg/day	1.2E-03
				DDE-4,4'	7.6E+00	MG/KG	9.9E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.4E-08	7.7E-07	mg/kg/day	3.0E-04	mg/kg/day	2.6E-03
				DDT-4,4'	1.6E+00	MG/KG	2.1E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	7.0E-09	1.6E-07	mg/kg/day	5.0E-04	mg/kg/day	3.2E-04
				Dieldrin	1.3E+00	MG/KG	5.6E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	9.0E-07	4.4E-07	mg/kg/day	5.0E-05	mg/kg/day	8.8E-03
				Heptachlor	9.5E-02	MG/KG	4.1E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.9E-08	3.2E-08	mg/kg/day	5.0E-04	mg/kg/day	6.4E-05
				Pcb-Aroclor 1248	2.3E-01	MG/KG	1.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.8E-08	1.1E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	6.5E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.3E-06	5.1E-06	mg/kg/day	2.0E-05	mg/kg/day	2.5E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	1.4E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.7E-07	1.1E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	9.8E-07	mg/kg/day	1.0E-01	mg/kg/day	9.8E-06
				Benzo(a)anthracene	6.6E+01	MG/KG	3.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.7E-06	2.9E-05	mg/kg/day	3.0E-02	mg/kg/day	9.6E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	3.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.6E-05	2.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	4.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-06	3.1E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	2.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.4E-07	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.1E-04
				Chrysene	6.4E+01	MG/KG	3.6E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.7E-08	2.8E-05	mg/kg/day	3.0E-02	mg/kg/day	9.4E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	2.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.8E-06	1.9E-06	mg/kg/day	3.0E-02	mg/kg/day	6.2E-05
				Fluoranthene	1.5E+02	MG/KG	8.4E-06	mg/kg/day	NA	NA	NA	6.5E-05	mg/kg/day	3.6E-02	mg/kg/day	1.8E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	9.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.9E-07	7.4E-06	mg/kg/day	5.0E-02	mg/kg/day	1.5E-04
				Naphthalene	7.2E+00	MG/KG	4.1E-07	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	2.0E-02	mg/kg/day	1.6E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	6.5E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	9.1E-09	5.1E-06	mg/kg/day	3.8E-03	mg/kg/day	1.3E-03
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00

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TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								4.2E-05					7.9E-01
		Exposure Point Total									7.5E-05					1.4E+00
	Exposure Medium Total										7.5E-05					1.4E+00
Surface Soil	Ambient Air	Emissions from	Inhalation													
		Martin Aaron property		Aluminum	5.9E-06	MG/M3	5.8E-09	mg/kg/day	NA	NA	NA	4.5E-08	mg/kg/day	1.4E-03	mg/kg/day	3.1E-05
		Surface Soil		Antimony	4.6E-09	MG/M3	4.5E-12	mg/kg/day	NA	NA	NA	3.5E-11	mg/kg/day	NA	NA	NA
				Arsenic	2.8E-07	MG/M3	2.7E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.1E-09	2.1E-09	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	3.6E-08	mg/kg/day	NA	NA	NA	2.8E-07	mg/kg/day	1.4E-04	mg/kg/day	2.0E-03
				Cadmium	2.0E-08	MG/M3	2.0E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.2E-10	1.5E-10	mg/kg/day	5.7E-05	mg/kg/day	2.7E-06
				Chromium	2.9E-07	MG/M3	2.8E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.2E-08	2.2E-09	mg/kg/day	2.3E-06	mg/kg/day	9.7E-04
				Copper	5.6E-07	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	5.0E-08	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	4.9E-10	mg/kg/day	NA	NA	NA	3.8E-09	mg/kg/day	1.4E-05	mg/kg/day	2.7E-04
				Mercury	8.9E-10	MG/M3	8.7E-13	mg/kg/day	NA	NA	NA	6.8E-12	mg/kg/day	8.6E-05	mg/kg/day	7.9E-08
				Nickel	7.4E-08	MG/M3	7.2E-11	mg/kg/day	NA	NA	NA	5.6E-10	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	1.4E-11	mg/kg/day	NA	NA	NA	1.1E-10	mg/kg/day	2.9E-06	mg/kg/day	3.9E-05
				Zinc	2.3E-06	MG/M3	2.2E-09	mg/kg/day	NA	NA	NA	1.7E-08	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	4.0E-13	mg/kg/day	1.7E+01	1/(mg/kg-day)	6.8E-12	3.1E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	3.8E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-12	3.0E-11	mg/kg/day	2.0E-04	mg/kg/day	1.5E-07
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	4.2E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-12	3.3E-11	mg/kg/day	2.0E-04	mg/kg/day	1.6E-07
				DDE-4,4'	7.4E-09	MG/M3	7.2E-12	mg/kg/day	NA	NA	NA	5.6E-11	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	1.5E-12	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.1E-13	1.2E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	1.2E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.0E-11	9.7E-12	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	9.1E-14	mg/kg/day	4.6E+00	1/(mg/kg-day)	4.1E-13	7.1E-13	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	2.2E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.7E-14	1.7E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	1.0E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.6E-12	7.9E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	2.1E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.4E-13	1.6E-11	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	4.9E-08	mg/kg/day	NA	NA	NA	3.8E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	6.3E-11	mg/kg/day	NA	NA	NA	4.9E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	6.0E-11	mg/kg/day	NA	NA	NA	4.6E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	6.7E-11	mg/kg/day	NA	NA	NA	5.2E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	3.3E-11	mg/kg/day	NA	NA	NA	2.6E-10	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	6.2E-11	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	4.1E-12	mg/kg/day	NA	NA	NA	3.2E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA

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TABLE 7.1.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	1.6E-11	mg/kg/day	NA	NA	NA	1.2E-10	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	1.6E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	8.6E-04	mg/kg/day	1.4E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	1.4E-11	mg/kg/day	NA	NA	NA	1.1E-10	mg/kg/day	NA	NA	NA
				Benzene	1.3E-03	MG/M3	1.3E-06	mg/kg/day	2.7E-02	1/(mg/kg-day)	3.5E-08	1.0E-05	mg/kg/day	8.6E-03	mg/kg/day	1.2E-03
				Chloroform	4.6E-04	MG/M3	4.5E-07	mg/kg/day	8.1E-02	1/(mg/kg-day)	3.6E-08	3.5E-06	mg/kg/day	1.4E-02	mg/kg/day	2.4E-04
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	3.6E-06	mg/kg/day	NA	NA	NA	2.8E-05	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	3.6E-03	MG/M3	3.5E-06	mg/kg/day	2.1E-02	1/(mg/kg-day)	7.5E-08	2.8E-05	mg/kg/day	NA	NA	NA
				Toluene	2.0E-02	MG/M3	1.9E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	1.1E-01	mg/kg/day	1.3E-03
				Trichloroethylene	9.5E-04	MG/M3	9.3E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.7E-07	7.2E-06	mg/kg/day	1.0E-02	mg/kg/day	7.2E-04
				Vinyl chloride	3.0E-04	MG/M3	2.9E-07	mg/kg/day	1.5E-02	1/(mg/kg-day)	4.4E-09	2.2E-06	mg/kg/day	2.9E-02	mg/kg/day	7.8E-05
				Xylenes, total	6.4E-03	MG/M3	6.3E-06	mg/kg/day	NA	NA	NA	4.9E-05	mg/kg/day	2.9E-02	mg/kg/day	1.7E-03
			Exp. Route Total								5.4E-07					1.0E-02
		Exposure Point Total									5.4E-07					1.0E-02
	Exposure Medium Total										5.4E-07					1.0E-02
Surface Soil Total											7.5E-05					1.4E+00

NA = Not applicable.

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TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion	Aluminum	6.0E+03	MG/KG	2.4E-04	mg/kg/day	NA	NA	NA	2.6E-03	mg/kg/day	1.0E+00	mg/kg/day	2.6E-03
				Antimony	4.7E+00	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	4.0E-04	mg/kg/day	5.1E-03
				Arsenic	2.9E+02	MG/KG	1.2E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.7E-05	1.2E-04	mg/kg/day	3.0E-04	mg/kg/day	4.1E-01
				Barium	3.8E+04	MG/KG	1.5E-03	mg/kg/day	NA	NA	NA	1.6E-02	mg/kg/day	7.0E-02	mg/kg/day	2.3E-01
				Cadmium	2.0E+01	MG/KG	8.3E-07	mg/kg/day	NA	NA	NA	8.8E-06	mg/kg/day	1.0E-03	mg/kg/day	8.8E-03
				Chromium	3.0E+02	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	3.0E-03	mg/kg/day	4.2E-02
				Copper	5.7E+02	MG/KG	2.3E-05	mg/kg/day	NA	NA	NA	2.5E-04	mg/kg/day	4.0E-02	mg/kg/day	6.2E-03
				Iron	5.2E+04	MG/KG	2.1E-03	mg/kg/day	NA	NA	NA	2.2E-02	mg/kg/day	3.0E-01	mg/kg/day	7.5E-02
				Lead	1.4E+03	MG/KG	5.8E-05	mg/kg/day	NA	NA	NA	6.1E-04	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	2.1E-05	mg/kg/day	NA	NA	NA	2.2E-04	mg/kg/day	1.4E-01	mg/kg/day	1.6E-03
				Mercury	9.1E-01	MG/KG	3.7E-08	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	3.0E-04	mg/kg/day	1.3E-03
				Nickel	7.6E+01	MG/KG	3.1E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	2.0E-02	mg/kg/day	1.6E-03
				Silver	1.5E+01	MG/KG	6.0E-07	mg/kg/day	NA	NA	NA	6.4E-06	mg/kg/day	5.0E-03	mg/kg/day	1.3E-03
				Zinc	2.3E+03	MG/KG	9.5E-05	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	3.0E-01	mg/kg/day	3.3E-03
				Aldrin	4.2E-01	MG/KG	1.7E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.9E-07	1.8E-07	mg/kg/day	3.0E-05	mg/kg/day	6.0E-03
				Chlordane - alpha	4.0E+00	MG/KG	1.6E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.7E-08	1.7E-06	mg/kg/day	5.0E-04	mg/kg/day	3.4E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.8E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.2E-08	1.9E-06	mg/kg/day	5.0E-04	mg/kg/day	3.8E-03
				DDE-4,4'	7.6E+00	MG/KG	3.1E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.0E-07	3.2E-06	mg/kg/day	3.0E-04	mg/kg/day	1.1E-02
				DDT-4,4'	1.6E+00	MG/KG	6.4E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.2E-08	6.8E-07	mg/kg/day	5.0E-04	mg/kg/day	1.4E-03
				Dieldrin	1.3E+00	MG/KG	5.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	8.4E-07	5.6E-07	mg/kg/day	5.0E-05	mg/kg/day	1.1E-02
				Heptachlor	9.5E-02	MG/KG	3.8E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.7E-08	4.1E-08	mg/kg/day	5.0E-04	mg/kg/day	8.1E-05
				Pcb-Aroclor 1248	2.3E-01	MG/KG	9.3E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.9E-08	9.9E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	4.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	8.6E-07	4.6E-06	mg/kg/day	2.0E-05	mg/kg/day	2.3E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	9.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.8E-07	9.5E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	1.0E-01	mg/kg/day	1.2E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	2.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-06	2.8E-05	mg/kg/day	3.0E-02	mg/kg/day	9.4E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	2.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.8E-05	2.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.1E-06	3.0E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.4E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.0E-07	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.0E-04
				Chrysene	6.4E+01	MG/KG	2.6E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.9E-08	2.8E-05	mg/kg/day	3.0E-02	mg/kg/day	9.2E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.7E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.3E-06	1.8E-06	mg/kg/day	3.0E-02	mg/kg/day	6.1E-05
				Fluoranthene	1.5E+02	MG/KG	6.0E-06	mg/kg/day	NA	NA	NA	6.4E-05	mg/kg/day	4.0E-02	mg/kg/day	1.6E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	6.8E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.9E-07	7.2E-06	mg/kg/day	5.0E-02	mg/kg/day	1.4E-04
				Naphthalene	7.2E+00	MG/KG	2.9E-07	mg/kg/day	NA	NA	NA	3.1E-06	mg/kg/day	2.0E-02	mg/kg/day	1.6E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	6.1E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	8.5E-09	6.4E-06	mg/kg/day	2.0E-02	mg/kg/day	3.2E-04
				Benzene	3.9E+00	MG/KG	1.6E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	8.6E-09	1.7E-06	mg/kg/day	4.0E-03	mg/kg/day	4.1E-04
				Chloroform	1.4E+00	MG/KG	5.7E-08	mg/kg/day	NA	NA	NA	6.0E-07	mg/kg/day	1.0E-02	mg/kg/day	6.0E-05
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	4.5E-07	mg/kg/day	NA	NA	NA	4.8E-06	mg/kg/day	1.0E-02	mg/kg/day	4.8E-04
				Tetrachloroethylene	1.2E+01	MG/KG	4.9E-07	mg/kg/day	5.4E-01	1/(mg/kg-day)	2.6E-07	5.2E-06	mg/kg/day	1.0E-02	mg/kg/day	5.2E-04
				Toluene	7.3E+01	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	2.0E-01	mg/kg/day	1.6E-04
				Trichloroethylene	3.2E+00	MG/KG	1.3E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	5.2E-08	1.4E-06	mg/kg/day	3.0E-04	mg/kg/day	4.6E-03
				Vinyl chloride	3.2E-01	MG/KG	1.3E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.9E-08	1.4E-07	mg/kg/day	3.0E-03	mg/kg/day	4.6E-05
				Xylenes, total	2.9E+01	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	2.0E-01	mg/kg/day	6.3E-05
			Exp. Route Total								4.4E-05					1.1E+00

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TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Dermal	Aluminum	6.0E+03	MG/KG	1.9E-06	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	1.0E+00	mg/kg/day	2.1E-05
				Antimony	4.7E+00	MG/KG	1.5E-09	mg/kg/day	NA	NA	NA	1.6E-08	mg/kg/day	6.0E-05	mg/kg/day	2.7E-04
				Arsenic	2.9E+02	MG/KG	2.8E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.2E-07	2.9E-06	mg/kg/day	3.0E-04	mg/kg/day	9.8E-03
				Barium	3.8E+04	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	4.9E-03	mg/kg/day	2.7E-02
				Cadmium	2.0E+01	MG/KG	6.6E-10	mg/kg/day	NA	NA	NA	7.0E-09	mg/kg/day	5.0E-05	mg/kg/day	1.4E-04
				Chromium	*3.0E+02*	*MG/KG*	*9.6E-08*	*mg/kg/day*	*NA*	*NA*	*NA*	*1.0E-06*	*mg/kg/day*	*7.5E-05*	*mg/kg/day*	*1.4E-02*
				Copper	5.7E+02	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	4.0E-02	mg/kg/day	4.9E-05
				Iron	5.2E+04	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	3.0E-01	mg/kg/day	6.0E-04
				Lead	1.4E+03	MG/KG	4.6E-07	mg/kg/day	NA	NA	NA	4.9E-06	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	5.6E-03	mg/kg/day	3.1E-04
				Mercury	9.1E-01	MG/KG	2.9E-10	mg/kg/day	NA	NA	NA	3.1E-09	mg/kg/day	2.1E-05	mg/kg/day	1.5E-04
				Nickel	7.6E+01	MG/KG	2.5E-08	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	8.0E-04	mg/kg/day	3.2E-04
				Silver	1.5E+01	MG/KG	4.8E-09	mg/kg/day	NA	NA	NA	5.1E-08	mg/kg/day	2.0E-04	mg/kg/day	2.6E-04
				Zinc	2.3E+03	MG/KG	7.6E-07	mg/kg/day	NA	NA	NA	8.0E-06	mg/kg/day	3.0E-01	mg/kg/day	2.7E-05
				Aldrin	4.2E-01	MG/KG	1.3E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.3E-08	1.4E-08	mg/kg/day	3.0E-05	mg/kg/day	4.8E-04
				Chlordane - alpha	4.0E+00	MG/KG	5.2E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-09	5.5E-08	mg/kg/day	5.0E-04	mg/kg/day	1.1E-04
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	5.7E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-09	6.1E-08	mg/kg/day	5.0E-04	mg/kg/day	1.2E-04
				DDE-4,4'	7.6E+00	MG/KG	7.3E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.5E-09	7.8E-08	mg/kg/day	3.0E-04	mg/kg/day	2.6E-04
				DDT-4,4'	1.6E+00	MG/KG	1.5E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.2E-10	1.6E-08	mg/kg/day	5.0E-04	mg/kg/day	3.2E-05
				Dieldrin	1.3E+00	MG/KG	4.2E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.7E-08	4.5E-08	mg/kg/day	5.0E-05	mg/kg/day	8.9E-04
				Heptachlor	9.5E-02	MG/KG	3.1E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.4E-09	3.3E-09	mg/kg/day	5.0E-04	mg/kg/day	6.5E-06
				Pcb-Aroclor 1248	2.3E-01	MG/KG	1.0E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.1E-09	1.1E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	4.8E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	9.7E-08	5.1E-07	mg/kg/day	2.0E-05	mg/kg/day	2.6E-02
				Pcb-Aroclor 1260	2.2E+00	MG/KG	1.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-08	1.1E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	9.4E-09	mg/kg/day	NA	NA	NA	9.9E-08	mg/kg/day	1.0E-01	mg/kg/day	9.9E-07
				Benzo(a)anthracene	6.6E+01	MG/KG	2.8E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.0E-07	2.9E-06	mg/kg/day	3.0E-02	mg/kg/day	9.8E-05
				Benzo(a)pyrene	6.2E+01	MG/KG	2.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.9E-06	2.8E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.1E-07	3.1E-06	mg/kg/day	3.0E-02	mg/kg/day	1.0E-04
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.5E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.1E-08	1.5E-06	mg/kg/day	3.0E-02	mg/kg/day	5.2E-05
				Chrysene	6.4E+01	MG/KG	2.7E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.0E-09	2.9E-06	mg/kg/day	3.0E-02	mg/kg/day	9.6E-05
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.8E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.3E-07	1.9E-07	mg/kg/day	3.0E-02	mg/kg/day	6.3E-06
				Fluoranthene	1.5E+02	MG/KG	6.2E-07	mg/kg/day	NA	NA	NA	6.6E-06	mg/kg/day	3.6E-02	mg/kg/day	1.9E-04
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	7.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.1E-08	7.5E-07	mg/kg/day	5.0E-02	mg/kg/day	1.5E-05
				Naphthalene	7.2E+00	MG/KG	3.0E-08	mg/kg/day	NA	NA	NA	3.2E-07	mg/kg/day	2.0E-02	mg/kg/day	1.6E-05
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	4.9E-08	mg/kg/day	1.4E-02	1/(mg/kg-day)	6.8E-10	5.1E-07	mg/kg/day	3.8E-03	mg/kg/day	1.4E-04
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								3.2E-06					8.0E-02

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TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
		Exposure Point Total									4.8E-05					1.1E+00
	Exposure Medium Total										4.8E-05					1.1E+00
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	4.8E-08	mg/kg/day	NA	NA	NA	5.1E-07	mg/kg/day	1.4E-03	mg/kg/day	3.5E-04
				Antimony	4.6E-09	MG/M3	3.7E-11	mg/kg/day	NA	NA	NA	4.0E-10	mg/kg/day	NA	NA	NA
				Arsenic	2.8E-07	MG/M3	2.3E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.4E-08	2.4E-08	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	3.0E-07	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	1.4E-04	mg/kg/day	2.3E-02
				Cadmium	2.0E-08	MG/M3	1.6E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.0E-09	1.7E-09	mg/kg/day	5.7E-05	mg/kg/day	3.0E-05
				Chromium	2.9E-07	MG/M3	2.4E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	9.9E-08	2.5E-08	mg/kg/day	2.3E-06	mg/kg/day	1.1E-02
				Copper	5.6E-07	MG/M3	4.6E-09	mg/kg/day	NA	NA	NA	4.8E-08	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	4.2E-07	mg/kg/day	NA	NA	NA	4.4E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	1.1E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	4.1E-09	mg/kg/day	NA	NA	NA	4.3E-08	mg/kg/day	1.4E-05	mg/kg/day	3.0E-03
				Mercury	8.9E-10	MG/M3	7.2E-12	mg/kg/day	NA	NA	NA	7.7E-11	mg/kg/day	8.6E-05	mg/kg/day	8.9E-07
				Nickel	7.4E-08	MG/M3	6.0E-10	mg/kg/day	NA	NA	NA	6.4E-09	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	1.3E-09	mg/kg/day	2.9E-06	mg/kg/day	4.4E-04
				Zinc	2.3E-06	MG/M3	1.9E-08	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	3.3E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.7E-11	3.5E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	3.2E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.1E-11	3.4E-10	mg/kg/day	2.0E-04	mg/kg/day	1.7E-06
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	3.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.2E-11	3.7E-10	mg/kg/day	2.0E-04	mg/kg/day	1.9E-06
				DDE-4,4'	7.4E-09	MG/M3	6.0E-11	mg/kg/day	NA	NA	NA	6.4E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	1.2E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.2E-12	1.3E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	1.0E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.7E-10	1.1E-10	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	7.5E-13	mg/kg/day	4.6E+00	1/(mg/kg-day)	3.4E-12	8.0E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	1.8E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.4E-13	1.9E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	8.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.0E-11	9.0E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	1.8E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.2E-12	1.9E-10	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	4.1E-07	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	5.2E-10	mg/kg/day	NA	NA	NA	5.5E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	4.9E-10	mg/kg/day	NA	NA	NA	5.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	5.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	2.7E-10	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	5.1E-10	mg/kg/day	NA	NA	NA	5.4E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	3.4E-11	mg/kg/day	NA	NA	NA	3.6E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.4E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	1.3E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	8.6E-04	mg/kg/day	1.6E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	1.3E-09	mg/kg/day	NA	mg/kg/day	NA
				Benzene	1.3E-03	MG/M3	1.1E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.9E-07	1.1E-04	mg/kg/day	8.6E-03	mg/kg/day	1.3E-02
				Chloroform	4.6E-04	MG/M3	3.7E-06	mg/kg/day	8.1E-02	1/(mg/kg-day)	3.0E-07	3.9E-05	mg/kg/day	1.4E-02	mg/kg/day	2.7E-03
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	3.0E-05	mg/kg/day	NA	NA	NA	3.2E-04	mg/kg/day	NA	mg/kg/day	NA
				Tetrachloroethylene	3.6E-03	MG/M3	2.9E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	6.2E-07	3.1E-04	mg/kg/day	NA	mg/kg/day	NA
				Toluene	2.0E-02	MG/M3	1.6E-04	mg/kg/day	NA	NA	NA	1.7E-03	mg/kg/day	1.1E-01	mg/kg/day	1.5E-02
				Trichloroethylene	9.5E-04	MG/M3	7.7E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.1E-06	8.2E-05	mg/kg/day	1.0E-02	mg/kg/day	8.2E-03
				Vinyl chloride	3.0E-04	MG/M3	2.4E-06	mg/kg/day	1.5E-02	1/(mg/kg-day)	3.7E-08	2.5E-05	mg/kg/day	2.9E-02	mg/kg/day	8.9E-04
				Xylenes, total	6.4E-03	MG/M3	5.2E-05	mg/kg/day	NA	NA	NA	5.5E-04	mg/kg/day	2.9E-02	mg/kg/day	1.9E-02

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TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								4.5E-06					1.1E-01
		Exposure Point Total									4.5E-06					1.1E-01
	Exposure Medium Total										4.5E-06					1.1E-01
Surface Soil Total											5.2E-05					1.3E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Ingestion													
				Aluminum	6.1E+03	MG/KG	2.5E-04	mg/kg/day	NA	NA	NA	2.6E-03	mg/kg/day	1.0E+00	mg/kg/day	2.6E-03
				Antimony	1.0E+01	MG/KG	4.1E-07	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	4.0E-04	mg/kg/day	1.1E-02
				Arsenic	7.3E+02	MG/KG	3.0E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.4E-05	3.1E-04	mg/kg/day	3.0E-04	mg/kg/day	1.0E+00
				Barium	2.2E+04	MG/KG	8.7E-04	mg/kg/day	NA	NA	NA	9.2E-03	mg/kg/day	7.0E-02	mg/kg/day	1.3E-01
				Cadmium	1.9E+01	MG/KG	7.7E-07	mg/kg/day	NA	NA	NA	8.1E-06	mg/kg/day	1.0E-03	mg/kg/day	8.1E-03
				Chromium	2.7E+03	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	3.0E-03	mg/kg/day	3.9E-01
				Copper	5.1E+02	MG/KG	2.1E-05	mg/kg/day	NA	NA	NA	2.2E-04	mg/kg/day	4.0E-02	mg/kg/day	5.5E-03
				Iron	2.7E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	1.1E-02	mg/kg/day	3.0E-01	mg/kg/day	3.8E-02
				Lead	1.4E+04	MG/KG	5.7E-04	mg/kg/day	NA	NA	NA	6.0E-03	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	1.4E-01	mg/kg/day	9.9E-04
				Mercury	2.8E+01	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	3.0E-04	mg/kg/day	4.0E-02
				Nickel	7.0E+01	MG/KG	2.8E-06	mg/kg/day	NA	NA	NA	3.0E-05	mg/kg/day	2.0E-02	mg/kg/day	1.5E-03
				Silver	6.0E+00	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	5.0E-03	mg/kg/day	5.1E-04
				Thallium	1.4E+00	MG/KG	5.8E-08	mg/kg/day	NA	NA	NA	6.2E-07	mg/kg/day	9.0E-05	mg/kg/day	6.9E-03
				Vanadium	2.4E+01	MG/KG	9.6E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	1.0E-03	mg/kg/day	1.0E-02
				Zinc	1.9E+03	MG/KG	7.8E-05	mg/kg/day	NA	NA	NA	8.3E-04	mg/kg/day	3.0E-01	mg/kg/day	2.8E-03
				Aldrin	1.7E-01	MG/KG	7.0E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.2E-07	7.4E-08	mg/kg/day	3.0E-05	mg/kg/day	2.5E-03
				Chlordane - alpha	1.6E+00	MG/KG	6.4E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.2E-08	6.8E-07	mg/kg/day	5.0E-04	mg/kg/day	1.4E-03
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	7.7E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.7E-08	8.1E-07	mg/kg/day	5.0E-04	mg/kg/day	1.6E-03
				DDE-4,4'	4.9E+00	MG/KG	2.0E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	6.7E-08	2.1E-06	mg/kg/day	3.0E-04	mg/kg/day	6.9E-03
				DDT-4,4'	3.9E-01	MG/KG	1.6E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.4E-09	1.7E-07	mg/kg/day	5.0E-04	mg/kg/day	3.4E-04
				Dieldrin	1.6E-01	MG/KG	7.2E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.2E-07	7.7E-08	mg/kg/day	5.0E-05	mg/kg/day	1.5E-03
				Heptachlor	3.8E-02	MG/KG	1.5E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	6.9E-09	1.6E-08	mg/kg/day	5.0E-04	mg/kg/day	3.2E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	3.7E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.5E-09	4.0E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	4.4E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	8.7E-07	4.6E-06	mg/kg/day	2.0E-05	mg/kg/day	2.3E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	9.4E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.9E-08	1.0E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	1.0E-01	mg/kg/day	1.2E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	7.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.8E-07	8.4E-06	mg/kg/day	3.0E-02	mg/kg/day	2.8E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	7.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-06	7.7E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	8.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.4E-07	9.3E-06	mg/kg/day	3.0E-02	mg/kg/day	3.1E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	3.2E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.4E-08	3.4E-06	mg/kg/day	3.0E-02	mg/kg/day	1.1E-04
				Chrysene	1.8E+01	MG/KG	7.4E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.4E-09	7.9E-06	mg/kg/day	3.0E-02	mg/kg/day	2.6E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-06	1.7E-06	mg/kg/day	3.0E-02	mg/kg/day	5.8E-05
				Fluoranthene	3.8E+01	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	4.0E-02	mg/kg/day	4.0E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	3.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-07	4.2E-06	mg/kg/day	5.0E-02	mg/kg/day	8.4E-05
				Naphthalene	3.2E+01	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	2.0E-02	mg/kg/day	6.9E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	1.0E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.5E-08	1.1E-05	mg/kg/day	2.0E-02	mg/kg/day	5.5E-04
				Benzene	5.9E+00	MG/KG	2.4E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.3E-08	2.5E-06	mg/kg/day	4.0E-03	mg/kg/day	6.3E-04
				Bromomethane	5.2E-01	MG/KG	2.1E-08	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	1.4E-03	mg/kg/day	1.6E-04
				Chloroform	2.2E+00	MG/KG	9.0E-08	mg/kg/day	NA	NA	NA	9.6E-07	mg/kg/day	1.0E-02	mg/kg/day	9.6E-05

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TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	2.3E-07	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	1.0E-02	mg/kg/day	2.4E-04
				Ethylbenzene	6.4E+00	MG/KG	2.6E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	1.0E-01	mg/kg/day	2.7E-05
				Tetrachloroethylene	2.3E+01	MG/KG	9.2E-07	mg/kg/day	5.4E-01	1/(mg/kg-day)	5.0E-07	9.8E-06	mg/kg/day	1.0E-02	mg/kg/day	9.8E-04
				Toluene	3.0E+01	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	2.0E-01	mg/kg/day	6.5E-05
				Trichloroethylene	1.1E+02	MG/KG	4.6E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.8E-06	4.9E-05	mg/kg/day	3.0E-04	mg/kg/day	1.6E-01
				Vinyl chloride	4.8E-01	MG/KG	1.9E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.9E-08	2.1E-07	mg/kg/day	3.0E-03	mg/kg/day	6.9E-05
				Xylenes, total	4.5E+01	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	2.0E-01	mg/kg/day	9.5E-05
			Exp. Route Total								5.6E-05					2.1E+00
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal	Aluminum	6.1E+03	MG/KG	2.0E-06	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	1.0E+00	mg/kg/day	2.1E-05
				Antimony	1.0E+01	MG/KG	3.3E-09	mg/kg/day	NA	NA	NA	3.5E-08	mg/kg/day	6.0E-05	mg/kg/day	5.8E-04
				Arsenic	7.3E+02	MG/KG	7.1E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.1E-06	7.5E-06	mg/kg/day	3.0E-04	mg/kg/day	2.5E-02
				Barium	2.2E+04	MG/KG	7.0E-06	mg/kg/day	NA	NA	NA	7.4E-05	mg/kg/day	4.9E-03	mg/kg/day	1.5E-02
				Cadmium	1.9E+01	MG/KG	6.1E-10	mg/kg/day	NA	NA	NA	6.5E-09	mg/kg/day	5.0E-05	mg/kg/day	1.3E-04
				Chromium	2.7E+03	MG/KG	8.7E-07	mg/kg/day	NA	NA	NA	9.3E-06	mg/kg/day	7.5E-05	mg/kg/day	1.2E-01
				Copper	5.1E+02	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	4.0E-02	mg/kg/day	4.4E-05
				Iron	2.7E+04	MG/KG	8.6E-06	mg/kg/day	NA	NA	NA	9.2E-05	mg/kg/day	3.0E-01	mg/kg/day	3.1E-04
				Lead	1.4E+04	MG/KG	4.5E-06	mg/kg/day	NA	NA	NA	4.8E-05	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	5.6E-03	mg/kg/day	2.0E-04
				Mercury	2.8E+01	MG/KG	9.0E-09	mg/kg/day	NA	NA	NA	9.6E-08	mg/kg/day	2.1E-05	mg/kg/day	4.6E-03
				Nickel	7.0E+01	MG/KG	2.3E-08	mg/kg/day	NA	NA	NA	2.4E-07	mg/kg/day	8.0E-04	mg/kg/day	3.0E-04
				Silver	6.0E+00	MG/KG	1.9E-09	mg/kg/day	NA	NA	NA	2.1E-08	mg/kg/day	2.0E-04	mg/kg/day	1.0E-04
				Thallium	1.4E+00	MG/KG	4.7E-10	mg/kg/day	NA	NA	NA	5.0E-09	mg/kg/day	9.0E-05	mg/kg/day	5.5E-05
				Vanadium	2.4E+01	MG/KG	7.7E-09	mg/kg/day	NA	NA	NA	8.2E-08	mg/kg/day	2.6E-05	mg/kg/day	3.1E-03
				Zinc	1.9E+03	MG/KG	6.2E-07	mg/kg/day	NA	NA	NA	6.6E-06	mg/kg/day	3.0E-01	mg/kg/day	2.2E-05
				Aldrin	1.7E-01	MG/KG	5.6E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	9.5E-09	5.9E-09	mg/kg/day	3.0E-05	mg/kg/day	2.0E-04
				Chlordane - alpha	1.6E+00	MG/KG	2.0E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.2E-10	2.2E-08	mg/kg/day	5.0E-04	mg/kg/day	4.3E-05
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	2.5E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.6E-10	2.6E-08	mg/kg/day	5.0E-04	mg/kg/day	5.2E-05
				DDE-4,4'	4.9E+00	MG/KG	4.7E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.6E-09	5.0E-08	mg/kg/day	3.0E-04	mg/kg/day	1.7E-04
				DDT-4,4'	3.9E-01	MG/KG	3.8E-10	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.3E-10	4.0E-09	mg/kg/day	5.0E-04	mg/kg/day	8.1E-06
				Dieldrin	1.8E-01	MG/KG	5.8E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	9.3E-09	6.1E-09	mg/kg/day	5.0E-05	mg/kg/day	1.2E-04
				Heptachlor	3.8E-02	MG/KG	1.2E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	5.5E-10	1.3E-09	mg/kg/day	5.0E-04	mg/kg/day	2.6E-06
				Pcb-Aroclor 1248	9.2E-02	MG/KG	4.2E-10	mg/kg/day	2.0E+00	1/(mg/kg-day)	8.4E-10	4.4E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	4.9E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	9.7E-08	5.2E-07	mg/kg/day	2.0E-05	mg/kg/day	2.6E-02
				Pcb-Aroclor 1260	2.3E-01	MG/KG	1.1E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.1E-09	1.1E-08	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	9.4E-09	mg/kg/day	NA	NA	NA	9.9E-08	mg/kg/day	1.0E-01	mg/kg/day	9.9E-07
				Benzo(a)anthracene	2.0E+01	MG/KG	8.2E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.0E-08	8.7E-07	mg/kg/day	3.0E-02	mg/kg/day	2.9E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	7.6E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.5E-07	8.0E-07	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	9.1E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.6E-08	9.6E-07	mg/kg/day	3.0E-02	mg/kg/day	3.2E-05
				Benzo(k)fluoranthene	8.0E+00	MG/KG	3.4E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.5E-09	3.6E-07	mg/kg/day	3.0E-02	mg/kg/day	1.2E-05
				Chrysene	1.8E+01	MG/KG	7.7E-08	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.6E-10	8.2E-07	mg/kg/day	3.0E-02	mg/kg/day	2.7E-05
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-07	1.8E-07	mg/kg/day	3.0E-02	mg/kg/day	6.0E-06
				Fluoranthene	3.8E+01	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	3.6E-02	mg/kg/day	4.7E-05
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	4.1E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.0E-08	4.3E-07	mg/kg/day	5.0E-02	mg/kg/day	8.7E-06
				Naphthalene	3.2E+01	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	2.0E-02	mg/kg/day	7.2E-05

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TABLE 7.2.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	8.3E-08	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.2E-09	8.8E-07	mg/kg/day	3.8E-03	mg/kg/day	2.3E-04
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.4E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								2.0E-06					2.0E-01
		Exposure Point Total									5.8E-05					2.3E+00
	Exposure Medium Total										5.8E-05					2.3E+00
Subsurface Soil	Ambient Air	Emissions from	Inhalation													
		Martin Aaron property		Aluminum	6.0E-06	MG/M3	4.8E-08	mg/kg/day	NA	NA	NA	5.1E-07	mg/kg/day	1.4E-03	mg/kg/day	3.6E-04
		Subsurface Soil		Antimony	9.9E-09	MG/M3	8.0E-11	mg/kg/day	NA	NA	NA	8.5E-10	mg/kg/day	NA	NA	NA
				Arsenic	7.2E-07	MG/M3	5.8E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	8.8E-08	6.2E-08	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	1.7E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	1.4E-04	mg/kg/day	1.3E-02
				Cadmium	1.9E-08	MG/M3	1.5E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	9.5E-10	1.6E-09	mg/kg/day	5.7E-05	mg/kg/day	2.8E-05
				Chromium	2.7E-06	MG/M3	2.1E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	9.0E-07	2.3E-07	mg/kg/day	2.3E-06	mg/kg/day	9.9E-02
				Copper	5.0E-07	MG/M3	4.1E-09	mg/kg/day	NA	NA	NA	4.3E-08	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	2.1E-07	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	1.1E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	2.6E-09	mg/kg/day	NA	NA	NA	2.7E-08	mg/kg/day	1.4E-05	mg/kg/day	1.9E-03
				Mercury	2.7E-08	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	2.3E-09	mg/kg/day	8.6E-05	mg/kg/day	2.7E-05
				Nickel	6.8E-08	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	5.8E-09	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	4.7E-11	mg/kg/day	NA	NA	NA	5.0E-10	mg/kg/day	2.9E-06	mg/kg/day	1.8E-04
				Thallium	1.4E-09	MG/M3	1.1E-11	mg/kg/day	NA	NA	NA	1.2E-10	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	1.9E-10	mg/kg/day	NA	NA	NA	2.0E-09	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	1.5E-08	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	1.4E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.3E-11	1.4E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	1.3E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.4E-12	1.3E-10	mg/kg/day	2.0E-04	mg/kg/day	6.7E-07
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	1.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.3E-12	1.6E-10	mg/kg/day	2.0E-04	mg/kg/day	8.0E-07
				DDE-4,4'	4.8E-09	MG/M3	3.9E-11	mg/kg/day	NA	NA	NA	4.1E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	3.1E-12	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.1E-12	3.3E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	1.4E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.3E-11	1.5E-11	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	3.0E-13	mg/kg/day	4.6E+00	1/(mg/kg-day)	1.4E-12	3.2E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	7.3E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.6E-13	7.8E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	8.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.0E-11	9.0E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.3E-10	MG/M3	1.8E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.4E-13	2.0E-11	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	4.1E-07	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.6E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	1.8E-09	mg/kg/day	NA	NA	NA

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TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzo(k)fluoranthene	7.8E-09	MG/M3	6.3E-11	mg/kg/day	NA	NA	NA	6.7E-10	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	3.2E-11	mg/kg/day	NA	NA	NA	3.4E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	3.0E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	7.7E-11	mg/kg/day	NA	NA	NA	8.2E-10	mg/kg/day	NA	NA	NA
				Naphthalene	7.2E-04	MG/M3	5.8E-06	mg/kg/day	NA	NA	NA	6.2E-05	mg/kg/day	8.6E-04	mg/kg/day	7.2E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	2.0E-10	mg/kg/day	NA	NA	NA	2.2E-09	mg/kg/day	NA	NA	NA
				Benzene	2.0E-03	MG/M3	1.6E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	4.5E-07	1.7E-04	mg/kg/day	8.6E-03	mg/kg/day	2.0E-02
				Bromomethane	2.8E-04	MG/M3	2.2E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	1.4E-03	mg/kg/day	1.7E-02
				Chloroform	7.3E-04	MG/M3	5.9E-06	mg/kg/day	8.1E-02	1/(mg/kg-day)	4.7E-07	6.3E-05	mg/kg/day	1.4E-02	mg/kg/day	4.4E-03
				Dichloroethylene-1,2 cis	1.9E-03	MG/M3	1.5E-05	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	NA	NA	NA
				Ethylbenzene	1.5E-03	MG/M3	1.2E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	2.9E-01	mg/kg/day	4.4E-04
				Tetrachloroethylene	6.9E-03	MG/M3	5.5E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.2E-06	5.9E-04	mg/kg/day	NA	NA	NA
				Toluene	8.2E-03	MG/M3	6.6E-05	mg/kg/day	NA	NA	NA	7.0E-04	mg/kg/day	1.1E-01	mg/kg/day	6.2E-03
				Trichloroethylene	3.3E-02	MG/M3	2.7E-04	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.1E-04	2.9E-03	mg/kg/day	1.0E-02	mg/kg/day	2.9E-01
				Vinyl chloride	4.4E-04	MG/M3	3.6E-06	mg/kg/day	1.5E-02	1/(mg/kg-day)	5.5E-08	3.8E-05	mg/kg/day	2.9E-02	mg/kg/day	1.3E-03
				Xylenes, total	9.8E-03	MG/M3	7.9E-05	mg/kg/day	NA	NA	NA	8.4E-04	mg/kg/day	2.9E-02	mg/kg/day	2.9E-02
			Exp. Route Total								1.1E-04					5.5E-01
		Exposure Point Total									1.1E-04					5.5E-01
	Exposure Medium Total										1.1E-04					5.5E-01
Subsurface Soil Total											1.7E-04					2.9E+00

NA = Not applicable.

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TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion	Aluminum	6.0E+03	MG/KG	3.5E-04	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	1.0E+00	mg/kg/day	2.8E-03
				Antimony	4.7E+00	MG/KG	2.8E-07	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	4.0E-04	mg/kg/day	5.4E-03
				Arsenic	2.9E+02	MG/KG	1.7E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.5E-05	1.3E-04	mg/kg/day	3.0E-04	mg/kg/day	4.4E-01
				Barium	3.8E+04	MG/KG	2.2E-03	mg/kg/day	NA	NA	NA	1.7E-02	mg/kg/day	7.0E-02	mg/kg/day	2.5E-01
				Cadmium	2.0E+01	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	9.4E-06	mg/kg/day	1.0E-03	mg/kg/day	9.4E-03
				Chromium	3.0E+02	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	3.0E-03	mg/kg/day	4.5E-02
				Copper	5.7E+02	MG/KG	3.4E-05	mg/kg/day	NA	NA	NA	2.6E-04	mg/kg/day	4.0E-02	mg/kg/day	6.6E-03
				Iron	5.2E+04	MG/KG	3.1E-03	mg/kg/day	NA	NA	NA	2.4E-02	mg/kg/day	3.0E-01	mg/kg/day	8.0E-02
				Lead	1.4E+03	MG/KG	8.4E-05	mg/kg/day	NA	NA	NA	6.5E-04	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	3.0E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	1.4E-01	mg/kg/day	1.7E-03
				Mercury	9.1E-01	MG/KG	5.4E-08	mg/kg/day	NA	NA	NA	4.2E-07	mg/kg/day	3.0E-04	mg/kg/day	1.4E-03
				Nickel	7.6E+01	MG/KG	4.5E-06	mg/kg/day	NA	NA	NA	3.5E-05	mg/kg/day	2.0E-02	mg/kg/day	1.7E-03
				Silver	1.5E+01	MG/KG	8.8E-07	mg/kg/day	NA	NA	NA	6.8E-06	mg/kg/day	5.0E-03	mg/kg/day	1.4E-03
				Zinc	2.3E+03	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	3.0E-01	mg/kg/day	3.6E-03
				Aldrin	4.2E-01	MG/KG	2.5E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.2E-07	1.9E-07	mg/kg/day	3.0E-05	mg/kg/day	6.4E-03
				Chlordane - alpha	4.0E+00	MG/KG	2.4E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.2E-08	1.8E-06	mg/kg/day	5.0E-04	mg/kg/day	3.7E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	2.6E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	9.1E-08	2.0E-06	mg/kg/day	5.0E-04	mg/kg/day	4.0E-03
				DDE-4,4'	7.6E+00	MG/KG	4.5E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.5E-07	3.5E-06	mg/kg/day	3.0E-04	mg/kg/day	1.2E-02
				DDT-4,4'	1.6E+00	MG/KG	9.3E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.2E-08	7.2E-07	mg/kg/day	5.0E-04	mg/kg/day	1.4E-03
				Dieldrin	1.3E+00	MG/KG	7.7E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.2E-06	6.0E-07	mg/kg/day	5.0E-05	mg/kg/day	1.2E-02
				Heptachlor	9.5E-02	MG/KG	5.6E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	2.5E-08	4.4E-08	mg/kg/day	5.0E-04	mg/kg/day	8.7E-05
				Pcb-Aroclor 1248	2.3E-01	MG/KG	1.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.7E-08	1.1E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	6.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.3E-06	4.9E-06	mg/kg/day	2.0E-05	mg/kg/day	2.4E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	1.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.6E-07	1.0E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	1.0E-01	mg/kg/day	1.3E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	3.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-06	3.0E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
				Benzo(a)pyrene	6.2E+01	MG/KG	3.7E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.7E-05	2.9E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	4.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.0E-06	3.2E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	2.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.5E-07	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.3E-04
				Chrysene	6.4E+01	MG/KG	3.8E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.8E-08	3.0E-05	mg/kg/day	3.0E-02	mg/kg/day	9.8E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	2.5E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.8E-06	2.0E-06	mg/kg/day	3.0E-02	mg/kg/day	6.5E-05
				Fluoranthene	1.5E+02	MG/KG	8.7E-06	mg/kg/day	NA	NA	NA	6.8E-05	mg/kg/day	4.0E-02	mg/kg/day	1.7E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	9.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.2E-07	7.7E-06	mg/kg/day	5.0E-02	mg/kg/day	1.5E-04
				Naphthalene	7.2E+00	MG/KG	4.3E-07	mg/kg/day	NA	NA	NA	3.3E-06	mg/kg/day	2.0E-02	mg/kg/day	1.7E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	8.8E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.2E-08	6.9E-06	mg/kg/day	2.0E-02	mg/kg/day	3.4E-04
				Benzene	3.9E+00	MG/KG	2.3E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.3E-08	1.8E-06	mg/kg/day	4.0E-03	mg/kg/day	4.4E-04
				Chloroform	1.4E+00	MG/KG	8.2E-08	mg/kg/day	NA	NA	NA	6.4E-07	mg/kg/day	1.0E-02	mg/kg/day	6.4E-05
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	6.6E-07	mg/kg/day	NA	NA	NA	5.1E-06	mg/kg/day	1.0E-02	mg/kg/day	5.1E-04
				Tetrachloroethylene	1.2E+01	MG/KG	7.1E-07	mg/kg/day	5.4E-01	1/(mg/kg-day)	3.8E-07	5.5E-06	mg/kg/day	1.0E-02	mg/kg/day	5.5E-04
				Toluene	7.3E+01	MG/KG	4.3E-06	mg/kg/day	NA	NA	NA	3.4E-05	mg/kg/day	2.0E-01	mg/kg/day	1.7E-04
				Trichloroethylene	3.2E+00	MG/KG	1.9E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	7.6E-08	1.5E-06	mg/kg/day	3.0E-04	mg/kg/day	4.9E-03
				Vinyl chloride	3.2E-01	MG/KG	1.9E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.8E-08	1.5E-07	mg/kg/day	3.0E-03	mg/kg/day	4.9E-05
				Xylenes, total	2.9E+01	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	2.0E-01	mg/kg/day	6.7E-05
			Exp. Route Total								6.5E-05					1.1E+00

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TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dermal	Aluminum	6.0E+03	MG/KG	4.0E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	1.0E+00	mg/kg/day	3.1E-05
				Antimony	4.7E+00	MG/KG	3.2E-09	mg/kg/day	NA	NA	NA	2.5E-08	mg/kg/day	6.0E-05	mg/kg/day	4.1E-04
				Arsenic	2.9E+02	MG/KG	5.7E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.6E-07	4.5E-06	mg/kg/day	3.0E-04	mg/kg/day	1.5E-02
				Barium	3.8E+04	MG/KG	2.5E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	4.9E-03	mg/kg/day	4.0E-02
				Cadmium	2.0E+01	MG/KG	1.4E-09	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	5.0E-05	mg/kg/day	2.1E-04
				Chromium	3.0E+02	MG/KG	2.0E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	7.5E-05	mg/kg/day	2.1E-02
				Copper	5.7E+02	MG/KG	3.9E-07	mg/kg/day	NA	NA	NA	3.0E-06	mg/kg/day	4.0E-02	mg/kg/day	7.5E-05
				Iron	5.2E+04	MG/KG	3.5E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	3.0E-01	mg/kg/day	9.1E-04
				Lead	1.4E+03	MG/KG	9.6E-07	mg/kg/day	NA	NA	NA	7.5E-06	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	5.6E-03	mg/kg/day	4.8E-04
				Mercury	9.1E-01	MG/KG	6.1E-10	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	2.1E-05	mg/kg/day	2.3E-04
				Nickel	7.6E+01	MG/KG	5.1E-08	mg/kg/day	NA	NA	NA	4.0E-07	mg/kg/day	8.0E-04	mg/kg/day	4.9E-04
				Silver	1.5E+01	MG/KG	1.0E-08	mg/kg/day	NA	NA	NA	7.8E-08	mg/kg/day	2.0E-04	mg/kg/day	3.9E-04
				Zinc	2.3E+03	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	4.1E-05
				Aldrin	4.2E-01	MG/KG	2.8E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.8E-08	2.2E-08	mg/kg/day	3.0E-05	mg/kg/day	7.3E-04
				Chlordane - alpha	4.0E+00	MG/KG	1.1E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.8E-09	8.4E-08	mg/kg/day	5.0E-04	mg/kg/day	1.7E-04
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.2E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.2E-09	9.2E-08	mg/kg/day	5.0E-04	mg/kg/day	1.8E-04
				DDE-4,4'	7.6E+00	MG/KG	1.5E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	5.2E-09	1.2E-07	mg/kg/day	3.0E-04	mg/kg/day	3.9E-04
				DDT-4,4'	1.6E+00	MG/KG	3.2E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.1E-09	2.5E-08	mg/kg/day	5.0E-04	mg/kg/day	4.9E-05
				Dieldrin	1.3E+00	MG/KG	8.7E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.4E-07	6.8E-08	mg/kg/day	5.0E-05	mg/kg/day	1.4E-03
				Heptachlor	9.5E-02	MG/KG	6.4E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	2.9E-09	5.0E-09	mg/kg/day	5.0E-04	mg/kg/day	9.9E-06
				Pcb-Aroclor 1248	2.3E-01	MG/KG	2.2E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.3E-09	1.7E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	1.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-07	7.8E-07	mg/kg/day	2.0E-05	mg/kg/day	3.9E-02
				Pcb-Aroclor 1260	2.2E+00	MG/KG	2.1E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.2E-08	1.6E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	1.0E-01	mg/kg/day	1.5E-06
				Benzo(a)anthracene	6.6E+01	MG/KG	5.8E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.2E-07	4.5E-06	mg/kg/day	3.0E-02	mg/kg/day	1.5E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	5.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.0E-06	4.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	6.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.5E-07	4.7E-06	mg/kg/day	3.0E-02	mg/kg/day	1.6E-04
				Benzo(k)fluoranthene	3.5E+01	MG/KG	3.0E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.2E-08	2.4E-06	mg/kg/day	3.0E-02	mg/kg/day	7.8E-05
				Chrysene	6.4E+01	MG/KG	5.6E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.1E-09	4.4E-06	mg/kg/day	3.0E-02	mg/kg/day	1.5E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	3.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.7E-07	2.9E-07	mg/kg/day	3.0E-02	mg/kg/day	9.6E-06
				Fluoranthene	1.5E+02	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	3.6E-02	mg/kg/day	2.8E-04
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	1.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-07	1.1E-06	mg/kg/day	5.0E-02	mg/kg/day	2.3E-05
				Naphthalene	7.2E+00	MG/KG	6.3E-08	mg/kg/day	NA	NA	NA	4.9E-07	mg/kg/day	2.0E-02	mg/kg/day	2.5E-05
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	1.0E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.4E-09	7.8E-07	mg/kg/day	3.8E-03	mg/kg/day	2.1E-04
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00

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TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								6.6E-06					1.2E-01
		Exposure Point Total									7.1E-05					1.3E+00
	Exposure Medium Total										7.1E-05					1.3E+00
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	1.4E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	1.4E-03	mg/kg/day	7.5E-04
				Antimony	4.6E-09	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	8.4E-10	mg/kg/day	NA	NA	NA
				Arsenic	2.8E-07	MG/M3	6.6E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	9.9E-08	5.1E-08	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	8.7E-07	mg/kg/day	NA	NA	NA	6.8E-06	mg/kg/day	1.4E-04	mg/kg/day	4.8E-02
				Cadmium	2.0E-08	MG/M3	4.7E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	3.0E-09	3.7E-09	mg/kg/day	5.7E-05	mg/kg/day	6.4E-05
				Chromium	2.9E-07	MG/M3	6.8E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.9E-07	5.3E-08	mg/kg/day	2.3E-06	mg/kg/day	2.3E-02
				Copper	5.6E-07	MG/M3	1.3E-08	mg/kg/day	NA	NA	NA	1.0E-07	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	1.2E-06	mg/kg/day	NA	NA	NA	9.4E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	3.3E-08	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	9.2E-08	mg/kg/day	1.4E-05	mg/kg/day	6.4E-03
				Mercury	8.9E-10	MG/M3	2.1E-11	mg/kg/day	NA	NA	NA	1.6E-10	mg/kg/day	8.6E-05	mg/kg/day	1.9E-06
				Nickel	7.4E-08	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	3.4E-10	mg/kg/day	NA	NA	NA	2.7E-09	mg/kg/day	2.9E-06	mg/kg/day	9.3E-04
				Zinc	2.3E-06	MG/M3	5.4E-08	mg/kg/day	NA	NA	NA	4.2E-07	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	9.6E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.6E-10	7.5E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	9.2E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.2E-11	7.2E-10	mg/kg/day	2.0E-04	mg/kg/day	3.6E-06
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	1.0E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.6E-11	7.9E-10	mg/kg/day	2.0E-04	mg/kg/day	4.0E-06
				DDE-4,4'	7.4E-09	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	1.4E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	3.6E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.2E-11	2.8E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	3.0E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.8E-10	2.3E-10	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	2.2E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	9.9E-12	1.7E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	5.3E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.9E-12	4.1E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	2.5E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.6E-11	1.9E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	5.1E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-11	4.0E-10	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	1.2E-06	mg/kg/day	NA	NA	NA	9.2E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	8.0E-10	mg/kg/day	NA	NA	NA	6.2E-09	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	9.8E-11	mg/kg/day	NA	NA	NA	7.6E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	3.4E-09	mg/kg/day	NA	NA	NA	2.7E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	3.8E-10	mg/kg/day	NA	NA	NA	3.0E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	3.8E-06	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	8.6E-04	mg/kg/day	3.4E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	3.5E-10	mg/kg/day	NA	NA	NA	2.7E-09	mg/kg/day	NA	NA	NA
				Benzene	1.3E-03	MG/M3	3.1E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	8.5E-07	2.4E-04	mg/kg/day	8.6E-03	mg/kg/day	2.8E-02
				Chloroform	4.6E-04	MG/M3	1.1E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	8.6E-07	8.4E-05	mg/kg/day	1.4E-02	mg/kg/day	5.8E-03
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	8.6E-05	mg/kg/day	NA	NA	NA	6.7E-04	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	3.6E-03	MG/M3	8.5E-05	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.8E-06	6.6E-04	mg/kg/day	NA	NA	NA
				Toluene	2.0E-02	MG/M3	4.7E-04	mg/kg/day	NA	NA	NA	3.6E-03	mg/kg/day	1.1E-01	mg/kg/day	3.2E-02
				Trichloroethylene	9.5E-04	MG/M3	2.2E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	8.9E-06	1.7E-04	mg/kg/day	1.0E-02	mg/kg/day	1.7E-02

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TABLE 7.3.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Vinyl chloride	3.0E-04	MG/M3	6.9E-06	mg/kg/day	1.5E-02	1/(mg/kg-day)	1.1E-07	5.4E-05	mg/kg/day	2.9E-02	mg/kg/day	1.9E-03
				Xylenes, total	6.4E-03	MG/M3	1.5E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	2.9E-02	mg/kg/day	4.1E-02
			Exp. Route Total								1.3E-05					2.4E-01
		Exposure Point Total									1.3E-05					2.4E-01
	Exposure Medium Total										1.3E-05					2.4E-01
Surface Soil Total											8.4E-05					1.5E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Ingestion													
				Aluminum	6.1E+03	MG/KG	3.6E-04	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	1.0E+00	mg/kg/day	2.8E-03
				Antimony	1.0E+01	MG/KG	6.0E-07	mg/kg/day	NA	NA	NA	4.6E-06	mg/kg/day	4.0E-04	mg/kg/day	1.2E-02
				Arsenic	7.3E+02	MG/KG	4.3E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.5E-05	3.4E-04	mg/kg/day	3.0E-04	mg/kg/day	1.1E+00
				Barium	2.2E+04	MG/KG	1.3E-03	mg/kg/day	NA	NA	NA	9.9E-03	mg/kg/day	7.0E-02	mg/kg/day	1.4E-01
				Cadmium	1.9E+01	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	8.7E-06	mg/kg/day	1.0E-03	mg/kg/day	8.7E-03
				Chromium	2.7E+03	MG/KG	1.6E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	3.0E-03	mg/kg/day	4.1E-01
				Copper	5.1E+02	MG/KG	3.0E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	4.0E-02	mg/kg/day	5.9E-03
				Iron	2.7E+04	MG/KG	1.6E-03	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	3.0E-01	mg/kg/day	4.1E-02
				Lead	1.4E+04	MG/KG	8.3E-04	mg/kg/day	NA	NA	NA	6.4E-03	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.9E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	1.4E-01	mg/kg/day	1.1E-03
				Mercury	2.8E+01	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	3.0E-04	mg/kg/day	4.3E-02
				Nickel	7.0E+01	MG/KG	4.1E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	2.0E-02	mg/kg/day	1.6E-03
				Silver	6.0E+00	MG/KG	3.5E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	5.0E-03	mg/kg/day	5.5E-04
				Thallium	1.4E+00	MG/KG	8.5E-08	mg/kg/day	NA	NA	NA	6.6E-07	mg/kg/day	9.0E-05	mg/kg/day	7.4E-03
				Vanadium	2.4E+01	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	1.0E-03	mg/kg/day	1.1E-02
				Zinc	1.9E+03	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	8.8E-04	mg/kg/day	3.0E-01	mg/kg/day	2.9E-03
				Aldrin	1.7E-01	MG/KG	1.0E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.7E-07	7.9E-08	mg/kg/day	3.0E-05	mg/kg/day	2.6E-03
				Chlordane - alpha	1.6E+00	MG/KG	9.3E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.3E-08	7.3E-07	mg/kg/day	5.0E-04	mg/kg/day	1.5E-03
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	1.1E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.9E-08	8.7E-07	mg/kg/day	5.0E-04	mg/kg/day	1.7E-03
				DDE-4,4'	4.9E+00	MG/KG	2.9E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	9.7E-08	2.2E-06	mg/kg/day	3.0E-04	mg/kg/day	7.4E-03
				DDT-4,4'	3.9E-01	MG/KG	2.3E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	7.8E-09	1.8E-07	mg/kg/day	5.0E-04	mg/kg/day	3.6E-04
				Dieldrin	1.8E-01	MG/KG	1.1E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.7E-07	8.2E-08	mg/kg/day	5.0E-05	mg/kg/day	1.6E-03
				Heptachlor	3.8E-02	MG/KG	2.2E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.0E-08	1.7E-08	mg/kg/day	5.0E-04	mg/kg/day	3.5E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	5.4E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.1E-08	4.2E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	6.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.3E-06	4.9E-06	mg/kg/day	2.0E-05	mg/kg/day	2.5E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	1.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.7E-08	1.1E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	1.0E-01	mg/kg/day	1.3E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.4E-07	8.9E-06	mg/kg/day	3.0E-02	mg/kg/day	3.0E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	1.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.7E-06	8.3E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	1.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.3E-07	9.9E-06	mg/kg/day	3.0E-02	mg/kg/day	3.3E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	4.7E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.4E-08	3.7E-06	mg/kg/day	3.0E-02	mg/kg/day	1.2E-04
				Chrysene	1.8E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	7.9E-09	8.4E-06	mg/kg/day	3.0E-02	mg/kg/day	2.8E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	2.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.7E-06	1.9E-06	mg/kg/day	3.0E-02	mg/kg/day	6.2E-05
				Fluoranthene	3.8E+01	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	4.0E-02	mg/kg/day	4.3E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	5.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.2E-07	4.5E-06	mg/kg/day	5.0E-02	mg/kg/day	8.9E-05
				Naphthalene	3.2E+01	MG/KG	1.9E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	2.0E-02	mg/kg/day	7.4E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	1.5E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	2.1E-08	1.2E-05	mg/kg/day	2.0E-02	mg/kg/day	5.9E-04

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TABLE 7.3.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	5.9E+00	MG/KG	3.5E-07	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.9E-08	2.7E-06	mg/kg/day	4.0E-03	mg/kg/day	6.7E-04
				Bromomethane	5.2E-01	MG/KG	3.1E-08	mg/kg/day	NA	NA	NA	2.4E-07	mg/kg/day	1.4E-03	mg/kg/day	1.7E-04
				Chloroform	2.2E+00	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	1.0E-02	mg/kg/day	1.0E-04
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	1.0E-02	mg/kg/day	2.6E-04
				Ethylbenzene	6.4E+00	MG/KG	3.7E-07	mg/kg/day	NA	NA	NA	2.9E-06	mg/kg/day	1.0E-01	mg/kg/day	2.9E-05
				Tetrachloroethylene	2.3E+01	MG/KG	1.3E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	7.3E-07	1.0E-05	mg/kg/day	1.0E-02	mg/kg/day	1.0E-03
				Toluene	3.0E+01	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	2.0E-01	mg/kg/day	7.0E-05
				Trichloroethylene	1.1E+02	MG/KG	6.7E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	2.7E-06	5.2E-05	mg/kg/day	3.0E-04	mg/kg/day	1.7E-01
				Vinyl chloride	4.8E-01	MG/KG	2.8E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.2E-08	2.2E-07	mg/kg/day	3.0E-03	mg/kg/day	7.3E-05
				Xylenes, total	4.5E+01	MG/KG	2.6E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	2.0E-01	mg/kg/day	1.0E-04
			Exp. Route Total								8.2E-05					2.3E+00
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal	Aluminum	6.1E+03	MG/KG	4.1E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	1.0E+00	mg/kg/day	3.2E-05
				Antimony	1.0E+01	MG/KG	6.8E-09	mg/kg/day	NA	NA	NA	5.3E-08	mg/kg/day	6.0E-05	mg/kg/day	8.8E-04
				Arsenic	7.3E+02	MG/KG	1.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.2E-06	1.1E-05	mg/kg/day	3.0E-04	mg/kg/day	3.8E-02
				Barium	2.2E+04	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	4.9E-03	mg/kg/day	2.3E-02
				Cadmium	1.9E+01	MG/KG	1.3E-09	mg/kg/day	NA	NA	NA	9.9E-09	mg/kg/day	5.0E-05	mg/kg/day	2.0E-04
				Chromium	2.7E+03	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	7.5E-05	mg/kg/day	1.9E-01
				Copper	5.1E+02	MG/KG	3.5E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	4.0E-02	mg/kg/day	6.7E-05
				Iron	2.7E+04	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	3.0E-01	mg/kg/day	4.6E-04
				Lead	1.4E+04	MG/KG	9.4E-06	mg/kg/day	NA	NA	NA	7.3E-05	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	2.2E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	5.6E-03	mg/kg/day	3.0E-04
				Mercury	2.8E+01	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	2.1E-05	mg/kg/day	6.9E-03
				Nickel	7.0E+01	MG/KG	4.7E-08	mg/kg/day	NA	NA	NA	3.6E-07	mg/kg/day	8.0E-04	mg/kg/day	4.5E-04
				Silver	6.0E+00	MG/KG	4.0E-09	mg/kg/day	NA	NA	NA	3.1E-08	mg/kg/day	2.0E-04	mg/kg/day	1.6E-04
				Thallium	1.4E+00	MG/KG	9.7E-10	mg/kg/day	NA	NA	NA	7.5E-09	mg/kg/day	9.0E-05	mg/kg/day	8.4E-05
				Vanadium	2.4E+01	MG/KG	1.6E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	2.6E-05	mg/kg/day	4.8E-03
				Zinc	1.9E+03	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.4E-05
				Aldrin	1.7E-01	MG/KG	1.2E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.0E-08	9.0E-09	mg/kg/day	3.0E-05	mg/kg/day	3.0E-04
				Chlordane - alpha	1.6E+00	MG/KG	4.3E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-09	3.3E-08	mg/kg/day	5.0E-04	mg/kg/day	6.6E-05
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	5.1E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-09	4.0E-08	mg/kg/day	5.0E-04	mg/kg/day	7.9E-05
				DDE-4,4'	4.9E+00	MG/KG	9.8E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.3E-09	7.6E-08	mg/kg/day	3.0E-04	mg/kg/day	2.5E-04
				DDT-4,4'	3.9E-01	MG/KG	7.9E-10	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.7E-10	6.1E-09	mg/kg/day	5.0E-04	mg/kg/day	1.2E-05
				Dieldrin	1.8E-01	MG/KG	1.2E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.9E-08	9.3E-09	mg/kg/day	5.0E-05	mg/kg/day	1.9E-04
				Heptachlor	3.8E-02	MG/KG	2.5E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.1E-09	2.0E-09	mg/kg/day	5.0E-04	mg/kg/day	4.0E-06
				Pcb-Aroclor 1248	9.2E-02	MG/KG	8.7E-10	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.7E-09	6.7E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	1.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.0E-07	7.9E-07	mg/kg/day	2.0E-05	mg/kg/day	3.9E-02
				Pcb-Aroclor 1260	2.3E-01	MG/KG	2.2E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.4E-09	1.7E-08	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	1.0E-01	mg/kg/day	1.5E-06
				Benzo(a)anthracene	2.0E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-07	1.3E-06	mg/kg/day	3.0E-02	mg/kg/day	4.4E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.5E-06	mg/kg/day	3.0E-02	mg/kg/day	4.9E-05
				Benzo(k)fluoranthene	8.0E+00	MG/KG	7.0E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.1E-09	5.4E-07	mg/kg/day	3.0E-02	mg/kg/day	1.8E-05
				Chrysene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.2E-09	1.2E-06	mg/kg/day	3.0E-02	mg/kg/day	4.2E-05

TABLE 7.3.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	3.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.6E-07	2.8E-07	mg/kg/day	3.0E-02	mg/kg/day	9.2E-06
				Fluoranthene	3.8E+01	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	3.6E-02	mg/kg/day	7.2E-05
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	8.5E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-08	6.6E-07	mg/kg/day	5.0E-02	mg/kg/day	1.3E-05
				Naphthalene	3.2E+01	MG/KG	2.8E-07	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	2.0E-02	mg/kg/day	1.1E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	1.7E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	2.4E-09	1.3E-06	mg/kg/day	3.8E-03	mg/kg/day	3.5E-04
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.4E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								4.2E-06					3.0E-01
		Exposure Point Total									8.6E-05					2.6E+00
	Exposure Medium Total										8.6E-05					2.6E+00
Subsurface Soil	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Inhalation	Aluminum	6.0E-06	MG/M3	1.4E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	1.4E-03	NA	7.6E-04
				Antimony	9.9E-09	MG/M3	2.3E-10	mg/kg/day	NA	NA	NA	1.8E-09	mg/kg/day	NA	NA	NA
				Arsenic	7.2E-07	MG/M3	1.7E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.5E-07	1.3E-07	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	5.0E-07	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	1.4E-04	mg/kg/day	2.8E-02
				Cadmium	1.9E-08	MG/M3	4.4E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.8E-09	3.4E-09	mg/kg/day	5.7E-05	mg/kg/day	6.0E-05
				Chromium	2.7E-06	MG/M3	6.2E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.6E-06	4.8E-07	mg/kg/day	2.3E-06	mg/kg/day	2.1E-01
				Copper	5.0E-07	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	9.2E-08	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	6.1E-07	mg/kg/day	NA	NA	NA	4.8E-06	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	3.2E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	7.5E-09	mg/kg/day	NA	NA	NA	5.8E-08	mg/kg/day	1.4E-05	mg/kg/day	4.1E-03
				Mercury	2.7E-08	MG/M3	6.4E-10	mg/kg/day	NA	NA	NA	5.0E-09	mg/kg/day	8.6E-05	mg/kg/day	5.8E-05
				Nickel	6.8E-08	MG/M3	1.6E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	2.9E-06	mg/kg/day	3.7E-04
				Thallium	1.4E-09	MG/M3	3.3E-11	mg/kg/day	NA	NA	NA	2.6E-10	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	4.4E-08	mg/kg/day	NA	NA	NA	3.4E-07	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	4.0E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	6.8E-11	3.1E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	3.6E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-11	2.8E-10	mg/kg/day	2.0E-04	mg/kg/day	1.4E-06
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	4.4E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-11	3.4E-10	mg/kg/day	2.0E-04	mg/kg/day	1.7E-06
				DDE-4,4'	4.8E-09	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	8.7E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	9.0E-12	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.1E-12	7.0E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	4.1E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	6.6E-11	3.2E-11	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	8.7E-13	mg/kg/day	4.6E+00	1/(mg/kg-day)	4.0E-12	6.8E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	2.1E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.4E-13	1.7E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	2.5E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.7E-11	1.9E-09	mg/kg/day	NA	NA	NA

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TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Pcb-Aroclor 1260	2.3E-10	MG/M3	5.3E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.9E-12	4.2E-11	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	1.2E-06	mg/kg/day	NA	NA	NA	9.2E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	4.5E-10	mg/kg/day	NA	NA	NA	3.5E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	5.0E-10	mg/kg/day	NA	NA	NA	3.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	7.8E-09	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	1.4E-09	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	4.2E-10	mg/kg/day	NA	NA	NA	3.3E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	9.3E-11	mg/kg/day	NA	NA	NA	7.3E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	8.6E-10	mg/kg/day	NA	NA	NA	6.7E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	NA	NA	NA
				Naphthalene	7.2E-04	MG/M3	1.7E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	8.6E-04	mg/kg/day	1.5E-01
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	5.9E-10	mg/kg/day	NA	NA	NA	4.6E-09	mg/kg/day	NA	NA	NA
				Benzene	2.0E-03	MG/M3	4.8E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	1.3E-06	3.7E-04	mg/kg/day	8.6E-03	mg/kg/day	4.3E-02
				Bromomethane	2.8E-04	MG/M3	6.5E-06	mg/kg/day	NA	NA	NA	5.0E-05	mg/kg/day	1.4E-03	mg/kg/day	3.5E-02
				Chloroform	7.3E-04	MG/M3	1.7E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	1.4E-06	1.3E-04	mg/kg/day	1.4E-02	mg/kg/day	9.3E-03
				Dichloroethylene-1,2 cis	1.9E-03	MG/M3	4.4E-05	mg/kg/day	NA	NA	NA	3.4E-04	mg/kg/day	NA	NA	NA
				Ethylbenzene	1.5E-03	MG/M3	3.4E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	2.9E-01	mg/kg/day	9.4E-04
				Tetrachloroethylene	6.9E-03	MG/M3	1.6E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	3.4E-06	1.3E-03	mg/kg/day	NA	NA	NA
				Toluene	8.2E-03	MG/M3	1.9E-04	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	1.1E-01	mg/kg/day	1.3E-02
				Trichloroethylene	3.3E-02	MG/M3	7.8E-04	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.1E-04	6.1E-03	mg/kg/day	1.0E-02	mg/kg/day	6.1E-01
				Vinyl chloride	4.4E-04	MG/M3	1.0E-05	mg/kg/day	1.5E-02	1/(mg/kg-day)	1.6E-07	8.1E-05	mg/kg/day	2.9E-02	mg/kg/day	2.8E-03
				Xylenes, total	9.8E-03	MG/M3	2.3E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	2.9E-02	mg/kg/day	6.2E-02
			Exp. Route Total								3.2E-04					1.2E+00
		Exposure Point Total									3.2E-04					1.2E+00
	Exposure Medium Total										3.2E-04					1.2E+00
Subsurface Soil Total											4.1E-04					3.7E+00

NA = Not applicable.

301306

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion	Aluminum	6.0E+03	MG/KG	2.2E-03	mg/kg/day	NA	NA	NA	2.6E-02	mg/kg/day	1.0E+00	mg/kg/day	2.6E-02
				Antimony	4.7E+00	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	2.0E-04	mg/kg/day	1.0E-01
				Arsenic	2.9E+02	MG/KG	1.0E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.6E-04	1.2E-03	mg/kg/day	5.0E-03	mg/kg/day	2.4E-01
				Barium	3.8E+04	MG/KG	1.4E-02	mg/kg/day	NA	NA	NA	1.6E-01	mg/kg/day	7.0E-02	mg/kg/day	2.3E+00
				Cadmium	2.0E+01	MG/KG	7.5E-06	mg/kg/day	NA	NA	NA	8.7E-05	mg/kg/day	1.0E-03	mg/kg/day	8.7E-02
				Chromium	3.0E+02	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	2.0E-02	mg/kg/day	6.3E-02
				Copper	5.7E+02	MG/KG	2.1E-04	mg/kg/day	NA	NA	NA	2.5E-03	mg/kg/day	4.0E-02	mg/kg/day	6.1E-02
				Iron	5.2E+04	MG/KG	1.9E-02	mg/kg/day	NA	NA	NA	2.2E-01	mg/kg/day	3.0E-01	mg/kg/day	7.5E-01
				Lead	1.4E+03	MG/KG	5.2E-04	mg/kg/day	NA	NA	NA	6.1E-03	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	1.9E-04	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	1.4E-01	mg/kg/day	1.6E-02
				Mercury	9.1E-01	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	3.0E-04	mg/kg/day	1.3E-02
				Nickel	7.6E+01	MG/KG	2.8E-05	mg/kg/day	NA	NA	NA	3.2E-04	mg/kg/day	2.0E-02	mg/kg/day	1.6E-02
				Silver	1.5E+01	MG/KG	5.5E-06	mg/kg/day	NA	NA	NA	6.4E-05	mg/kg/day	5.0E-03	mg/kg/day	1.3E-02
				Zinc	2.3E+03	MG/KG	8.6E-04	mg/kg/day	NA	NA	NA	1.0E-02	mg/kg/day	3.0E-01	mg/kg/day	3.3E-02
				Aldrin	4.2E-01	MG/KG	1.5E-07	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.6E-06	1.8E-06	mg/kg/day	3.0E-05	mg/kg/day	5.9E-02
				Chlordane - alpha	4.0E+00	MG/KG	1.5E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.1E-07	1.7E-05	mg/kg/day	6.0E-05	mg/kg/day	2.9E-01
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	1.6E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.7E-07	1.9E-05	mg/kg/day	6.0E-05	mg/kg/day	3.1E-01
				DDE-4,4'	7.6E+00	MG/KG	2.8E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	9.4E-07	3.2E-05	mg/kg/day	3.0E-04	mg/kg/day	1.1E-01
				DDT-4,4'	1.6E+00	MG/KG	5.8E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.0E-07	6.7E-06	mg/kg/day	5.0E-04	mg/kg/day	1.3E-02
				Dieldrin	1.3E+00	MG/KG	4.8E-07	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.6E-06	5.6E-06	mg/kg/day	5.0E-05	mg/kg/day	1.1E-01
				Heptachlor	9.5E-02	MG/KG	3.5E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.6E-07	4.1E-07	mg/kg/day	5.0E-04	mg/kg/day	8.1E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	8.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.7E-07	9.8E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.9E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.8E-06	4.6E-05	mg/kg/day	5.0E-05	mg/kg/day	9.1E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	8.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.6E-06	9.5E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	1.0E+00	mg/kg/day	1.2E-05
				Benzo(a)anthracene	6.6E+01	MG/KG	2.4E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.8E-05	2.8E-04	mg/kg/day	3.0E-01	mg/kg/day	9.4E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	2.3E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.7E-04	2.7E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	2.6E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-05	3.0E-04	mg/kg/day	3.0E-01	mg/kg/day	1.0E-03
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.3E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	9.3E-07	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	4.9E-04
				Chrysene	6.4E+01	MG/KG	2.4E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.7E-07	2.8E-04	mg/kg/day	3.0E-01	mg/kg/day	9.2E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	1.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-05	1.8E-05	mg/kg/day	3.0E-01	mg/kg/day	6.1E-05
				Fluoranthene	1.5E+02	MG/KG	5.4E-05	mg/kg/day	NA	NA	NA	6.3E-04	mg/kg/day	4.0E-01	mg/kg/day	1.6E-03
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	6.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.5E-06	7.2E-05	mg/kg/day	6.0E-01	mg/kg/day	1.2E-04
				Naphthalene	7.2E+00	MG/KG	2.7E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	2.0E-02	mg/kg/day	1.5E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	5.5E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	7.7E-08	6.4E-05	mg/kg/day	2.0E-02	mg/kg/day	3.2E-03
				Benzene	3.9E+00	MG/KG	1.4E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	7.8E-08	1.7E-05	mg/kg/day	3.0E-03	mg/kg/day	5.5E-03
				Chloroform	1.4E+00	MG/KG	5.1E-07	mg/kg/day	NA	NA	NA	6.0E-06	mg/kg/day	1.0E-02	mg/kg/day	6.0E-04
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	4.1E-06	mg/kg/day	NA	NA	NA	4.8E-05	mg/kg/day	1.0E-01	mg/kg/day	4.8E-04
				Tetrachloroethylene	1.2E+01	MG/KG	4.4E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	2.4E-06	5.2E-05	mg/kg/day	1.0E-01	mg/kg/day	5.2E-04
				Toluene	7.3E+01	MG/KG	2.7E-05	mg/kg/day	NA	NA	NA	3.1E-04	mg/kg/day	2.0E+00	mg/kg/day	1.6E-04
				Trichloroethylene	3.2E+00	MG/KG	1.2E-06	mg/kg/day	4.0E-01	1/(mg/kg-day)	4.7E-07	1.4E-05	mg/kg/day	3.0E-04	mg/kg/day	4.6E-02
				Vinyl chloride	3.2E-01	MG/KG	1.2E-07	mg/kg/day	7.5E-01	1/(mg/kg-day)	8.8E-08	1.4E-06	mg/kg/day	3.0E-03	mg/kg/day	4.6E-04
				Xylenes, total	2.9E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	2.0E-01	mg/kg/day	6.3E-04
			Exp. Route Total								4.0E-04					5.6E+00

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TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dermal	Aluminum	6.0E+03	MG/KG	2.5E-05	mg/kg/day	NA	NA	NA	2.9E-04	mg/kg/day	1.0E+00	mg/kg/day	2.9E-04
				Antimony	4.7E+00	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	2.3E-07	mg/kg/day	3.0E-05	mg/kg/day	7.5E-03
				Arsenic	2.9E+02	MG/KG	3.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.3E-06	4.1E-05	mg/kg/day	5.0E-03	mg/kg/day	8.2E-03
				Barium	3.8E+04	MG/KG	1.6E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	4.9E-03	mg/kg/day	3.7E-01
				Cadmium	2.0E+01	MG/KG	8.4E-09	mg/kg/day	NA	NA	NA	9.8E-08	mg/kg/day	5.0E-05	mg/kg/day	2.0E-03
				Chromium	3.0E+02	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.0E-04	mg/kg/day	2.8E-02
				Copper	5.7E+02	MG/KG	2.4E-06	mg/kg/day	NA	NA	NA	2.8E-05	mg/kg/day	4.0E-02	mg/kg/day	6.9E-04
				Iron	5.2E+04	MG/KG	2.1E-04	mg/kg/day	NA	NA	NA	2.5E-03	mg/kg/day	3.0E-01	mg/kg/day	8.4E-03
				Lead	1.4E+03	MG/KG	5.9E-06	mg/kg/day	NA	NA	NA	6.8E-05	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	5.6E-03	mg/kg/day	4.4E-03
				Mercury	9.1E-01	MG/KG	3.7E-09	mg/kg/day	NA	NA	NA	4.4E-08	mg/kg/day	2.1E-05	mg/kg/day	2.1E-03
				Nickel	7.6E+01	MG/KG	3.1E-07	mg/kg/day	NA	NA	NA	3.6E-06	mg/kg/day	8.0E-04	mg/kg/day	4.5E-03
				Silver	1.5E+01	MG/KG	6.1E-08	mg/kg/day	NA	NA	NA	7.1E-07	mg/kg/day	2.0E-04	mg/kg/day	3.6E-03
				Zinc	2.3E+03	MG/KG	9.6E-06	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.7E-04
				Aldrin	4.2E-01	MG/KG	1.7E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.9E-07	2.0E-07	mg/kg/day	3.0E-05	mg/kg/day	6.7E-03
				Chlordane - alpha	4.0E+00	MG/KG	6.6E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.3E-08	7.7E-07	mg/kg/day	6.0E-05	mg/kg/day	1.3E-02
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	7.3E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.5E-08	8.5E-07	mg/kg/day	6.0E-05	mg/kg/day	1.4E-02
				DDE-4,4'	7.6E+00	MG/KG	9.3E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	3.2E-08	1.1E-06	mg/kg/day	3.0E-04	mg/kg/day	3.6E-03
				DDT-4,4'	1.6E+00	MG/KG	1.9E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	6.6E-09	2.3E-07	mg/kg/day	5.0E-04	mg/kg/day	4.5E-04
				Dieldrin	1.3E+00	MG/KG	5.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	8.5E-07	6.2E-07	mg/kg/day	5.0E-05	mg/kg/day	1.2E-02
				Heptachlor	9.5E-02	MG/KG	3.9E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.8E-08	4.5E-08	mg/kg/day	5.0E-04	mg/kg/day	9.1E-05
				Pcb-Aroclor 1248	2.3E-01	MG/KG	1.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.6E-08	1.5E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	6.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-06	7.2E-06	mg/kg/day	5.0E-05	mg/kg/day	1.4E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	1.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.6E-07	1.5E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	1.0E+00	mg/kg/day	1.4E-06
				Benzo(a)anthracene	6.6E+01	MG/KG	3.5E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.6E-06	4.1E-05	mg/kg/day	3.0E-01	mg/kg/day	1.4E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	3.3E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.4E-05	3.9E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	3.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.7E-06	4.4E-05	mg/kg/day	3.0E-01	mg/kg/day	1.5E-04
				Benzo(k)fluoranthene	3.5E+01	MG/KG	1.9E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.4E-07	2.2E-05	mg/kg/day	3.0E-01	mg/kg/day	7.2E-05
				Chrysene	6.4E+01	MG/KG	3.4E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.5E-08	4.0E-05	mg/kg/day	3.0E-01	mg/kg/day	1.3E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	2.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.7E-06	2.7E-06	mg/kg/day	3.0E-01	mg/kg/day	8.8E-06
				Fluoranthene	1.5E+02	MG/KG	7.9E-06	mg/kg/day	NA	NA	NA	9.2E-05	mg/kg/day	3.6E-01	mg/kg/day	2.6E-04
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	8.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.5E-07	1.0E-05	mg/kg/day	6.0E-01	mg/kg/day	1.7E-05
				Naphthalene	7.2E+00	MG/KG	3.9E-07	mg/kg/day	NA	NA	NA	4.5E-06	mg/kg/day	2.0E-02	mg/kg/day	2.3E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	6.2E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	8.6E-09	7.2E-06	mg/kg/day	3.8E-03	mg/kg/day	1.9E-03
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	7.5E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00

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TABLE 7.4.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								4.0E-05					6.4E-01
		Exposure Point Total									4.4E-04					6.2E+00
	Exposure Medium Total										4.4E-04					6.2E+00
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	2.2E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	1.4E-03	mg/kg/day	1.8E-03
				Antimony	4.6E-09	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	2.0E-09	mg/kg/day	1.1E-04	mg/kg/day	1.7E-05
				Arsenic	2.8E-07	MG/M3	1.0E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.6E-07	1.2E-07	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	1.4E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	1.4E-03	mg/kg/day	1.1E-02
				Cadmium	2.0E-08	MG/M3	7.4E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.7E-09	8.6E-09	mg/kg/day	2.6E-04	mg/kg/day	3.4E-05
				Chromium	2.9E-07	MG/M3	1.1E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	4.5E-07	1.3E-07	mg/kg/day	2.3E-06	mg/kg/day	5.5E-02
				Copper	5.6E-07	MG/M3	2.1E-08	mg/kg/day	NA	NA	NA	2.4E-07	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	5.2E-08	mg/kg/day	NA	NA	NA	6.0E-07	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	1.9E-08	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	1.4E-05	mg/kg/day	1.5E-02
				Mercury	8.9E-10	MG/M3	3.3E-11	mg/kg/day	NA	NA	NA	3.8E-10	mg/kg/day	8.6E-05	mg/kg/day	4.5E-06
				Nickel	7.4E-08	MG/M3	2.7E-09	mg/kg/day	NA	NA	NA	3.2E-08	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	5.4E-10	mg/kg/day	NA	NA	NA	6.3E-09	mg/kg/day	2.9E-06	mg/kg/day	2.2E-03
				Zinc	2.3E-06	MG/M3	8.5E-08	mg/kg/day	NA	NA	NA	9.9E-07	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	1.5E-11	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.6E-10	1.8E-10	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	1.4E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.1E-11	1.7E-09	mg/kg/day	2.0E-04	mg/kg/day	8.5E-06
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	1.6E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.6E-11	1.9E-09	mg/kg/day	2.0E-04	mg/kg/day	9.3E-06
				DDE-4,4'	7.4E-09	MG/M3	2.7E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	5.7E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.9E-11	6.7E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	4.7E-11	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.6E-10	5.5E-10	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	3.4E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	1.6E-11	4.0E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	8.3E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.9E-12	9.7E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	3.9E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.4E-10	4.5E-09	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	8.0E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.8E-11	9.4E-10	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	2.4E-09	mg/kg/day	NA	NA	NA	2.8E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	2.3E-09	mg/kg/day	NA	NA	NA	2.6E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	2.5E-09	mg/kg/day	NA	NA	NA	3.0E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	2.3E-09	mg/kg/day	NA	NA	NA	2.7E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.8E-09	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	5.4E-09	mg/kg/day	NA	NA	NA	6.3E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	6.1E-10	mg/kg/day	NA	NA	NA	7.1E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.6E-04	MG/M3	5.9E-06	mg/kg/day	NA	NA	NA	6.9E-05	mg/kg/day	8.6E-04	mg/kg/day	8.1E-02
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	5.4E-10	mg/kg/day	NA	NA	NA	6.3E-09	mg/kg/day	NA	NA	NA
				Benzene	1.3E-03	MG/M3	4.9E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	1.3E-06	5.7E-04	mg/kg/day	1.7E-02	mg/kg/day	3.4E-02
				Chloroform	4.6E-04	MG/M3	1.7E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	1.4E-06	2.0E-04	mg/kg/day	1.4E-02	mg/kg/day	1.4E-02
				Dichloroethylene-1,2 cis	3.7E-03	MG/M3	1.4E-04	mg/kg/day	NA	NA	NA	1.6E-03	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	3.6E-03	MG/M3	1.3E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	2.8E-06	1.6E-03	mg/kg/day	NA	NA	NA
				Toluene	2.0E-02	MG/M3	7.3E-04	mg/kg/day	NA	NA	NA	8.5E-03	mg/kg/day	1.1E-01	mg/kg/day	7.5E-02
				Trichloroethylene	9.5E-04	MG/M3	3.5E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.4E-05	4.1E-04	mg/kg/day	1.0E-02	mg/kg/day	4.1E-02

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TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Vinyl chloride	3.0E-04	MG/M3	1.1E-05	mg/kg/day	3.1E-02	1/(mg/kg-day)	3.4E-07	1.3E-04	mg/kg/day	2.9E-02	mg/kg/day	4.5E-03
				Xylenes, total	6.4E-03	MG/M3	2.4E-04	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	2.9E-02	mg/kg/day	9.7E-02
			Exp. Route Total								2.1E-05					4.3E-01
		Exposure Point Total									2.1E-05					4.3E-01
	Exposure Medium Total										2.1E-05					4.3E-01
Surface Soil Total											4.6E-04					6.7E+00
Subsurface Soil	Subsurface Soil															
				Aluminum	6.1E+03	MG/KG	2.2E-03	mg/kg/day	NA	NA	NA	2.6E-02	mg/kg/day	1.0E+00	mg/kg/day	2.6E-02
				Antimony	1.0E+01	MG/KG	3.7E-06	mg/kg/day	NA	NA	NA	4.3E-05	mg/kg/day	2.0E-04	mg/kg/day	2.2E-01
				Arsenic	7.3E+02	MG/KG	2.7E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.0E-04	3.1E-03	mg/kg/day	5.0E-03	mg/kg/day	6.3E-01
				Barium	2.2E+04	MG/KG	7.9E-03	mg/kg/day	NA	NA	NA	9.2E-02	mg/kg/day	7.0E-02	mg/kg/day	1.3E+00
				Cadmium	1.9E+01	MG/KG	7.0E-06	mg/kg/day	NA	NA	NA	8.1E-05	mg/kg/day	1.0E-03	mg/kg/day	8.1E-02
				Chromium	2.7E+03	MG/KG	9.9E-04	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	2.0E-02	mg/kg/day	5.8E-01
				Copper	5.1E+02	MG/KG	1.9E-04	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	4.0E-02	mg/kg/day	5.5E-02
				Iron	2.7E+04	MG/KG	9.8E-03	mg/kg/day	NA	NA	NA	1.1E-01	mg/kg/day	3.0E-01	mg/kg/day	3.8E-01
				Lead	1.4E+04	MG/KG	5.1E-03	mg/kg/day	NA	NA	NA	6.0E-02	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.2E-04	mg/kg/day	NA	NA	NA	1.4E-03	mg/kg/day	1.4E-01	mg/kg/day	9.9E-03
				Mercury	2.8E+01	MG/KG	1.0E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.0E-04	mg/kg/day	4.0E-01
				Nickel	7.0E+01	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	2.0E-02	mg/kg/day	1.5E-02
				Silver	6.0E+00	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	2.6E-05	mg/kg/day	5.0E-03	mg/kg/day	5.1E-03
				Thallium	1.4E+00	MG/KG	5.3E-07	mg/kg/day	NA	NA	NA	6.2E-06	mg/kg/day	9.0E-04	mg/kg/day	6.9E-03
				Vanadium	2.4E+01	MG/KG	8.7E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	7.0E-03	mg/kg/day	1.5E-02
				Zinc	1.9E+03	MG/KG	7.1E-04	mg/kg/day	NA	NA	NA	8.2E-03	mg/kg/day	3.0E-01	mg/kg/day	2.7E-02
				Aldrin	1.7E-01	MG/KG	6.3E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.1E-06	7.4E-07	mg/kg/day	3.0E-05	mg/kg/day	2.5E-02
				Chlordane - alpha	1.6E+00	MG/KG	5.8E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-07	6.8E-06	mg/kg/day	6.0E-05	mg/kg/day	1.1E-01
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	6.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.4E-07	8.1E-06	mg/kg/day	6.0E-05	mg/kg/day	1.4E-01
				DDE-4,4'	4.9E+00	MG/KG	1.8E-06	mg/kg/day	3.4E-01	1/(mg/kg-day)	6.1E-07	2.1E-05	mg/kg/day	3.0E-04	mg/kg/day	6.9E-02
				DDT-4,4'	3.9E-01	MG/KG	1.4E-07	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.9E-08	1.7E-06	mg/kg/day	5.0E-04	mg/kg/day	3.3E-03
				Dieldrin	1.8E-01	MG/KG	6.6E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.0E-06	7.7E-07	mg/kg/day	5.0E-05	mg/kg/day	1.5E-02
				Heptachlor	3.8E-02	MG/KG	1.4E-08	mg/kg/day	4.5E+00	1/(mg/kg-day)	6.2E-08	1.6E-07	mg/kg/day	5.0E-04	mg/kg/day	3.2E-04
				Pcb-Aroclor 1248	9.2E-02	MG/KG	3.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.8E-08	3.9E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	3.9E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.9E-06	4.6E-05	mg/kg/day	5.0E-05	mg/kg/day	9.2E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	8.5E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.7E-07	9.9E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	1.0E+00	mg/kg/day	1.2E-05
				Benzo(a)anthracene	2.0E+01	MG/KG	7.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.2E-06	8.4E-05	mg/kg/day	3.0E-01	mg/kg/day	2.8E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.8E-05	7.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	7.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.8E-06	9.2E-05	mg/kg/day	3.0E-01	mg/kg/day	3.1E-04
				Benzo(k)fluoranthene	8.0E+00	MG/KG	2.9E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.1E-07	3.4E-05	mg/kg/day	3.0E-01	mg/kg/day	1.1E-04
				Chrysene	1.8E+01	MG/KG	6.7E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	4.9E-08	7.8E-05	mg/kg/day	3.0E-01	mg/kg/day	2.6E-04
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	1.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-05	1.7E-05	mg/kg/day	3.0E-01	mg/kg/day	5.8E-05
				Fluoranthene	3.8E+01	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	4.0E-01	mg/kg/day	4.0E-04
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	3.6E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.6E-06	4.2E-05	mg/kg/day	6.0E-01	mg/kg/day	6.9E-05
				Naphthalene	3.2E+01	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	2.0E-02	mg/kg/day	6.9E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	9.4E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.3E-07	1.1E-04	mg/kg/day	2.0E-02	mg/kg/day	5.5E-03

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TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	5.9E+00	MG/KG	2.2E-06	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.2E-07	2.5E-05	mg/kg/day	3.0E-03	mg/kg/day	8.4E-03
				Bromomethane	5.2E-01	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	5.0E-03	mg/kg/day	4.4E-04
				Chloroform	2.2E+00	MG/KG	8.2E-07	mg/kg/day	NA	NA	NA	9.5E-06	mg/kg/day	1.0E-02	mg/kg/day	9.5E-04
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	1.0E-01	mg/kg/day	2.4E-04
				Ethylbenzene	6.4E+00	MG/KG	2.3E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	1.0E-01	mg/kg/day	2.7E-04
				Tetrachloroethylene	2.3E+01	MG/KG	8.4E-06	mg/kg/day	5.4E-01	1/(mg/kg-day)	4.5E-06	9.8E-05	mg/kg/day	1.0E-01	mg/kg/day	9.8E-04
				Toluene	3.0E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	2.0E+00	mg/kg/day	6.5E-05
				Trichloroethylene	1.1E+02	MG/KG	4.1E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.7E-05	4.8E-04	mg/kg/day	3.0E-04	mg/kg/day	1.6E+00
				Vinyl chloride	4.8E-01	MG/KG	1.8E-07	mg/kg/day	7.5E-01	1/(mg/kg-day)	1.3E-07	2.1E-06	mg/kg/day	3.0E-03	mg/kg/day	6.8E-04
				Xylenes, total	4.5E+01	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.9E-04	mg/kg/day	2.0E-01	mg/kg/day	9.5E-04
			Exp. Route Total								5.1E-04					6.7E+00
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal													
				Aluminum	6.1E+03	MG/KG	2.5E-05	mg/kg/day	NA	NA	NA	2.9E-04	mg/kg/day	1.0E+00	mg/kg/day	2.9E-04
				Antimony	1.0E+01	MG/KG	4.2E-08	mg/kg/day	NA	NA	NA	4.9E-07	mg/kg/day	3.0E-05	mg/kg/day	1.6E-02
				Arsenic	7.3E+02	MG/KG	9.0E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.4E-05	1.1E-04	mg/kg/day	5.0E-03	mg/kg/day	2.1E-02
				Barium	2.2E+04	MG/KG	8.8E-05	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	4.9E-03	mg/kg/day	2.1E-01
				Cadmium	1.9E+01	MG/KG	7.8E-09	mg/kg/day	NA	NA	NA	9.1E-08	mg/kg/day	5.0E-05	mg/kg/day	1.8E-03
				Chromium	2.7E+03	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	5.0E-04	mg/kg/day	2.6E-01
				Copper	5.1E+02	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	4.0E-02	mg/kg/day	6.2E-04
				Iron	2.7E+04	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	3.0E-01	mg/kg/day	4.3E-03
				Lead	1.4E+04	MG/KG	5.8E-05	mg/kg/day	NA	NA	NA	6.7E-04	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	5.6E-03	mg/kg/day	2.8E-03
				Mercury	2.8E+01	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	2.1E-05	mg/kg/day	6.4E-02
				Nickel	7.0E+01	MG/KG	2.9E-07	mg/kg/day	NA	NA	NA	3.3E-06	mg/kg/day	8.0E-04	mg/kg/day	4.2E-03
				Silver	6.0E+00	MG/KG	2.5E-08	mg/kg/day	NA	NA	NA	2.9E-07	mg/kg/day	2.0E-04	mg/kg/day	1.4E-03
				Thallium	1.4E+00	MG/KG	5.9E-09	mg/kg/day	NA	NA	NA	6.9E-08	mg/kg/day	9.0E-04	mg/kg/day	7.7E-05
				Vanadium	2.4E+01	MG/KG	9.8E-08	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	1.8E-04	mg/kg/day	6.3E-03
				Zinc	1.9E+03	MG/KG	7.9E-06	mg/kg/day	NA	NA	NA	9.2E-05	mg/kg/day	3.0E-01	mg/kg/day	3.1E-04
				Aldrin	1.7E-01	MG/KG	7.1E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.2E-07	8.2E-08	mg/kg/day	3.0E-05	mg/kg/day	2.7E-03
				Chlordane - alpha	1.6E+00	MG/KG	2.6E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	9.1E-09	3.0E-07	mg/kg/day	6.0E-05	mg/kg/day	5.1E-03
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	3.1E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.1E-08	3.6E-07	mg/kg/day	6.0E-05	mg/kg/day	6.1E-03
				DDE-4,4'	4.9E+00	MG/KG	6.0E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.0E-08	7.0E-07	mg/kg/day	3.0E-04	mg/kg/day	2.3E-03
				DDT-4,4'	3.9E-01	MG/KG	4.8E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.6E-09	5.6E-08	mg/kg/day	5.0E-04	mg/kg/day	1.1E-04
				Dieldrin	1.8E-01	MG/KG	7.3E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.2E-07	8.6E-08	mg/kg/day	5.0E-05	mg/kg/day	1.7E-03
				Heptachlor	3.8E-02	MG/KG	1.6E-09	mg/kg/day	4.5E+00	1/(mg/kg-day)	7.0E-09	1.8E-08	mg/kg/day	5.0E-04	mg/kg/day	3.6E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	5.3E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.1E-08	6.2E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	6.2E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-06	7.2E-06	mg/kg/day	5.0E-05	mg/kg/day	1.4E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	1.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.7E-08	1.6E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	1.0E+00	mg/kg/day	1.4E-06
				Benzo(a)anthracene	2.0E+01	MG/KG	1.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.6E-07	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	4.1E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	9.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.0E-06	1.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.4E-07	1.3E-05	mg/kg/day	3.0E-01	mg/kg/day	4.5E-05
				Benzo(k)fluoranthene	8.0E+00	MG/KG	4.3E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	3.1E-08	5.0E-06	mg/kg/day	3.0E-01	mg/kg/day	1.7E-05
				Chrysene	1.8E+01	MG/KG	9.8E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	7.2E-09	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.8E-05

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TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	2.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.6E-06	2.5E-06	mg/kg/day	3.0E-01	mg/kg/day	8.4E-06
				Fluoranthene	3.8E+01	MG/KG	2.0E-06	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	3.6E-01	mg/kg/day	6.6E-05
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	5.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.8E-07	6.1E-06	mg/kg/day	6.0E-01	mg/kg/day	1.0E-05
				Naphthalene	3.2E+01	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	2.0E-02	mg/kg/day	1.0E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	1.1E-06	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.5E-08	1.2E-05	mg/kg/day	3.8E-03	mg/kg/day	3.2E-03
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	5.0E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	7.5E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								2.6E-05					7.6E-01
		Exposure Point Total									5.3E-04					7.4E+00
	Exposure Medium Total										5.3E-04					7.4E+00
Subsurface Soil	Ambient Air	Emissions from	Inhalation													
		Martin Aaron property		Aluminum	6.0E-06	MG/M3	2.2E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	1.4E-03	mg/kg/day	1.8E-03
		Subsurface Soil		Antimony	9.9E-09	MG/M3	3.7E-10	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	1.1E-04	mg/kg/day	3.7E-05
				Arsenic	7.2E-07	MG/M3	2.7E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.0E-07	3.1E-07	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	7.8E-07	mg/kg/day	NA	NA	NA	9.1E-06	mg/kg/day	1.4E-03	mg/kg/day	6.5E-03
				Cadmium	1.9E-08	MG/M3	6.9E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.3E-09	8.0E-09	mg/kg/day	2.6E-04	mg/kg/day	3.1E-05
				Chromium	2.7E-06	MG/M3	9.8E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	4.1E-06	1.1E-06	mg/kg/day	2.3E-06	mg/kg/day	5.0E-01
				Copper	5.0E-07	MG/M3	1.9E-08	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	9.7E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	5.1E-07	mg/kg/day	NA	NA	NA	5.9E-06	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	1.4E-05	mg/kg/day	9.6E-03
				Mercury	2.7E-08	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	8.6E-05	mg/kg/day	1.4E-04
				Nickel	6.8E-08	MG/M3	2.5E-09	mg/kg/day	NA	NA	NA	2.9E-08	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	2.2E-10	mg/kg/day	NA	NA	NA	2.5E-09	mg/kg/day	2.9E-06	mg/kg/day	8.8E-04
				Thallium	1.4E-09	MG/M3	5.2E-11	mg/kg/day	NA	NA	NA	6.1E-10	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	8.6E-10	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	7.0E-08	mg/kg/day	NA	NA	NA	8.1E-07	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	6.2E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.1E-10	7.3E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	5.7E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-11	6.7E-10	mg/kg/day	2.0E-04	mg/kg/day	3.3E-06
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	6.9E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.4E-11	8.0E-10	mg/kg/day	2.0E-04	mg/kg/day	4.0E-06
				DDE-4,4'	4.8E-09	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	1.4E-11	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.8E-12	1.7E-10	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	6.5E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.0E-10	7.6E-11	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	1.4E-12	mg/kg/day	4.6E+00	1/(mg/kg-day)	6.2E-12	1.6E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	3.3E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.2E-12	3.9E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	3.9E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.4E-10	4.5E-09	mg/kg/day	NA	NA	NA

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TABLE 7.4.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Pcb-Aroclor 1260	2.3E-10	MG/M3	8.4E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.9E-12	9.8E-11	mg/kg/day	NA	NA	NA
				Acetophenone	5.0E-05	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	7.1E-10	mg/kg/day	NA	NA	NA	8.3E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	6.5E-10	mg/kg/day	NA	NA	NA	7.6E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	7.8E-10	mg/kg/day	NA	NA	NA	9.1E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	7.8E-09	MG/M3	2.9E-10	mg/kg/day	NA	NA	NA	3.4E-09	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	6.6E-10	mg/kg/day	NA	NA	NA	7.8E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	1.6E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	3.5E-10	mg/kg/day	NA	NA	NA	4.1E-09	mg/kg/day	NA	NA	NA
				Naphthalene	7.2E-04	MG/M3	2.7E-05	mg/kg/day	NA	NA	NA	3.1E-04	mg/kg/day	8.6E-04	mg/kg/day	3.6E-01
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	9.3E-10	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Benzene	2.0E-03	MG/M3	7.5E-05	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.0E-06	8.7E-04	mg/kg/day	1.7E-02	mg/kg/day	5.1E-02
				Bromomethane	2.8E-04	MG/M3	1.0E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	1.4E-03	mg/kg/day	8.3E-02
				Chloroform	7.3E-04	MG/M3	2.7E-05	mg/kg/day	8.1E-02	1/(mg/kg-day)	2.2E-06	3.1E-04	mg/kg/day	1.4E-02	mg/kg/day	2.2E-02
				Dichloroethylene-1,2 cis	1.9E-03	MG/M3	6.9E-05	mg/kg/day	NA	NA	NA	8.0E-04	mg/kg/day	NA	NA	NA
				Ethylbenzene	1.5E-03	MG/M3	5.4E-05	mg/kg/day	NA	NA	NA	6.3E-04	mg/kg/day	2.9E-01	mg/kg/day	2.2E-03
				Tetrachloroethylene	6.9E-03	MG/M3	2.5E-04	mg/kg/day	2.1E-02	1/(mg/kg-day)	5.3E-06	3.0E-03	mg/kg/day	NA	NA	NA
				Toluene	8.2E-03	MG/M3	3.0E-04	mg/kg/day	NA	NA	NA	3.5E-03	mg/kg/day	1.1E-01	mg/kg/day	3.1E-02
				Trichloroethylene	3.3E-02	MG/M3	1.2E-03	mg/kg/day	4.0E-01	1/(mg/kg-day)	4.9E-04	1.4E-02	mg/kg/day	1.0E-02	mg/kg/day	1.4E+00
				Vinyl chloride	4.4E-04	MG/M3	1.6E-05	mg/kg/day	3.1E-02	1/(mg/kg-day)	5.0E-07	1.9E-04	mg/kg/day	2.9E-02	mg/kg/day	6.7E-03
				Xylenes, total	9.8E-03	MG/M3	3.6E-04	mg/kg/day	NA	NA	NA	4.2E-03	mg/kg/day	2.9E-02	mg/kg/day	1.5E-01
			Exp. Route Total								5.1E-04					2.7E+00
		Exposure Point Total									5.1E-04					2.7E+00
	Exposure Medium Total										5.1E-04					2.7E+00
Subsurface Soil Total											1.0E-03					1.0E+01

NA = Not applicable.

301313

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Ingestion													
				Aluminum	6.0E+03	MG/KG	4.7E-05	mg/kg/day	NA	NA	NA	3.3E-03	mg/kg/day	1.0E+00	mg/kg/day	3.3E-03
				Antimony	4.7E+00	MG/KG	3.7E-08	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	2.0E-04	mg/kg/day	1.3E-02
				Arsenic	2.9E+02	MG/KG	2.2E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.3E-06	1.5E-04	mg/kg/day	5.0E-03	mg/kg/day	3.1E-02
				Barium	3.8E+04	MG/KG	2.9E-04	mg/kg/day	NA	NA	NA	2.1E-02	mg/kg/day	7.0E-02	mg/kg/day	2.9E-01
				Cadmium	2.0E+01	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	1.0E-03	mg/kg/day	1.1E-02
				Chromium	3.0E+02	MG/KG	2.3E-06	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	2.0E-02	mg/kg/day	8.1E-03
				Copper	5.7E+02	MG/KG	4.5E-06	mg/kg/day	NA	NA	NA	3.1E-04	mg/kg/day	4.0E-02	mg/kg/day	7.8E-03
				Iron	5.2E+04	MG/KG	4.1E-04	mg/kg/day	NA	NA	NA	2.8E-02	mg/kg/day	3.0E-01	mg/kg/day	9.5E-02
				Lead	1.4E+03	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	7.7E-04	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	4.0E-06	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	1.4E-01	mg/kg/day	2.0E-03
				Mercury	9.1E-01	MG/KG	7.1E-09	mg/kg/day	NA	NA	NA	4.9E-07	mg/kg/day	3.0E-04	mg/kg/day	1.6E-03
				Nickel	7.6E+01	MG/KG	5.9E-07	mg/kg/day	NA	NA	NA	4.1E-05	mg/kg/day	2.0E-02	mg/kg/day	2.1E-03
				Silver	1.5E+01	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	8.1E-06	mg/kg/day	5.0E-03	mg/kg/day	1.6E-03
				Zinc	2.3E+03	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	3.0E-01	mg/kg/day	4.2E-03
				Aldrin	4.2E-01	MG/KG	3.2E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.5E-08	2.3E-07	mg/kg/day	3.0E-05	mg/kg/day	7.5E-03
				Chlordane - alpha	4.0E+00	MG/KG	3.1E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.1E-08	2.2E-06	mg/kg/day	6.0E-05	mg/kg/day	3.6E-02
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	3.4E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.2E-08	2.4E-06	mg/kg/day	6.0E-05	mg/kg/day	4.0E-02
				DDE-4,4'	7.6E+00	MG/KG	5.9E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.0E-08	4.1E-06	mg/kg/day	3.0E-04	mg/kg/day	1.4E-02
				DDT-4,4'	1.6E+00	MG/KG	1.2E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	4.2E-09	8.6E-07	mg/kg/day	5.0E-04	mg/kg/day	1.7E-03
				Dieldrin	1.3E+00	MG/KG	1.0E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.6E-07	7.1E-07	mg/kg/day	5.0E-05	mg/kg/day	1.4E-02
				Heptachlor	9.5E-02	MG/KG	7.4E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	3.3E-09	5.2E-08	mg/kg/day	5.0E-04	mg/kg/day	1.0E-04
				Pcb-Aroclor 1248	2.3E-01	MG/KG	1.8E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.6E-09	1.2E-07	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	8.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.7E-07	5.8E-06	mg/kg/day	5.0E-05	mg/kg/day	1.2E-01
				Pcb-Aroclor 1260	2.2E+00	MG/KG	1.7E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.4E-08	1.2E-06	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	2.2E-08	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.0E+00	mg/kg/day	1.6E-06
				Benzo(a)anthracene	6.6E+01	MG/KG	5.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.7E-07	3.6E-05	mg/kg/day	3.0E-01	mg/kg/day	1.2E-04
				Benzo(a)pyrene	6.2E+01	MG/KG	4.8E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.5E-06	3.4E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	5.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.0E-07	3.8E-05	mg/kg/day	3.0E-01	mg/kg/day	1.3E-04
				Benzo(k)fluoranthene	3.5E+01	MG/KG	2.7E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.0E-08	1.9E-05	mg/kg/day	3.0E-01	mg/kg/day	6.3E-05
				Chrysene	6.4E+01	MG/KG	5.0E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	3.6E-09	3.5E-05	mg/kg/day	3.0E-01	mg/kg/day	1.2E-04
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	3.3E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.4E-07	2.3E-06	mg/kg/day	3.0E-01	mg/kg/day	7.7E-06
				Fluoranthene	1.5E+02	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	8.0E-05	mg/kg/day	4.0E-01	mg/kg/day	2.0E-04
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	1.3E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.5E-08	9.1E-06	mg/kg/day	6.0E-01	mg/kg/day	1.5E-05
				Naphthalene	7.2E+00	MG/KG	5.6E-08	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	2.0E-02	mg/kg/day	2.0E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	1.2E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	1.6E-09	8.1E-06	mg/kg/day	2.0E-02	mg/kg/day	4.1E-04
				Benzene	3.9E+00	MG/KG	3.0E-08	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.6E-09	2.1E-06	mg/kg/day	3.0E-03	mg/kg/day	7.0E-04
				Chloroform	1.4E+00	MG/KG	1.1E-08	mg/kg/day	NA	NA	NA	7.6E-07	mg/kg/day	1.0E-02	mg/kg/day	7.6E-05
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	8.6E-08	mg/kg/day	NA	NA	NA	6.0E-06	mg/kg/day	1.0E-01	mg/kg/day	6.0E-05
				Tetrachloroethylene	1.2E+01	MG/KG	9.4E-08	mg/kg/day	5.4E-01	1/(mg/kg-day)	5.1E-08	6.6E-06	mg/kg/day	1.0E-01	mg/kg/day	6.6E-05
				Toluene	7.3E+01	MG/KG	5.7E-07	mg/kg/day	NA	NA	NA	4.0E-05	mg/kg/day	2.0E+00	mg/kg/day	2.0E-05
				Trichloroethylene	3.2E+00	MG/KG	2.5E-08	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.0E-08	1.8E-06	mg/kg/day	3.0E-04	mg/kg/day	5.9E-03
				Vinyl chloride	3.2E-01	MG/KG	2.5E-09	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.7E-09	1.7E-07	mg/kg/day	3.0E-03	mg/kg/day	5.8E-05
				Xylenes, total	2.9E+01	MG/KG	2.3E-07	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	2.0E-01	mg/kg/day	8.0E-05
			Exp. Route Total								8.5E-06					7.1E-01

301314

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dermal	Aluminum	6.0E+03	MG/KG	9.3E-07	mg/kg/day	NA	NA	NA	6.5E-05	mg/kg/day	1.0E+00	mg/kg/day	6.5E-05
				Antimony	4.7E+00	MG/KG	7.3E-10	mg/kg/day	NA	NA	NA	5.1E-08	mg/kg/day	3.0E-05	mg/kg/day	1.7E-03
				Arsenic	2.9E+02	MG/KG	1.3E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.0E-07	9.3E-06	mg/kg/day	5.0E-03	mg/kg/day	1.9E-03
				Barium	3.8E+04	MG/KG	5.9E-06	mg/kg/day	NA	NA	NA	4.1E-04	mg/kg/day	4.9E-03	mg/kg/day	8.4E-02
				Cadmium	2.0E+01	MG/KG	3.2E-10	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	5.0E-05	mg/kg/day	4.4E-04
				Chromium	3.0E+02	MG/KG	4.6E-08	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	5.0E-04	mg/kg/day	6.4E-03
				Copper	5.7E+02	MG/KG	8.9E-08	mg/kg/day	NA	NA	NA	6.2E-06	mg/kg/day	4.0E-02	mg/kg/day	1.6E-04
				Iron	5.2E+04	MG/KG	8.1E-06	mg/kg/day	NA	NA	NA	5.7E-04	mg/kg/day	3.0E-01	mg/kg/day	1.9E-03
				Lead	1.4E+03	MG/KG	2.2E-07	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	NA	NA	NA
				Manganese	5.1E+02	MG/KG	8.0E-08	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	5.6E-03	mg/kg/day	1.0E-03
				Mercury	9.1E-01	MG/KG	1.4E-10	mg/kg/day	NA	NA	NA	9.9E-09	mg/kg/day	2.1E-05	mg/kg/day	4.7E-04
				Nickel	7.6E+01	MG/KG	1.2E-08	mg/kg/day	NA	NA	NA	8.2E-07	mg/kg/day	8.0E-04	mg/kg/day	1.0E-03
				Silver	1.5E+01	MG/KG	2.3E-09	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	2.0E-04	mg/kg/day	8.1E-04
				Zinc	2.3E+03	MG/KG	3.6E-07	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	3.0E-01	mg/kg/day	8.5E-05
				Aldrin	4.2E-01	MG/KG	6.5E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.1E-08	4.5E-08	mg/kg/day	3.0E-05	mg/kg/day	1.5E-03
				Chlordane - alpha	4.0E+00	MG/KG	2.5E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.7E-10	1.7E-07	mg/kg/day	6.0E-05	mg/kg/day	2.9E-03
				Chlordane - gamma (technical mixture)	4.4E+00	MG/KG	2.7E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	9.6E-10	1.9E-07	mg/kg/day	6.0E-05	mg/kg/day	3.2E-03
				DDE-4,4'	7.6E+00	MG/KG	3.5E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.2E-09	2.5E-07	mg/kg/day	3.0E-04	mg/kg/day	8.2E-04
				DDT-4,4'	1.6E+00	MG/KG	7.3E-10	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.5E-10	5.1E-08	mg/kg/day	5.0E-04	mg/kg/day	1.0E-04
				Dieldrin	1.3E+00	MG/KG	2.0E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.2E-08	1.4E-07	mg/kg/day	5.0E-05	mg/kg/day	2.8E-03
				Heptachlor	9.5E-02	MG/KG	1.5E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	6.6E-10	1.0E-08	mg/kg/day	5.0E-04	mg/kg/day	2.1E-05
				Pcb-Aroclor 1248	2.3E-01	MG/KG	5.0E-10	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.0E-09	3.5E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	2.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.6E-08	1.6E-06	mg/kg/day	5.0E-05	mg/kg/day	3.2E-02
				Pcb-Aroclor 1260	2.2E+00	MG/KG	4.8E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	9.6E-09	3.4E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	4.5E-09	mg/kg/day	NA	NA	NA	3.1E-07	mg/kg/day	1.0E+00	mg/kg/day	3.1E-07
				Benzo(a)anthracene	6.6E+01	MG/KG	1.3E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.7E-08	9.3E-06	mg/kg/day	3.0E-01	mg/kg/day	3.1E-05
				Benzo(a)pyrene	6.2E+01	MG/KG	1.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.2E-07	8.8E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	7.0E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-07	9.9E-06	mg/kg/day	3.0E-01	mg/kg/day	3.3E-05
				Benzo(k)fluoranthene	3.5E+01	MG/KG	7.0E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.1E-09	4.9E-06	mg/kg/day	3.0E-01	mg/kg/day	1.6E-05
				Chrysene	6.4E+01	MG/KG	1.3E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	9.5E-10	9.1E-06	mg/kg/day	3.0E-01	mg/kg/day	3.0E-05
				Dibenzo(a,h)anthracene	4.3E+00	MG/KG	8.6E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.3E-08	6.0E-07	mg/kg/day	3.0E-01	mg/kg/day	2.0E-06
				Fluoranthene	1.5E+02	MG/KG	3.0E-07	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	3.6E-01	mg/kg/day	5.9E-05
				Indeno(1,2,3-cd)pyrene	1.7E+01	MG/KG	3.4E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.5E-08	2.4E-06	mg/kg/day	6.0E-01	mg/kg/day	3.9E-06
				Naphthalene	7.2E+00	MG/KG	1.5E-08	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	2.0E-02	mg/kg/day	5.1E-05
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E+01	MG/KG	2.3E-08	mg/kg/day	1.4E-02	1/(mg/kg-day)	3.3E-10	1.6E-06	mg/kg/day	3.8E-03	mg/kg/day	4.3E-04
				Benzene	3.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Chloroform	1.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	1.1E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	1.2E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	7.3E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	3.2E+00	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	3.2E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	2.9E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00

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TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								1.5E-06					1.4E-01
		Exposure Point Total									1.0E-05					8.6E-01
	Exposure Medium Total										1.0E-05					8.6E-01
Surface Soil	Ambient Air	Emissions from Martin Aaron property Surface Soil	Inhalation	Aluminum	5.9E-06	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	8.2E-08	mg/kg/day	1.4E-03	mg/kg/day	5.7E-05
				Antimony	4.6E-09	MG/M3	9.1E-13	mg/kg/day	NA	NA	NA	6.4E-11	mg/kg/day	1.1E-04	mg/kg/day	5.6E-07
				Arsenic	2.8E-07	MG/M3	5.5E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	8.3E-10	3.9E-09	mg/kg/day	NA	NA	NA
				Barium	3.7E-05	MG/M3	7.3E-09	mg/kg/day	NA	NA	NA	5.1E-07	mg/kg/day	1.4E-03	mg/kg/day	3.7E-04
				Cadmium	2.0E-08	MG/M3	4.0E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.5E-11	2.8E-10	mg/kg/day	2.6E-04	mg/kg/day	1.1E-06
				Chromium	2.9E-07	MG/M3	5.7E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.4E-09	4.0E-09	mg/kg/day	2.3E-06	mg/kg/day	1.8E-03
				Copper	5.6E-07	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	7.8E-09	mg/kg/day	NA	NA	NA
				Iron	5.1E-05	MG/M3	1.0E-08	mg/kg/day	NA	NA	NA	7.1E-07	mg/kg/day	NA	NA	NA
				Lead	1.4E-06	MG/M3	2.8E-10	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	NA	NA	NA
				Manganese	5.0E-07	MG/M3	9.9E-11	mg/kg/day	NA	NA	NA	7.0E-09	mg/kg/day	1.4E-05	mg/kg/day	4.9E-04
				Mercury	8.9E-10	MG/M3	1.8E-13	mg/kg/day	NA	NA	NA	1.2E-11	mg/kg/day	8.6E-05	mg/kg/day	1.4E-07
				Nickel	7.4E-08	MG/M3	1.5E-11	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	NA	NA	NA
				Silver	1.5E-08	MG/M3	2.9E-12	mg/kg/day	NA	NA	NA	2.0E-10	mg/kg/day	2.9E-06	mg/kg/day	7.1E-05
				Zinc	2.3E-06	MG/M3	4.5E-10	mg/kg/day	NA	NA	NA	3.2E-08	mg/kg/day	NA	NA	NA
				Aldrin	4.1E-10	MG/M3	8.1E-14	mg/kg/day	1.7E+01	NA	1.4E-12	5.7E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	3.9E-09	MG/M3	7.7E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.7E-13	5.4E-11	mg/kg/day	2.0E-04	mg/kg/day	2.7E-07
				Chlordane - gamma (technical mixture)	4.3E-09	MG/M3	8.5E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.0E-13	6.0E-11	mg/kg/day	2.0E-04	mg/kg/day	3.0E-07
				DDE-4,4'	7.4E-09	MG/M3	1.5E-12	mg/kg/day	NA	NA	NA	1.0E-10	mg/kg/day	NA	NA	NA
				DDT-4,4'	1.5E-09	MG/M3	3.0E-13	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.0E-13	2.1E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.3E-09	MG/M3	2.5E-13	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.0E-12	1.8E-11	mg/kg/day	NA	NA	NA
				Heptachlor	9.3E-11	MG/M3	1.8E-14	mg/kg/day	4.6E+00	1/(mg/kg-day)	8.4E-14	1.3E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	2.3E-10	MG/M3	4.4E-14	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.6E-14	3.1E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.0E-08	MG/M3	2.1E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.2E-13	1.4E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	2.2E-09	MG/M3	4.3E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-13	3.0E-11	mg/kg/day	NA	NA	NA
				Acetophenone	1.5E-05	MG/M3	2.9E-09	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	6.5E-08	MG/M3	1.3E-11	mg/kg/day	NA	NA	NA	8.9E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	6.1E-08	MG/M3	1.2E-11	mg/kg/day	NA	NA	NA	8.4E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	6.9E-08	MG/M3	1.4E-11	mg/kg/day	NA	NA	NA	9.5E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.4E-08	MG/M3	6.7E-12	mg/kg/day	NA	NA	NA	4.7E-10	mg/kg/day	NA	NA	NA
				Chrysene	6.3E-08	MG/M3	1.2E-11	mg/kg/day	NA	NA	NA	8.7E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.2E-09	MG/M3	8.2E-13	mg/kg/day	NA	NA	NA	5.8E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	1.5E-07	MG/M3	2.9E-11	mg/kg/day	NA	NA	NA	2.0E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.6E-08	MG/M3	3.2E-12	mg/kg/day	NA	NA	NA	2.3E-10	mg/kg/day	NA	NA	NA
				Naphthalene	7.0E-05	MG/M3	1.4E-08	mg/kg/day	NA	NA	NA	9.7E-07	mg/kg/day	8.6E-04	mg/kg/day	1.1E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	MG/M3	2.9E-12	mg/kg/day	NA	NA	NA	2.0E-10	mg/kg/day	NA	NA	NA
				Benzene	6.2E-03	MG/M3	1.2E-06	mg/kg/day	2.7E-02	1/(mg/kg-day)	3.3E-08	8.5E-05	mg/kg/day	1.7E-02	mg/kg/day	5.0E-03
				Chloroform	1.7E-03	MG/M3	3.3E-07	mg/kg/day	8.1E-02	1/(mg/kg-day)	2.6E-08	2.3E-05	mg/kg/day	1.4E-02	mg/kg/day	1.6E-03
				Dichloroethylene-1,2 cis	1.9E-02	MG/M3	3.8E-06	mg/kg/day	NA	NA	NA	2.6E-04	mg/kg/day	NA	NA	NA
				Tetrachloroethylene	1.9E-02	MG/M3	3.7E-06	mg/kg/day	2.1E-02	1/(mg/kg-day)	7.8E-08	2.6E-04	mg/kg/day	NA	NA	NA
				Toluene	7.3E-02	MG/M3	1.4E-05	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	1.1E-01	mg/kg/day	8.8E-03
				Trichloroethylene	4.3E-03	MG/M3	8.5E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.4E-07	5.9E-05	mg/kg/day	1.0E-02	mg/kg/day	5.9E-03

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TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Vinyl chloride	5.0E-03	MG/M3	9.9E-07	mg/kg/day	1.5E-02	1/(mg/kg-day)	1.5E-08	6.9E-05	mg/kg/day	2.9E-02	mg/kg/day	2.4E-03
				Xylenes, total	2.4E-02	MG/M3	4.7E-06	mg/kg/day	NA	NA	NA	3.3E-04	mg/kg/day	2.9E-02	mg/kg/day	1.2E-02
			Exp. Route Total								5.0E-07					3.9E-02
		Exposure Point Total									5.0E-07					3.9E-02
	Exposure Medium Total										5.0E-07					3.9E-02
Surface Soil Total											1.1E-05					9.0E-01
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Ingestion													
				Aluminum	6.1E+03	MG/KG	4.7E-05	mg/kg/day	NA	NA	NA	3.3E-03	mg/kg/day	1.0E+00	mg/kg/day	3.3E-03
				Antimony	1.0E+01	MG/KG	7.9E-08	mg/kg/day	NA	NA	NA	5.5E-06	mg/kg/day	2.0E-04	mg/kg/day	2.8E-02
				Arsenic	7.3E+02	MG/KG	5.7E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.5E-06	4.0E-04	mg/kg/day	5.0E-03	mg/kg/day	8.0E-02
				Barium	2.2E+04	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	7.0E-02	mg/kg/day	1.7E-01
				Cadmium	1.9E+01	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	1.0E-03	mg/kg/day	1.0E-02
				Chromium	2.7E+03	MG/KG	2.1E-05	mg/kg/day	NA	NA	NA	1.5E-03	mg/kg/day	2.0E-02	mg/kg/day	7.3E-02
				Copper	5.1E+02	MG/KG	4.0E-06	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	4.0E-02	mg/kg/day	7.0E-03
				Iron	2.7E+04	MG/KG	2.1E-04	mg/kg/day	NA	NA	NA	1.4E-02	mg/kg/day	3.0E-01	mg/kg/day	4.8E-02
				Lead	1.4E+04	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	7.6E-03	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	2.5E-06	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	1.4E-01	mg/kg/day	1.3E-03
				Mercury	2.8E+01	MG/KG	2.2E-07	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	3.0E-04	mg/kg/day	5.0E-02
				Nickel	7.0E+01	MG/KG	5.4E-07	mg/kg/day	NA	NA	NA	3.8E-05	mg/kg/day	2.0E-02	mg/kg/day	1.9E-03
				Silver	6.0E+00	MG/KG	4.6E-08	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	5.0E-03	mg/kg/day	6.5E-04
				Thallium	1.4E+00	MG/KG	1.1E-08	mg/kg/day	NA	NA	NA	7.8E-07	mg/kg/day	9.0E-04	mg/kg/day	8.7E-04
				Vanadium	2.4E+01	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	7.0E-03	mg/kg/day	1.8E-03
				Zinc	1.9E+03	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.0E-03	mg/kg/day	3.0E-01	mg/kg/day	3.5E-03
				Aldrin	1.7E-01	MG/KG	1.3E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.3E-08	9.3E-08	mg/kg/day	3.0E-05	mg/kg/day	3.1E-03
				Chlordane - alpha	1.6E+00	MG/KG	1.2E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.3E-09	8.6E-07	mg/kg/day	6.0E-05	mg/kg/day	1.4E-02
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	1.5E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.1E-09	1.0E-06	mg/kg/day	6.0E-05	mg/kg/day	1.7E-02
				DDE-4,4'	4.9E+00	MG/KG	3.8E-08	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.3E-08	2.6E-06	mg/kg/day	3.0E-04	mg/kg/day	8.8E-03
				DDT-4,4'	3.9E-01	MG/KG	3.0E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	1.0E-09	2.1E-07	mg/kg/day	5.0E-04	mg/kg/day	4.2E-04
				Dieldrin	1.8E-01	MG/KG	1.4E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.2E-08	9.7E-08	mg/kg/day	5.0E-05	mg/kg/day	1.9E-03
				Heptachlor	3.8E-02	MG/KG	2.9E-10	mg/kg/day	4.5E+00	1/(mg/kg-day)	1.3E-09	2.1E-08	mg/kg/day	5.0E-04	mg/kg/day	4.1E-05
				Pcb-Aroclor 1248	9.2E-02	MG/KG	7.2E-10	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.4E-09	5.0E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	8.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.7E-07	5.8E-06	mg/kg/day	5.0E-05	mg/kg/day	1.2E-01
				Pcb-Aroclor 1260	2.3E-01	MG/KG	1.8E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.6E-09	1.3E-07	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	2.2E-08	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.0E+00	mg/kg/day	1.6E-06
				Benzo(a)anthracene	2.0E+01	MG/KG	1.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-07	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.5E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-06	9.8E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-07	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	3.9E-05
				Benzo(k)fluoranthene	8.0E+00	MG/KG	6.2E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.5E-09	4.3E-06	mg/kg/day	3.0E-01	mg/kg/day	1.4E-05
				Chrysene	1.8E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.0E-09	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.3E-05
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	3.1E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.3E-07	2.2E-06	mg/kg/day	3.0E-01	mg/kg/day	7.3E-06
				Fluoranthene	3.8E+01	MG/KG	2.9E-07	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	4.0E-01	mg/kg/day	5.1E-05
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	7.6E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-08	5.3E-06	mg/kg/day	6.0E-01	mg/kg/day	8.8E-06
				Naphthalene	3.2E+01	MG/KG	2.5E-07	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	2.0E-02	mg/kg/day	8.8E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	2.0E-07	mg/kg/day	1.4E-02	1/(mg/kg-day)	2.8E-09	1.4E-05	mg/kg/day	2.0E-02	mg/kg/day	7.0E-04

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TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzene	5.9E+00	MG/KG	4.6E-08	mg/kg/day	5.5E-02	1/(mg/kg-day)	2.5E-09	3.2E-06	mg/kg/day	3.0E-03	mg/kg/day	1.1E-03
				Bromomethane	5.2E-01	MG/KG	4.0E-09	mg/kg/day	NA	NA	NA	2.8E-07	mg/kg/day	5.0E-03	mg/kg/day	5.6E-05
				Chloroform	2.2E+00	MG/KG	1.7E-08	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	1.0E-02	mg/kg/day	1.2E-04
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	4.4E-08	mg/kg/day	NA	NA	NA	3.1E-06	mg/kg/day	1.0E-01	mg/kg/day	3.1E-05
				Ethylbenzene	6.4E+00	MG/KG	4.9E-08	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	1.0E-01	mg/kg/day	3.5E-05
				Tetrachloroethylene	2.3E+01	MG/KG	1.8E-07	mg/kg/day	5.4E-01	1/(mg/kg-day)	9.5E-08	1.2E-05	mg/kg/day	1.0E-01	mg/kg/day	1.2E-04
				Toluene	3.0E+01	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	2.0E+00	mg/kg/day	8.2E-06
				Trichloroethylene	1.1E+02	MG/KG	8.8E-07	mg/kg/day	4.0E-01	1/(mg/kg-day)	3.5E-07	6.1E-05	mg/kg/day	3.0E-04	mg/kg/day	2.0E-01
				Vinyl chloride	4.8E-01	MG/KG	3.7E-09	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.6E-09	2.6E-07	mg/kg/day	3.0E-03	mg/kg/day	8.7E-05
				Xylenes, total	4.5E+01	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	2.0E-01	mg/kg/day	1.2E-04
			Exp. Route Total								1.1E-05					8.5E-01
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Dermal	Aluminum	6.1E+03	MG/KG	9.5E-07	mg/kg/day	NA	NA	NA	6.6E-05	mg/kg/day	1.0E+00	mg/kg/day	6.6E-05
				Antimony	1.0E+01	MG/KG	1.6E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	2.0E-04	mg/kg/day	5.5E-04
				Arsenic	7.3E+02	MG/KG	3.4E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.1E-07	2.4E-05	mg/kg/day	5.0E-03	mg/kg/day	4.8E-03
				Barium	2.2E+04	MG/KG	3.3E-06	mg/kg/day	NA	NA	NA	2.3E-04	mg/kg/day	7.0E-02	mg/kg/day	3.3E-03
				Cadmium	1.9E+01	MG/KG	2.9E-10	mg/kg/day	NA	NA	NA	2.1E-08	mg/kg/day	1.0E-03	mg/kg/day	2.1E-05
				Chromium	2.7E+03	MG/KG	4.2E-07	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	2.0E-02	mg/kg/day	1.5E-03
				Copper	5.1E+02	MG/KG	8.0E-08	mg/kg/day	NA	NA	NA	5.6E-06	mg/kg/day	4.0E-02	mg/kg/day	1.4E-04
				Iron	2.7E+04	MG/KG	4.1E-06	mg/kg/day	NA	NA	NA	2.9E-04	mg/kg/day	3.0E-01	mg/kg/day	9.7E-04
				Lead	1.4E+04	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	NA	NA	NA
				Manganese	3.2E+02	MG/KG	5.0E-08	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	1.4E-01	mg/kg/day	2.5E-05
				Mercury	2.8E+01	MG/KG	4.3E-09	mg/kg/day	NA	NA	NA	3.0E-07	mg/kg/day	3.0E-04	mg/kg/day	1.0E-03
				Nickel	7.0E+01	MG/KG	1.1E-08	mg/kg/day	NA	NA	NA	7.6E-07	mg/kg/day	2.0E-02	mg/kg/day	3.8E-05
				Silver	6.0E+00	MG/KG	9.3E-10	mg/kg/day	NA	NA	NA	6.5E-08	mg/kg/day	5.0E-03	mg/kg/day	1.3E-05
				Thallium	1.4E+00	MG/KG	2.2E-10	mg/kg/day	NA	NA	NA	1.6E-08	mg/kg/day	9.0E-04	mg/kg/day	1.7E-05
				Vanadium	2.4E+01	MG/KG	3.7E-09	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	7.0E-03	mg/kg/day	3.7E-05
				Zinc	1.9E+03	MG/KG	3.0E-07	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	3.0E-01	mg/kg/day	7.0E-05
				Aldrin	1.7E-01	MG/KG	2.7E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.5E-09	1.9E-08	mg/kg/day	3.0E-05	mg/kg/day	6.2E-04
				Chlordane - alpha	1.6E+00	MG/KG	9.8E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.4E-10	6.9E-08	mg/kg/day	6.0E-05	mg/kg/day	1.1E-03
				Chlordane - gamma (technical mixture)	1.9E+00	MG/KG	1.2E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.1E-10	8.2E-08	mg/kg/day	6.0E-05	mg/kg/day	1.4E-03
				DDE-4,4'	4.9E+00	MG/KG	2.3E-09	mg/kg/day	3.4E-01	1/(mg/kg-day)	7.7E-10	1.6E-07	mg/kg/day	3.0E-04	mg/kg/day	5.3E-04
				DDT-4,4'	3.9E-01	MG/KG	1.8E-10	mg/kg/day	3.4E-01	1/(mg/kg-day)	6.2E-11	1.3E-08	mg/kg/day	5.0E-04	mg/kg/day	2.5E-05
				Dieldrin	1.8E-01	MG/KG	2.8E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.4E-09	1.9E-08	mg/kg/day	5.0E-05	mg/kg/day	3.9E-04
				Heptachlor	3.8E-02	MG/KG	5.9E-11	mg/kg/day	4.5E+00	1/(mg/kg-day)	2.6E-10	4.1E-09	mg/kg/day	5.0E-04	mg/kg/day	8.2E-06
				Pcb-Aroclor 1248	9.2E-02	MG/KG	2.0E-10	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.0E-10	1.4E-08	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E+01	MG/KG	2.3E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.7E-08	1.6E-06	mg/kg/day	5.0E-05	mg/kg/day	3.3E-02
				Pcb-Aroclor 1260	2.3E-01	MG/KG	5.0E-10	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.0E-09	3.5E-08	mg/kg/day	NA	NA	NA
				Acetophenone	2.9E+00	MG/KG	4.5E-09	mg/kg/day	NA	NA	NA	3.1E-07	mg/kg/day	1.0E+00	mg/kg/day	3.1E-07
				Benzo(a)anthracene	2.0E+01	MG/KG	3.9E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-08	2.8E-06	mg/kg/day	3.0E-01	mg/kg/day	9.2E-06
				Benzo(a)pyrene	1.8E+01	MG/KG	3.6E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.7E-07	2.5E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.2E+01	MG/KG	4.4E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.2E-08	3.1E-06	mg/kg/day	3.0E-01	mg/kg/day	1.0E-05
				Benzo(k)fluoranthene	8.0E+00	MG/KG	1.6E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.2E-09	1.1E-06	mg/kg/day	3.0E-01	mg/kg/day	3.8E-06
				Chrysene	1.8E+01	MG/KG	3.7E-08	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.7E-10	2.6E-06	mg/kg/day	3.0E-01	mg/kg/day	8.6E-06

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TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Dibenzo(a,h)anthracene	4.1E+00	MG/KG	8.2E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.0E-08	5.7E-07	mg/kg/day	3.0E-01	mg/kg/day	1.9E-06
				Fluoranthene	3.8E+01	MG/KG	7.6E-08	mg/kg/day	NA	NA	NA	5.3E-06	mg/kg/day	4.0E-01	mg/kg/day	1.3E-05
				Indeno(1,2,3-cd)pyrene	9.8E+00	MG/KG	2.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-08	1.4E-06	mg/kg/day	6.0E-01	mg/kg/day	2.3E-06
				Naphthalene	3.2E+01	MG/KG	6.5E-08	mg/kg/day	NA	NA	NA	4.6E-06	mg/kg/day	2.0E-02	mg/kg/day	2.3E-04
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.6E+01	MG/KG	4.0E-08	mg/kg/day	1.4E-02	1/(mg/kg-day)	5.6E-10	2.8E-06	mg/kg/day	2.0E-02	mg/kg/day	1.4E-04
				Benzene	5.9E+00	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Bromomethane	5.2E-01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	5.0E-03	mg/kg/day	0.0E+00
				Chloroform	2.2E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-02	mg/kg/day	0.0E+00
				Dichloroethylene-1,2 cis	5.6E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Ethylbenzene	6.4E+00	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Tetrachloroethylene	2.3E+01	MG/KG	0.0E+00	mg/kg/day	5.4E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	1.0E-01	mg/kg/day	0.0E+00
				Toluene	3.0E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E+00	mg/kg/day	0.0E+00
				Trichloroethylene	1.1E+02	MG/KG	0.0E+00	mg/kg/day	4.0E-01	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-04	mg/kg/day	0.0E+00
				Vinyl chloride	4.8E-01	MG/KG	0.0E+00	mg/kg/day	1.5E+00	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
				Xylenes, total	4.5E+01	MG/KG	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.0E-01	mg/kg/day	0.0E+00
			Exp. Route Total								9.7E-07					5.0E-02
		Exposure Point Total									1.2E-05					9.0E-01
	Exposure Medium Total										1.2E-05					9.0E-01
Subsurface Soil	Ambient Air	Emissions from	Inhalation													
		Martin Aaron property		Aluminum	6.0E-06	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	8.3E-08	mg/kg/day	1.4E-03	mg/kg/day	5.8E-05
		Subsurface Soil		Antimony	9.9E-09	MG/M3	2.0E-12	mg/kg/day	NA	NA	NA	1.4E-10	mg/kg/day	1.1E-04	mg/kg/day	1.2E-06
				Arsenic	7.2E-07	MG/M3	1.4E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.1E-09	9.9E-09	mg/kg/day	NA	NA	NA
				Barium	2.1E-05	MG/M3	4.2E-09	mg/kg/day	NA	NA	NA	2.9E-07	mg/kg/day	1.4E-03	mg/kg/day	2.1E-04
				Cadmium	1.9E-08	MG/M3	3.7E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.3E-11	2.6E-10	mg/kg/day	2.6E-04	mg/kg/day	1.0E-06
				Chromium	2.7E-06	MG/M3	5.2E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.2E-08	3.7E-08	mg/kg/day	2.3E-06	mg/kg/day	1.6E-02
				Copper	5.0E-07	MG/M3	9.9E-11	mg/kg/day	NA	NA	NA	7.0E-09	mg/kg/day	NA	NA	NA
				Iron	2.6E-05	MG/M3	5.2E-09	mg/kg/day	NA	NA	NA	3.6E-07	mg/kg/day	NA	NA	NA
				Lead	1.4E-05	MG/M3	2.7E-09	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	NA	NA	NA
				Manganese	3.2E-07	MG/M3	6.3E-11	mg/kg/day	NA	NA	NA	4.4E-09	mg/kg/day	1.4E-05	mg/kg/day	3.1E-04
				Mercury	2.7E-08	MG/M3	5.4E-12	mg/kg/day	NA	NA	NA	3.8E-10	mg/kg/day	8.6E-05	mg/kg/day	4.4E-06
				Nickel	6.8E-08	MG/M3	1.3E-11	mg/kg/day	NA	NA	NA	9.4E-10	mg/kg/day	NA	NA	NA
				Silver	5.9E-09	MG/M3	1.2E-12	mg/kg/day	NA	NA	NA	8.1E-11	mg/kg/day	2.9E-06	mg/kg/day	2.8E-05
				Thallium	1.4E-09	MG/M3	2.8E-13	mg/kg/day	NA	NA	NA	2.0E-11	mg/kg/day	NA	NA	NA
				Vanadium	2.3E-08	MG/M3	4.6E-12	mg/kg/day	NA	NA	NA	3.2E-10	mg/kg/day	NA	NA	NA
				Zinc	1.9E-06	MG/M3	3.7E-10	mg/kg/day	NA	NA	NA	2.6E-08	mg/kg/day	NA	NA	NA
				Aldrin	1.7E-10	MG/M3	3.3E-14	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.7E-13	2.3E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	1.6E-09	MG/M3	3.1E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.1E-13	2.1E-11	mg/kg/day	2.0E-04	mg/kg/day	1.1E-07
				Chlordane - gamma (technical mixture)	1.9E-09	MG/M3	3.7E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-13	2.6E-11	mg/kg/day	2.0E-04	mg/kg/day	1.3E-07
				DDE-4,4'	4.8E-09	MG/M3	9.4E-13	mg/kg/day	NA	NA	NA	6.6E-11	mg/kg/day	NA	NA	NA
				DDT-4,4'	3.8E-10	MG/M3	7.6E-14	mg/kg/day	3.4E-01	1/(mg/kg-day)	2.6E-14	5.3E-12	mg/kg/day	NA	NA	NA
				Dieldrin	1.8E-10	MG/M3	3.5E-14	mg/kg/day	1.6E+01	1/(mg/kg-day)	5.6E-13	2.4E-12	mg/kg/day	NA	NA	NA
				Heptachlor	3.7E-11	MG/M3	7.3E-15	mg/kg/day	4.6E+00	1/(mg/kg-day)	3.3E-14	5.1E-13	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1248	9.0E-11	MG/M3	1.8E-14	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.2E-15	1.2E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.1E-08	MG/M3	2.1E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	7.3E-13	1.5E-10	mg/kg/day	NA	NA	NA

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TABLE 7.5.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: *Future*
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Pcb-Aroclor 1260	2.3E-10	MG/M3	4.5E-14	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.6E-14	3.1E-12	mg/kg/day	NA	NA	NA
				Acetophenone	1.5E-05	MG/M3	2.9E-09	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	1.9E-08	MG/M3	3.8E-12	mg/kg/day	NA	NA	NA	2.6E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.5E-12	mg/kg/day	NA	NA	NA	2.4E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	4.2E-12	mg/kg/day	NA	NA	NA	2.9E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	7.8E-09	MG/M3	1.5E-12	mg/kg/day	NA	NA	NA	1.1E-10	mg/kg/day	NA	NA	NA
				Chrysene	1.8E-08	MG/M3	3.6E-12	mg/kg/day	NA	NA	NA	2.5E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	4.0E-09	MG/M3	7.8E-13	mg/kg/day	NA	NA	NA	5.5E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	3.7E-08	MG/M3	7.3E-12	mg/kg/day	NA	NA	NA	5.1E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.6E-09	MG/M3	1.9E-12	mg/kg/day	NA	NA	NA	1.3E-10	mg/kg/day	NA	NA	NA
				Naphthalene	3.1E-04	MG/M3	6.2E-08	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	8.6E-04	mg/kg/day	5.1E-03
				Phthalate, bis(2-ethylhexyl) (DEHP)	2.5E-08	MG/M3	5.0E-12	mg/kg/day	NA	NA	NA	3.5E-10	mg/kg/day	NA	NA	NA
				Benzene	9.4E-03	MG/M3	1.9E-06	mg/kg/day	2.7E-02	1/(mg/kg-day)	5.1E-08	1.3E-04	mg/kg/day	1.7E-02	mg/kg/day	7.6E-03
				Bromomethane	2.5E-03	MG/M3	4.9E-07	mg/kg/day	NA	NA	NA	3.5E-05	mg/kg/day	1.4E-03	mg/kg/day	2.4E-02
				Chloroform	2.6E-03	MG/M3	5.2E-07	mg/kg/day	8.1E-02	1/(mg/kg-day)	4.2E-08	3.7E-05	mg/kg/day	1.4E-02	mg/kg/day	2.6E-03
				Dichloroethylene-1,2 cis	9.6E-03	MG/M3	1.9E-06	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	NA	NA	NA
				Ethylbenzene	5.4E-03	MG/M3	1.1E-06	mg/kg/day	NA	NA	NA	7.4E-05	mg/kg/day	2.9E-01	NA	2.6E-04
				Tetrachloroethylene	3.5E-02	MG/M3	7.0E-06	mg/kg/day	2.1E-02	1/(mg/kg-day)	1.5E-07	4.9E-04	mg/kg/day	NA	NA	NA
				Toluene	3.0E-02	MG/M3	6.0E-06	mg/kg/day	NA	NA	NA	4.2E-04	mg/kg/day	1.1E-01	mg/kg/day	3.7E-03
				Trichloroethylene	1.5E-01	MG/M3	3.0E-05	mg/kg/day	4.0E-01	1/(mg/kg-day)	1.2E-05	2.1E-03	mg/kg/day	1.0E-02	mg/kg/day	2.1E-01
				Vinyl chloride	7.5E-03	MG/M3	1.5E-06	mg/kg/day	1.5E-02	1/(mg/kg-day)	2.3E-08	1.0E-04	mg/kg/day	2.9E-02	mg/kg/day	3.6E-03
				Xylenes, total	3.6E-02	MG/M3	7.2E-06	mg/kg/day	NA	NA	NA	5.0E-04	mg/kg/day	2.9E-02	mg/kg/day	1.8E-02
			Exp. Route Total								1.2E-05					2.9E-01
		Exposure Point Total									1.2E-05					2.9E-01
	Exposure Medium Total										1.2E-05					2.9E-01
Subsurface Soil Total											2.4E-05					1.2E+00

NA = Not applicable.

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TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion													
				Aluminum	9.1E+03	MG/KG	5.4E-04	mg/kg/day	NA	NA	NA	4.2E-03	mg/kg/day	1.0E+00	mg/kg/day	4.2E-03
				Antimony	4.1E+00	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	4.0E-04	mg/kg/day	4.7E-03
				Arsenic	1.2E+03	MG/KG	7.3E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.1E-04	5.7E-04	mg/kg/day	3.0E-04	mg/kg/day	1.9E+00
				Barium	1.9E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	8.5E-03	mg/kg/day	7.0E-02	mg/kg/day	1.2E-01
				Cadmium	2.5E+01	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	1.0E-03	mg/kg/day	1.1E-02
				Chromium	1.8E+01	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	8.4E-06	mg/kg/day	3.0E-03	mg/kg/day	2.8E-03
				Iron	6.1E+04	MG/KG	3.6E-03	mg/kg/day	NA	NA	NA	2.8E-02	mg/kg/day	3.0E-01	mg/kg/day	9.3E-02
				Lead	2.1E+03	MG/KG	1.3E-04	mg/kg/day	NA	NA	NA	9.8E-04	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	1.4E-01	mg/kg/day	8.7E-04
				Mercury	2.4E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	3.0E-04	mg/kg/day	3.7E-03
				Benzo(a)anthracene	1.8E+00	MG/KG	1.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.7E-08	8.2E-07	mg/kg/day	3.0E-02	mg/kg/day	2.7E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	9.4E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.9E-07	7.3E-07	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	1.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.2E-08	8.7E-07	mg/kg/day	3.0E-02	mg/kg/day	2.9E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	2.1E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.5E-07	1.6E-07	mg/kg/day	3.0E-02	mg/kg/day	5.5E-06
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	5.9E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-08	4.6E-07	mg/kg/day	5.0E-02	mg/kg/day	9.2E-06
			Exp. Route Total								1.1E-04					2.1E+00
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Dermal													
				Aluminum	9.1E+03	MG/KG	6.1E-06	mg/kg/day	NA	NA	NA	4.8E-05	mg/kg/day	1.0E+00	mg/kg/day	4.8E-05
				Antimony	4.1E+00	MG/KG	2.8E-09	mg/kg/day	NA	NA	NA	2.1E-08	mg/kg/day	6.0E-05	mg/kg/day	3.6E-04
				Arsenic	1.2E+03	MG/KG	2.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.7E-06	1.9E-05	mg/kg/day	3.0E-04	mg/kg/day	6.5E-02
				Barium	1.9E+04	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	9.7E-05	mg/kg/day	4.9E-03	mg/kg/day	2.0E-02
				Cadmium	2.5E+01	MG/KG	1.7E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	5.0E-05	mg/kg/day	2.6E-04
				Chromium	1.8E+01	MG/KG	1.2E-08	mg/kg/day	NA	NA	NA	9.6E-08	mg/kg/day	7.5E-05	mg/kg/day	1.3E-03
				Iron	6.1E+04	MG/KG	4.1E-05	mg/kg/day	NA	NA	NA	3.2E-04	mg/kg/day	3.0E-01	mg/kg/day	1.1E-03
				Lead	2.1E+03	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	5.6E-03	mg/kg/day	2.5E-04
				Mercury	2.4E+00	MG/KG	1.6E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	2.1E-05	mg/kg/day	6.0E-04
				Benzo(a)anthracene	1.8E+00	MG/KG	1.6E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-08	1.2E-07	mg/kg/day	3.0E-02	mg/kg/day	4.1E-06
				Benzo(a)pyrene	1.6E+00	MG/KG	1.4E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-07	1.1E-07	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	1.7E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-08	1.3E-07	mg/kg/day	3.0E-02	mg/kg/day	4.3E-06
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	3.1E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.3E-08	2.4E-08	mg/kg/day	3.0E-02	mg/kg/day	8.1E-07
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	8.7E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.4E-09	6.8E-08	mg/kg/day	5.0E-02	mg/kg/day	1.4E-06
			Exp. Route Total								3.9E-06					8.8E-02
		Exposure Point Total									1.1E-04					2.2E+00
	Exposure Medium Total										1.1E-04					2.2E+00

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TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation	Aluminum	9.0E-06	MG/M3	2.1E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.4E-03	mg/kg/day	1.1E-03
				Antimony	4.0E-09	MG/M3	9.4E-11	mg/kg/day	NA	NA	NA	7.3E-10	mg/kg/day	NA	NA	NA
				Arsenic	1.2E-06	MG/M3	2.9E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.3E-07	2.2E-07	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	4.3E-07	mg/kg/day	NA	NA	NA	3.3E-06	mg/kg/day	1.4E-04	mg/kg/day	2.4E-02
				Cadmium	2.4E-08	MG/M3	5.7E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	3.6E-09	4.4E-09	mg/kg/day	5.7E-05	mg/kg/day	7.8E-05
				Chromium	1.8E-08	MG/M3	4.2E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.8E-08	3.3E-09	mg/kg/day	2.3E-06	mg/kg/day	1.4E-03
				Iron	6.0E-05	MG/M3	1.4E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	4.9E-08	mg/kg/day	NA	NA	NA	3.8E-07	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	6.1E-09	mg/kg/day	NA	NA	NA	4.7E-08	mg/kg/day	1.4E-05	mg/kg/day	3.3E-03
				Mercury	2.4E-09	MG/M3	5.5E-11	mg/kg/day	NA	NA	NA	4.3E-10	mg/kg/day	8.6E-05	mg/kg/day	5.0E-06
				Benzo(a)anthracene	1.8E-09	MG/M3	4.1E-11	mg/kg/day	NA	NA	NA	3.2E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	3.7E-11	mg/kg/day	NA	NA	NA	2.9E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	4.4E-11	mg/kg/day	NA	NA	NA	3.4E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	8.3E-12	mg/kg/day	NA	NA	NA	6.4E-11	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	2.3E-11	mg/kg/day	NA	NA	NA	1.8E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								4.5E-07					3.0E-02
		Exposure Point Total									4.5E-07					3.0E-02
	Exposure Medium Total										4.5E-07					3.0E-02
Subsurface Soil Total											1.1E-04					2.3E+00

NA = Not applicable.

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TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Junkyard Surface Soil	Ingestion													
				Antimony	4.1E+00	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	2.0E-04	mg/kg/day	8.8E-02
				Arsenic	2.8E+01	MG/KG	1.0E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.5E-05	1.2E-04	mg/kg/day	5.0E-03	mg/kg/day	2.4E-02
				Barium	1.6E+04	MG/KG	5.9E-03	mg/kg/day	NA	NA	NA	6.8E-02	mg/kg/day	7.0E-02	mg/kg/day	9.8E-01
				Cadmium	1.8E+01	MG/KG	6.7E-06	mg/kg/day	NA	NA	NA	7.8E-05	mg/kg/day	1.0E-03	mg/kg/day	7.8E-02
				Chromium	1.6E+01	MG/KG	5.9E-06	mg/kg/day	NA	NA	NA	6.9E-05	mg/kg/day	2.0E-02	mg/kg/day	3.5E-03
				Iron	3.3E+04	MG/KG	1.2E-02	mg/kg/day	NA	NA	NA	1.4E-01	mg/kg/day	3.0E-01	mg/kg/day	4.7E-01
				Lead	2.1E+03	MG/KG	7.8E-04	mg/kg/day	NA	NA	NA	9.1E-03	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	8.0E-05	mg/kg/day	NA	NA	NA	9.4E-04	mg/kg/day	1.4E-01	mg/kg/day	6.7E-03
				Mercury	2.4E+00	MG/KG	8.8E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	3.0E-04	mg/kg/day	3.4E-02
				Benzo(a)anthracene	1.6E+00	MG/KG	5.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-07	6.8E-06	mg/kg/day	3.0E-01	mg/kg/day	2.3E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	5.5E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.0E-06	6.4E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	5.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.0E-07	6.4E-06	mg/kg/day	3.0E-01	mg/kg/day	2.1E-05
			Exp. Route Total								2.0E-05					1.7E+00
			Dermal													
				Antimony	4.1E+00	MG/KG	1.7E-08	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	3.0E-05	mg/kg/day	6.5E-03
				Arsenic	2.8E+01	MG/KG	3.4E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.1E-07	4.0E-06	mg/kg/day	5.0E-03	mg/kg/day	8.0E-04
				Barium	1.6E+04	MG/KG	6.6E-05	mg/kg/day	NA	NA	NA	7.7E-04	mg/kg/day	4.9E-03	mg/kg/day	1.6E-01
				Cadmium	1.8E+01	MG/KG	7.5E-09	mg/kg/day	NA	NA	NA	8.8E-08	mg/kg/day	5.0E-05	mg/kg/day	1.8E-03
				Chromium	1.6E+01	MG/KG	6.6E-08	mg/kg/day	NA	NA	NA	7.8E-07	mg/kg/day	5.0E-04	mg/kg/day	1.6E-03
				Iron	3.3E+04	MG/KG	1.3E-04	mg/kg/day	NA	NA	NA	1.6E-03	mg/kg/day	3.0E-01	mg/kg/day	5.2E-03
				Lead	2.1E+03	MG/KG	8.8E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	9.0E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	5.6E-03	mg/kg/day	1.9E-03
				Mercury	2.4E+00	MG/KG	9.8E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	2.1E-05	mg/kg/day	5.5E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	8.5E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-08	1.0E-06	mg/kg/day	3.0E-01	mg/kg/day	3.3E-06
				Benzo(a)pyrene	1.5E+00	MG/KG	8.0E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.8E-07	9.3E-07	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	8.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.8E-08	9.3E-07	mg/kg/day	3.0E-01	mg/kg/day	3.1E-06
			Exp. Route Total								1.2E-06					1.8E-01
		Exposure Point Total									2.1E-05					1.9E+00
	Exposure Medium Total										2.1E-05					1.9E+00
Surface Soil	Ambient Air	Emissions from Junkyard Surface Soil	Inhalation													
				Antimony	4.0E-09	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	1.1E-04	mg/kg/day	1.5E-05
				Arsenic	2.7E-08	MG/M3	1.0E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.5E-08	1.2E-08	mg/kg/day	NA	NA	NA
				Barium	1.6E-05	MG/M3	5.8E-07	mg/kg/day	NA	NA	NA	6.8E-06	mg/kg/day	1.4E-03	mg/kg/day	4.8E-03
				Cadmium	1.8E-08	MG/M3	6.6E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.2E-09	7.7E-09	mg/kg/day	2.6E-04	mg/kg/day	3.0E-05
				Chromium	1.6E-08	MG/M3	5.9E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.5E-08	6.8E-09	mg/kg/day	2.3E-06	mg/kg/day	3.0E-03
				Iron	3.2E-05	MG/M3	1.2E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	7.7E-08	mg/kg/day	NA	NA	NA	9.0E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	7.9E-09	mg/kg/day	NA	NA	NA	9.2E-08	mg/kg/day	1.4E-05	mg/kg/day	6.5E-03
				Mercury	2.4E-09	MG/M3	8.7E-11	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	8.6E-05	mg/kg/day	1.2E-05

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TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Junkyard Surface Soil (cont.)	Inhalation (cont.)	Benzo(a)anthracene	1.6E-09	MG/M3	5.8E-11	mg/kg/day	NA	NA	NA	6.8E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.5E-09	MG/M3	5.4E-11	mg/kg/day	NA	NA	NA	6.3E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E-09	MG/M3	5.4E-11	mg/kg/day	NA	NA	NA	6.3E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								4.4E-08					1.4E-02
		Exposure Point Total									4.4E-08					1.4E-02
	Exposure Medium Total										4.4E-08					1.4E-02
Surface Soil Total											2.1E-05					1.9E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion													
				Aluminum	9.1E+03	MG/KG	3.3E-03	mg/kg/day	NA	NA	NA	3.9E-02	mg/kg/day	1.0E+00	mg/kg/day	3.9E-02
				Antimony	4.1E+00	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	2.0E-04	mg/kg/day	8.8E-02
				Arsenic	1.2E+03	MG/KG	4.5E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.8E-04	5.3E-03	mg/kg/day	5.0E-03	mg/kg/day	1.1E+00
				Barium	1.9E+04	MG/KG	6.8E-03	mg/kg/day	NA	NA	NA	7.9E-02	mg/kg/day	7.0E-02	mg/kg/day	1.1E+00
				Cadmium	2.5E+01	MG/KG	9.1E-06	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	1.0E-03	mg/kg/day	1.1E-01
				Chromium	1.8E+01	MG/KG	6.7E-06	mg/kg/day	NA	NA	NA	7.8E-05	mg/kg/day	2.0E-02	mg/kg/day	3.9E-03
				Iron	6.1E+04	MG/KG	2.2E-02	mg/kg/day	NA	NA	NA	2.6E-01	mg/kg/day	3.0E-01	mg/kg/day	8.7E-01
				Lead	2.1E+03	MG/KG	7.8E-04	mg/kg/day	NA	NA	NA	9.1E-03	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	9.7E-05	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	1.4E-01	mg/kg/day	8.1E-03
				Mercury	2.4E+00	MG/KG	8.8E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	3.0E-04	mg/kg/day	3.4E-02
				Benzo(a)anthracene	1.8E+00	MG/KG	6.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.8E-07	7.7E-06	mg/kg/day	3.0E-01	mg/kg/day	2.6E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	5.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.3E-06	6.8E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	7.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.1E-07	8.1E-06	mg/kg/day	3.0E-01	mg/kg/day	2.7E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.6E-07	1.5E-06	mg/kg/day	3.0E-01	mg/kg/day	5.1E-06
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	3.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.7E-07	4.3E-06	mg/kg/day	6.0E-01	mg/kg/day	7.1E-06
			Exp. Route Total								6.9E-04					3.3E+00
			Dermal													
				Aluminum	9.1E+03	MG/KG	3.7E-05	mg/kg/day	NA	NA	NA	4.4E-04	mg/kg/day	1.0E+00	mg/kg/day	4.4E-04
				Antimony	4.1E+00	MG/KG	1.7E-08	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	3.0E-05	mg/kg/day	6.5E-03
				Arsenic	1.2E+03	MG/KG	1.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.3E-05	1.8E-04	mg/kg/day	5.0E-03	mg/kg/day	3.6E-02
				Barium	1.9E+04	MG/KG	7.6E-05	mg/kg/day	NA	NA	NA	8.9E-04	mg/kg/day	4.9E-03	mg/kg/day	1.8E-01
				Cadmium	2.5E+01	MG/KG	1.0E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	5.0E-05	mg/kg/day	2.4E-03
				Chromium	1.8E+01	MG/KG	7.5E-08	mg/kg/day	NA	NA	NA	8.8E-07	mg/kg/day	5.0E-04	mg/kg/day	1.8E-03
				Iron	6.1E+04	MG/KG	2.5E-04	mg/kg/day	NA	NA	NA	2.9E-03	mg/kg/day	3.0E-01	mg/kg/day	9.7E-03
				Lead	2.1E+03	MG/KG	8.8E-06	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	5.6E-03	mg/kg/day	2.3E-03
				Mercury	2.4E+00	MG/KG	9.8E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	2.1E-05	mg/kg/day	5.5E-03
				Benzo(a)anthracene	1.8E+00	MG/KG	9.6E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.0E-08	1.1E-06	mg/kg/day	3.0E-01	mg/kg/day	3.7E-06
				Benzo(a)pyrene	1.6E+00	MG/KG	8.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.2E-07	1.0E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	1.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.4E-08	1.2E-06	mg/kg/day	3.0E-01	mg/kg/day	3.9E-06
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.9E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-07	2.2E-07	mg/kg/day	3.0E-01	mg/kg/day	7.5E-07
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	5.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.9E-08	6.2E-07	mg/kg/day	6.0E-01	mg/kg/day	1.0E-06

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TABLE 7.7.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Dermal													
			Exp. Route Total								2.4E-05					2.4E-01
		Exposure Point Total									7.1E-04					3.6E+00
	Exposure Medium Total										7.1E-04					3.6E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation													
				Aluminum	9.0E-06	MG/M3	3.3E-07	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	1.4E-03	mg/kg/day	2.7E-03
				Antimony	4.0E-09	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	1.1E-04	mg/kg/day	1.5E-05
				Arsenic	1.2E-06	MG/M3	4.5E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	6.8E-07	5.2E-07	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	6.7E-07	mg/kg/day	NA	NA	NA	7.8E-06	mg/kg/day	1.4E-03	mg/kg/day	5.6E-03
				Cadmium	2.4E-08	MG/M3	9.0E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	5.7E-09	1.0E-08	mg/kg/day	2.6E-04	mg/kg/day	4.1E-05
				Chromium	1.8E-08	MG/M3	6.6E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.8E-08	7.7E-09	mg/kg/day	2.3E-06	mg/kg/day	3.4E-03
				Iron	6.0E-05	MG/M3	2.2E-06	mg/kg/day	NA	NA	NA	2.6E-05	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	7.7E-08	mg/kg/day	NA	NA	NA	9.0E-07	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	9.6E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	1.4E-05	mg/kg/day	7.8E-03
				Mercury	2.4E-09	MG/M3	8.7E-11	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	8.6E-05	mg/kg/day	1.2E-05
				Benzo(a)anthracene	1.8E-09	MG/M3	6.5E-11	mg/kg/day	NA	NA	NA	7.6E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	5.8E-11	mg/kg/day	NA	NA	NA	6.8E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	6.9E-11	mg/kg/day	NA	NA	NA	8.0E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	1.3E-11	mg/kg/day	NA	NA	NA	1.5E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	3.6E-11	mg/kg/day	NA	NA	NA	4.2E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								7.1E-07					2.0E-02
		Exposure Point Total									7.1E-07					2.0E-02
	Exposure Medium Total										7.1E-07					2.0E-02
Subsurface Soil Total											7.1E-04					3.6E+00

NA = Not applicable.

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TABLE 7.8.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Junkyard Surface Soil	Ingestion													
				Antimony	4.1E+00	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	4.0E-04	mg/kg/day	4.4E-03
				Arsenic	2.8E+01	MG/KG	1.1E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.7E-06	1.2E-05	mg/kg/day	3.0E-04	mg/kg/day	4.0E-02
				Barium	1.6E+04	MG/KG	6.5E-04	mg/kg/day	NA	NA	NA	6.9E-03	mg/kg/day	7.0E-02	mg/kg/day	9.8E-02
				Cadmium	1.8E+01	MG/KG	7.4E-07	mg/kg/day	NA	NA	NA	7.8E-06	mg/kg/day	1.0E-03	mg/kg/day	7.8E-03
				Chromium	1.6E+01	MG/KG	6.5E-07	mg/kg/day	NA	NA	NA	6.9E-06	mg/kg/day	3.0E-03	mg/kg/day	2.3E-03
				Iron	3.3E+04	MG/KG	1.3E-03	mg/kg/day	NA	NA	NA	1.4E-02	mg/kg/day	3.0E-01	mg/kg/day	4.7E-02
				Lead	2.1E+03	MG/KG	8.6E-05	mg/kg/day	NA	NA	NA	9.2E-04	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	8.8E-06	mg/kg/day	NA	NA	NA	9.4E-05	mg/kg/day	1.4E-01	mg/kg/day	6.7E-04
				Mercury	2.4E+00	MG/KG	9.7E-08	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	3.0E-04	mg/kg/day	3.4E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	6.5E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-08	6.9E-07	mg/kg/day	3.0E-02	mg/kg/day	2.3E-05
				Benzo(a)pyrene	1.5E+00	MG/KG	6.1E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.4E-07	6.4E-07	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	6.1E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.4E-08	6.4E-07	mg/kg/day	3.0E-02	mg/kg/day	2.1E-05
			Exp. Route Total								2.2E-06					2.0E-01
			Dermal													
				Antimony	4.1E+00	MG/KG	1.3E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	6.0E-05	mg/kg/day	2.3E-04
				Arsenic	2.8E+01	MG/KG	2.7E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.0E-08	2.8E-07	mg/kg/day	3.0E-04	mg/kg/day	9.5E-04
				Barium	1.6E+04	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	5.5E-05	mg/kg/day	4.9E-03	mg/kg/day	1.1E-02
				Cadmium	1.8E+01	MG/KG	5.9E-10	mg/kg/day	NA	NA	NA	6.3E-09	mg/kg/day	5.0E-05	mg/kg/day	1.3E-04
				Chromium	1.6E+01	MG/KG	5.2E-09	mg/kg/day	NA	NA	NA	5.6E-08	mg/kg/day	7.5E-05	mg/kg/day	7.4E-04
				Iron	3.3E+04	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.7E-04
				Lead	2.1E+03	MG/KG	6.9E-07	mg/kg/day	NA	NA	NA	7.3E-06	mg/kg/day	NA	NA	NA
				Manganese	2.2E+02	MG/KG	7.1E-08	mg/kg/day	NA	NA	NA	7.5E-07	mg/kg/day	5.6E-03	mg/kg/day	1.3E-04
				Mercury	2.4E+00	MG/KG	7.8E-10	mg/kg/day	NA	NA	NA	8.2E-09	mg/kg/day	2.1E-05	mg/kg/day	3.9E-04
				Benzo(a)anthracene	1.6E+00	MG/KG	6.7E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.9E-09	7.1E-08	mg/kg/day	3.0E-02	mg/kg/day	2.4E-06
				Benzo(a)pyrene	1.5E+00	MG/KG	6.3E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.6E-08	6.7E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	6.3E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.6E-09	6.7E-08	mg/kg/day	3.0E-02	mg/kg/day	2.2E-06
			Exp. Route Total								9.6E-08					1.4E-02
		Exposure Point Total									2.3E-06					2.2E-01
	Exposure Medium Total										2.3E-06					2.2E-01
Surface Soil	Ambient Air	Emissions from Junkyard Surface Soil	Inhalation													
				Antimony	4.0E-09	MG/M3	3.2E-11	mg/kg/day	NA	NA	NA	3.4E-10	mg/kg/day	NA	NA	NA
				Arsenic	2.7E-08	MG/M3	2.2E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.3E-09	2.3E-09	mg/kg/day	NA	NA	NA
				Barium	1.6E-05	MG/M3	1.3E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	1.4E-04	mg/kg/day	9.6E-03
				Cadmium	1.8E-08	MG/M3	1.4E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	9.1E-10	1.5E-09	mg/kg/day	5.7E-05	mg/kg/day	2.7E-05
				Chromium	1.6E-08	MG/M3	1.3E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	5.4E-09	1.4E-09	mg/kg/day	2.3E-06	mg/kg/day	6.0E-04
				Iron	3.2E-05	MG/M3	2.6E-07	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	1.7E-08	mg/kg/day	NA	NA	NA	1.8E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	1.8E-08	mg/kg/day	1.4E-05	mg/kg/day	1.3E-03
				Mercury	2.4E-09	MG/M3	1.9E-11	mg/kg/day	NA	NA	NA	2.0E-10	mg/kg/day	8.6E-05	mg/kg/day	2.4E-06

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TABLE 7.8.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
				Benzo(a)anthracene	1.6E-09	MG/M3	1.3E-11	mg/kg/day	NA	NA	NA	1.3E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.5E-09	MG/M3	1.2E-11	mg/kg/day	NA	NA	NA	1.3E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E-09	MG/M3	1.2E-11	mg/kg/day	NA	NA	NA	1.3E-10	mg/kg/day	NA	NA	NA
			Exp. Route Total								9.6E-09					1.2E-02
		Exposure Point Total									9.6E-09					1.2E-02
	Exposure Medium Total										9.6E-09					1.2E-02
Surface Soil Total											2.3E-06					2.3E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion													
				Aluminum	9.1E+03	MG/KG	3.7E-04	mg/kg/day	NA	NA	NA	3.9E-03	mg/kg/day	1.0E+00	mg/kg/day	3.9E-03
				Antimony	4.1E+00	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	4.0E-04	mg/kg/day	4.4E-03
				Arsenic	1.2E+03	MG/KG	5.0E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	7.5E-05	5.3E-04	mg/kg/day	3.0E-04	mg/kg/day	1.8E+00
				Barium	1.9E+04	MG/KG	7.5E-04	mg/kg/day	NA	NA	NA	7.9E-03	mg/kg/day	7.0E-02	mg/kg/day	1.1E-01
				Cadmium	2.5E+01	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	1.0E-03	mg/kg/day	1.1E-02
				Chromium	1.8E+01	MG/KG	7.4E-07	mg/kg/day	NA	NA	NA	7.8E-06	mg/kg/day	3.0E-03	mg/kg/day	2.6E-03
				Iron	6.1E+04	MG/KG	2.5E-03	mg/kg/day	NA	NA	NA	2.6E-02	mg/kg/day	3.0E-01	mg/kg/day	8.7E-02
				Lead	2.1E+03	MG/KG	8.6E-05	mg/kg/day	NA	NA	NA	9.2E-04	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	1.4E-01	mg/kg/day	8.1E-04
				Mercury	2.4E+00	MG/KG	9.7E-08	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	3.0E-04	mg/kg/day	3.4E-03
				Benzo(a)anthracene	1.8E+00	MG/KG	7.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.3E-08	7.7E-07	mg/kg/day	3.0E-02	mg/kg/day	2.6E-05
				Benzo(a)pyrene	1.6E+00	MG/KG	6.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.7E-07	6.9E-07	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	7.7E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.6E-08	8.1E-07	mg/kg/day	3.0E-02	mg/kg/day	2.7E-05
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-07	1.5E-07	mg/kg/day	3.0E-02	mg/kg/day	5.1E-06
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	4.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-08	4.3E-07	mg/kg/day	5.0E-02	mg/kg/day	8.6E-06
			Exp. Route Total								7.6E-05					2.0E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Dermal													
(cont.)	(cont.)	(cont.)		Aluminum	9.1E+03	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	1.0E+00	mg/kg/day	3.1E-05
				Antimony	4.1E+00	MG/KG	1.3E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	6.0E-05	mg/kg/day	2.3E-04
				Arsenic	1.2E+03	MG/KG	1.2E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.8E-06	1.3E-05	mg/kg/day	3.0E-04	mg/kg/day	4.3E-02
				Barium	1.9E+04	MG/KG	6.0E-06	mg/kg/day	NA	NA	NA	6.3E-05	mg/kg/day	4.9E-03	mg/kg/day	1.3E-02
				Cadmium	2.5E+01	MG/KG	8.0E-10	mg/kg/day	NA	NA	NA	8.5E-09	mg/kg/day	5.0E-05	mg/kg/day	1.7E-04
				Chromium	1.8E+01	MG/KG	5.9E-09	mg/kg/day	NA	NA	NA	6.3E-08	mg/kg/day	7.5E-05	mg/kg/day	8.4E-04
				Iron	6.1E+04	MG/KG	2.0E-05	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	3.0E-01	mg/kg/day	7.0E-04
				Lead	2.1E+03	MG/KG	6.9E-07	mg/kg/day	NA	NA	NA	7.3E-06	mg/kg/day	NA	NA	NA
				Manganese	2.7E+02	MG/KG	8.6E-08	mg/kg/day	NA	NA	NA	9.1E-07	mg/kg/day	5.6E-03	mg/kg/day	1.6E-04
				Mercury	2.4E+00	MG/KG	7.8E-10	mg/kg/day	NA	NA	NA	8.2E-09	mg/kg/day	2.1E-05	mg/kg/day	3.9E-04
				Benzo(a)anthracene	1.8E+00	MG/KG	7.6E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.5E-09	8.0E-08	mg/kg/day	3.0E-02	mg/kg/day	2.7E-06
				Benzo(a)pyrene	1.6E+00	MG/KG	6.7E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.9E-08	7.1E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	8.0E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.8E-09	8.5E-08	mg/kg/day	3.0E-02	mg/kg/day	2.8E-06
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	1.5E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-08	1.6E-08	mg/kg/day	3.0E-02	mg/kg/day	5.3E-07
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	4.2E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.1E-09	4.5E-08	mg/kg/day	5.0E-02	mg/kg/day	8.9E-07

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TABLE 7.8.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
			Exp. Route Total								1.9E-06					5.8E-02
		Exposure Point Total									7.8E-05					2.1E+00
	Exposure Medium Total										7.8E-05					2.1E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation	Aluminum	9.0E-06	MG/M3	7.2E-08	mg/kg/day	NA	NA	NA	7.7E-07	mg/kg/day	1.4E-03	mg/kg/day	5.4E-04
				Antimony	4.0E-09	MG/M3	3.2E-11	mg/kg/day	NA	NA	NA	3.4E-10	mg/kg/day	NA	NA	NA
				Arsenic	1.2E-06	MG/M3	9.8E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.5E-07	1.0E-07	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	1.5E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.4E-04	mg/kg/day	1.1E-02
				Cadmium	2.4E-08	MG/M3	2.0E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.2E-09	2.1E-09	mg/kg/day	5.7E-05	mg/kg/day	3.7E-05
				Chromium	1.8E-08	MG/M3	1.4E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	6.1E-09	1.5E-09	mg/kg/day	2.3E-06	mg/kg/day	6.7E-04
				Iron	6.0E-05	MG/M3	4.8E-07	mg/kg/day	NA	NA	NA	5.1E-06	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	1.7E-08	mg/kg/day	NA	NA	NA	1.8E-07	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	2.1E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	1.4E-05	mg/kg/day	1.6E-03
				Mercury	2.4E-09	MG/M3	1.9E-11	mg/kg/day	NA	NA	NA	2.0E-10	mg/kg/day	8.6E-05	mg/kg/day	2.4E-06
				Benzo(a)anthracene	1.8E-09	MG/M3	1.4E-11	mg/kg/day	NA	NA	NA	1.5E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	1.3E-11	mg/kg/day	NA	NA	NA	1.3E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	1.5E-11	mg/kg/day	NA	NA	NA	1.6E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	2.9E-12	mg/kg/day	NA	NA	NA	3.0E-11	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	7.9E-12	mg/kg/day	NA	NA	NA	8.4E-11	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.6E-07					1.4E-02
		Exposure Point Total									1.6E-07					1.4E-02
	Exposure Medium Total										1.6E-07					1.4E-02
Subsurface Soil Total											7.8E-05					2.1E+00

NA = Not applicable.

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TABLE 7.9.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Junkyard Surface Soil	Ingestion													
				Antimony	4.1E+00	MG/KG	3.2E-08	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	2.0E-04	mg/kg/day	1.1E-02
				Arsenic	2.8E+01	MG/KG	2.1E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.2E-07	1.5E-05	mg/kg/day	5.0E-03	mg/kg/day	3.0E-03
				Barium	1.6E+04	MG/KG	1.2E-04	mg/kg/day	NA	NA	NA	8.7E-03	mg/kg/day	7.0E-02	mg/kg/day	1.2E-01
				Cadmium	1.8E+01	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	9.9E-06	mg/kg/day	1.0E-03	mg/kg/day	9.9E-03
				Chromium	1.6E+01	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	8.8E-06	mg/kg/day	2.0E-02	mg/kg/day	4.4E-04
				Iron	3.3E+04	MG/KG	2.5E-04	mg/kg/day	NA	NA	NA	1.8E-02	mg/kg/day	3.0E-01	mg/kg/day	5.9E-02
				Lead	2.1E+03	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.2E+02	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	1.4E-01	mg/kg/day	8.5E-04
				Mercury	2.4E+00	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	3.0E-04	mg/kg/day	4.3E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	1.2E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.1E-09	8.7E-07	mg/kg/day	3.0E-01	mg/kg/day	2.9E-06
				Benzo(a)pyrene	1.5E+00	MG/KG	1.2E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.5E-08	8.1E-07	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	1.2E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.5E-09	8.1E-07	mg/kg/day	3.0E-01	mg/kg/day	2.7E-06
			Exp. Route Total								4.2E-07					2.1E-01
			Dermal													
				Antimony	4.1E+00	MG/KG	6.4E-10	mg/kg/day	NA	NA	NA	4.4E-08	mg/kg/day	3.0E-05	mg/kg/day	1.5E-03
				Arsenic	2.8E+01	MG/KG	1.3E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.9E-08	9.0E-07	mg/kg/day	5.0E-03	mg/kg/day	1.8E-04
				Barium	1.6E+04	MG/KG	2.5E-06	mg/kg/day	NA	NA	NA	1.7E-04	mg/kg/day	4.9E-03	mg/kg/day	3.5E-02
				Cadmium	1.8E+01	MG/KG	2.8E-10	mg/kg/day	NA	NA	NA	2.0E-08	mg/kg/day	5.0E-05	mg/kg/day	4.0E-04
				Chromium	1.6E+01	MG/KG	2.5E-09	mg/kg/day	NA	NA	NA	1.8E-07	mg/kg/day	5.0E-04	mg/kg/day	3.5E-04
				Iron	3.3E+04	MG/KG	5.1E-06	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	3.0E-01	mg/kg/day	1.2E-03
				Lead	2.1E+03	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.2E+02	MG/KG	3.4E-08	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	5.6E-03	mg/kg/day	4.2E-04
				Mercury	2.4E+00	MG/KG	3.7E-10	mg/kg/day	NA	NA	NA	2.6E-08	mg/kg/day	2.1E-05	mg/kg/day	1.2E-03
				Benzo(a)anthracene	1.6E+00	MG/KG	3.2E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-09	2.3E-07	mg/kg/day	3.0E-01	mg/kg/day	7.5E-07
				Benzo(a)pyrene	1.5E+00	MG/KG	3.0E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.2E-08	2.1E-07	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.5E+00	MG/KG	3.0E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-09	2.1E-07	mg/kg/day	3.0E-01	mg/kg/day	7.1E-07
			Exp. Route Total								4.6E-08					4.1E-02
		Exposure Point Total									4.7E-07					2.5E-01
	Exposure Medium Total										4.7E-07					2.5E-01

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TABLE 7.9.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Junkyard Surface Soil	Inhalation	Antimony	4.0E-09	MG/M3	7.9E-13	mg/kg/day	NA	NA	NA	5.6E-11	mg/kg/day	1.1E-04	NA	4.9E-07
				Arsenic	2.7E-08	MG/M3	5.4E-12	mg/kg/day	1.5E+01	1/(mg/kg-day)	8.1E-11	3.7E-10	mg/kg/day	NA	NA	NA
				Barium	1.6E-05	MG/M3	3.1E-09	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	1.4E-03	mg/kg/day	1.5E-04
				Cadmium	1.8E-08	MG/M3	3.5E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.2E-11	2.5E-10	mg/kg/day	2.6E-04	mg/kg/day	9.6E-07
				Chromium	1.6E-08	MG/M3	3.1E-12	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.3E-10	2.2E-10	mg/kg/day	2.3E-06	mg/kg/day	9.6E-05
				Iron	3.2E-05	MG/M3	6.3E-09	mg/kg/day	NA	NA	NA	4.4E-07	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	2.9E-08	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	4.2E-11	mg/kg/day	NA	NA	NA	3.0E-09	mg/kg/day	1.4E-05	mg/kg/day	2.1E-04
				Mercury	2.4E-09	MG/M3	4.6E-13	mg/kg/day	NA	NA	NA	3.2E-11	mg/kg/day	8.6E-05	mg/kg/day	3.8E-07
				Benzo(a)anthracene	1.6E-09	MG/M3	3.1E-13	mg/kg/day	NA	NA	NA	2.2E-11	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.5E-09	MG/M3	2.9E-13	mg/kg/day	NA	NA	NA	2.0E-11	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.5E-09	MG/M3	2.9E-13	mg/kg/day	NA	NA	NA	2.0E-11	mg/kg/day	NA	NA	NA
			Exp. Route Total								2.3E-10					4.6E-04
		Exposure Point Total									2.3E-10					4.6E-04
	Exposure Medium Total										2.3E-10					4.6E-04
Surface Soil Total											4.7E-07					2.5E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Ingestion	Aluminum	9.1E+03	MG/KG	7.1E-05	mg/kg/day	NA	NA	NA	5.0E-03	mg/kg/day	1.0E+00	mg/kg/day	5.0E-03
				Antimony	4.1E+00	MG/KG	3.2E-08	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	2.0E-04	mg/kg/day	1.1E-02
				Arsenic	1.2E+03	MG/KG	9.6E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.4E-05	6.7E-04	mg/kg/day	5.0E-03	mg/kg/day	1.3E-01
				Barium	1.9E+04	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	1.0E-02	mg/kg/day	7.0E-02	mg/kg/day	1.4E-01
				Cadmium	2.5E+01	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	1.0E-03	mg/kg/day	1.3E-02
				Chromium	1.8E+01	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	9.9E-06	mg/kg/day	2.0E-02	mg/kg/day	5.0E-04
				Iron	6.1E+04	MG/KG	4.7E-04	mg/kg/day	NA	NA	NA	3.3E-02	mg/kg/day	3.0E-01	mg/kg/day	1.1E-01
				Lead	2.1E+03	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.7E+02	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	1.4E-01	mg/kg/day	1.0E-03
				Mercury	2.4E+00	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	3.0E-04	mg/kg/day	4.3E-03
				Benzo(a)anthracene	1.8E+00	MG/KG	1.4E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-08	9.8E-07	mg/kg/day	3.0E-01	mg/kg/day	3.3E-06
				Benzo(a)pyrene	1.6E+00	MG/KG	1.2E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.1E-08	8.7E-07	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	1.5E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-08	1.0E-06	mg/kg/day	3.0E-01	mg/kg/day	3.4E-06
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	2.8E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.0E-08	2.0E-07	mg/kg/day	3.0E-01	mg/kg/day	6.5E-07
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	7.7E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.7E-09	5.4E-07	mg/kg/day	6.0E-01	mg/kg/day	9.0E-07
			Exp. Route Total								1.5E-05					4.2E-01

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TABLE 7.9.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Dermal	Aluminum	9.1E+03	MG/KG	1.4E-06	mg/kg/day	NA	NA	NA	9.9E-05	mg/kg/day	1.0E+00	mg/kg/day	9.9E-05
				Antimony	4.1E+00	MG/KG	6.4E-10	mg/kg/day	NA	NA	NA	4.4E-08	mg/kg/day	2.0E-04	mg/kg/day	2.2E-04
				Arsenic	1.2E+03	MG/KG	5.8E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.6E-07	4.0E-05	mg/kg/day	5.0E-03	mg/kg/day	8.1E-03
				Barium	1.9E+04	MG/KG	2.9E-06	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	7.0E-02	mg/kg/day	2.9E-03
				Cadmium	2.5E+01	MG/KG	3.8E-10	mg/kg/day	NA	NA	NA	2.7E-08	mg/kg/day	1.0E-03	mg/kg/day	2.7E-05
				Chromium	1.8E+01	MG/KG	2.8E-09	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	2.0E-02	mg/kg/day	9.9E-06
				Iron	6.1E+04	MG/KG	9.4E-06	mg/kg/day	NA	NA	NA	6.6E-04	mg/kg/day	3.0E-01	mg/kg/day	2.2E-03
				Lead	2.1E+03	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.7E+02	MG/KG	4.1E-08	mg/kg/day	NA	NA	NA	2.9E-06	mg/kg/day	1.4E-01	mg/kg/day	2.1E-05
				Mercury	2.4E+00	MG/KG	3.7E-10	mg/kg/day	NA	NA	NA	2.6E-08	mg/kg/day	3.0E-04	mg/kg/day	8.7E-05
				Benzo(a)anthracene	1.8E+00	MG/KG	3.6E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.6E-09	2.5E-07	mg/kg/day	3.0E-01	mg/kg/day	8.5E-07
				Benzo(a)pyrene	1.6E+00	MG/KG	3.2E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.4E-08	2.3E-07	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.9E+00	MG/KG	3.8E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-09	2.7E-07	mg/kg/day	3.0E-01	mg/kg/day	8.9E-07
				Dibenzo(a,h)anthracene	3.6E-01	MG/KG	7.3E-10	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-09	5.1E-08	mg/kg/day	3.0E-01	mg/kg/day	1.7E-07
				Indeno(1,2,3-cd)pyrene	1.0E+00	MG/KG	2.0E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-09	1.4E-07	mg/kg/day	6.0E-01	mg/kg/day	2.4E-07
			Exp. Route Total								9.0E-07					1.4E-02
		Exposure Point Total									1.5E-05					4.4E-01
	Exposure Medium Total										1.5E-05					4.4E-01
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Inhalation	Aluminum	9.0E-06	MG/M3	1.8E-09	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	1.4E-03	mg/kg/day	8.7E-05
				Antimony	4.0E-09	MG/M3	7.9E-13	mg/kg/day	NA	NA	NA	5.6E-11	mg/kg/day	1.1E-04	NA	4.9E-07
				Arsenic	1.2E-06	MG/M3	2.4E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.6E-09	1.7E-08	mg/kg/day	NA	NA	NA
				Barium	1.8E-05	MG/M3	3.6E-09	mg/kg/day	NA	NA	NA	2.5E-07	mg/kg/day	1.4E-03	mg/kg/day	1.8E-04
				Cadmium	2.4E-08	MG/M3	4.8E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	3.0E-11	3.4E-10	mg/kg/day	2.6E-04	mg/kg/day	1.3E-06
				Chromium	1.8E-08	MG/M3	3.5E-12	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.5E-10	2.5E-10	mg/kg/day	2.3E-06	mg/kg/day	1.1E-04
				Iron	6.0E-05	MG/M3	1.2E-08	mg/kg/day	NA	NA	NA	8.2E-07	mg/kg/day	NA	NA	NA
				Lead	2.1E-06	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	2.9E-08	mg/kg/day	NA	NA	NA
				Manganese	2.6E-07	MG/M3	5.1E-11	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	1.4E-05	mg/kg/day	2.5E-04
				Mercury	2.4E-09	MG/M3	4.6E-13	mg/kg/day	NA	NA	NA	3.2E-11	mg/kg/day	8.6E-05	mg/kg/day	3.8E-07
				Benzo(a)anthracene	1.8E-09	MG/M3	3.5E-13	mg/kg/day	NA	NA	NA	2.4E-11	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.6E-09	MG/M3	3.1E-13	mg/kg/day	NA	NA	NA	2.2E-11	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.9E-09	MG/M3	3.7E-13	mg/kg/day	NA	NA	NA	2.6E-11	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	3.5E-10	MG/M3	7.0E-14	mg/kg/day	NA	NA	NA	4.9E-12	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	9.8E-10	MG/M3	1.9E-13	mg/kg/day	NA	NA	NA	1.4E-11	mg/kg/day	NA	NA	NA
			Exp. Route Total								3.8E-09					6.3E-04
		Exposure Point Total									3.8E-09					6.3E-04
	Exposure Medium Total										3.8E-09					6.3E-04
Subsurface Soil Total											1.5E-05					4.4E-01

NA = Not applicable.

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TABLE 7.10.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion													
				Antimony	3.4E+00	MG/KG	2.0E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	4.0E-04	mg/kg/day	3.9E-03
				Arsenic	3.4E+02	MG/KG	2.0E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.0E-05	1.6E-04	mg/kg/day	3.0E-04	mg/kg/day	5.2E-01
				Barium	2.3E+04	MG/KG	1.3E-03	mg/kg/day	NA	NA	NA	1.0E-02	mg/kg/day	7.0E-02	mg/kg/day	1.5E-01
				Cadmium	4.6E+00	MG/KG	2.7E-07	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	1.0E-03	mg/kg/day	2.1E-03
				Chromium	4.1E+02	MG/KG	2.4E-05	mg/kg/day	NA	NA	NA	1.9E-04	mg/kg/day	3.0E-03	mg/kg/day	6.3E-02
				Iron	2.8E+04	MG/KG	1.6E-03	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	3.0E-01	mg/kg/day	4.2E-02
				Lead	6.6E+02	MG/KG	3.9E-05	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	9.7E-05	mg/kg/day	1.4E-01	mg/kg/day	6.9E-04
				Mercury	5.7E+00	MG/KG	3.4E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	3.0E-04	mg/kg/day	8.7E-03
				Aldrin	7.3E-02	MG/KG	4.3E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	7.3E-08	3.3E-08	mg/kg/day	3.0E-05	mg/kg/day	1.1E-03
				Dieldrin	1.2E-01	MG/KG	7.1E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.1E-07	5.5E-08	mg/kg/day	5.0E-05	mg/kg/day	1.1E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.9E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.8E-07	1.5E-06	mg/kg/day	2.0E-05	mg/kg/day	7.3E-02
				Benzo(a)anthracene	2.4E+01	MG/KG	1.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-06	1.1E-05	mg/kg/day	3.0E-02	mg/kg/day	3.7E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	1.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.7E-06	8.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	9.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.9E-07	7.3E-06	mg/kg/day	3.0E-02	mg/kg/day	2.4E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	7.7E-08	8.2E-06	mg/kg/day	3.0E-02	mg/kg/day	2.7E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	1.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.6E-07	9.2E-07	mg/kg/day	3.0E-02	mg/kg/day	3.1E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	3.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-07	2.6E-06	mg/kg/day	5.0E-02	mg/kg/day	5.2E-05
				Naphthalene	5.9E+00	MG/KG	3.5E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	2.0E-02	mg/kg/day	1.4E-04
			Exp. Route Total								4.1E-05					8.6E-01
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal													
				Antimony	3.4E+00	MG/KG	2.3E-09	mg/kg/day	NA	NA	NA	1.8E-08	mg/kg/day	6.0E-05	mg/kg/day	3.0E-04
				Arsenic	3.4E+02	MG/KG	6.8E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.0E-06	5.3E-06	mg/kg/day	3.0E-04	mg/kg/day	1.8E-02
				Barium	2.3E+04	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	4.9E-03	mg/kg/day	2.4E-02
				Cadmium	4.6E+00	MG/KG	3.1E-10	mg/kg/day	NA	NA	NA	2.4E-09	mg/kg/day	5.0E-05	mg/kg/day	4.8E-05
				Chromium	4.1E+02	MG/KG	2.8E-07	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	7.5E-05	mg/kg/day	2.9E-02
				Iron	2.8E+04	MG/KG	1.9E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	3.0E-01	mg/kg/day	4.8E-04
				Lead	6.6E+02	MG/KG	4.4E-07	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	5.6E-03	mg/kg/day	2.0E-04
				Mercury	5.7E+00	MG/KG	3.8E-09	mg/kg/day	NA	NA	NA	3.0E-08	mg/kg/day	2.1E-05	mg/kg/day	1.4E-03
				Aldrin	7.3E-02	MG/KG	4.9E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	8.3E-09	3.8E-09	mg/kg/day	3.0E-05	mg/kg/day	1.3E-04
				Dieldrin	1.2E-01	MG/KG	8.1E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.3E-08	6.3E-09	mg/kg/day	5.0E-05	mg/kg/day	1.3E-04
				Pcb-Aroclor 1254	3.2E+00	MG/KG	3.0E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	6.0E-08	2.3E-07	mg/kg/day	2.0E-05	mg/kg/day	1.2E-02
				Benzo(a)anthracene	2.4E+01	MG/KG	2.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-07	1.6E-06	mg/kg/day	3.0E-02	mg/kg/day	5.4E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-07	1.1E-06	mg/kg/day	3.0E-02	mg/kg/day	3.6E-05
				Benzo(k)fluoranthene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.1E-08	1.2E-06	mg/kg/day	3.0E-02	mg/kg/day	4.1E-05
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	1.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.3E-07	1.4E-07	mg/kg/day	3.0E-02	mg/kg/day	4.5E-06
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	5.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.6E-08	3.9E-07	mg/kg/day	5.0E-02	mg/kg/day	7.7E-06
				Naphthalene	5.9E+00	MG/KG	5.1E-08	mg/kg/day	NA	NA	NA	4.0E-07	mg/kg/day	2.0E-02	mg/kg/day	2.0E-05
			Exp. Route Total								2.7E-06					8.5E-02
		Exposure Point Total									4.4E-05					9.5E-01
	Exposure Medium Total										4.4E-05					9.5E-01

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TABLE 7.10.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	7.8E-11	mg/kg/day	NA	NA	NA	6.1E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.3E-07	MG/M3	7.8E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.2E-07	6.1E-08	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	5.2E-07	mg/kg/day	NA	NA	NA	4.0E-06	mg/kg/day	1.4E-04	mg/kg/day	2.9E-02
				Cadmium	4.5E-09	MG/M3	1.1E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	6.7E-10	8.2E-10	mg/kg/day	5.7E-05	mg/kg/day	1.4E-05
				Chromium	4.0E-07	MG/M3	9.5E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	4.0E-07	7.4E-08	mg/kg/day	2.3E-06	mg/kg/day	3.2E-02
				Iron	2.7E-05	MG/M3	6.4E-07	mg/kg/day	NA	NA	NA	5.0E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	1.5E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	4.9E-09	mg/kg/day	NA	NA	NA	3.8E-08	mg/kg/day	1.4E-05	mg/kg/day	2.6E-03
				Mercury	5.6E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	8.6E-05	mg/kg/day	1.2E-05
				Aldrin	7.2E-11	MG/M3	1.7E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.9E-11	1.3E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	2.8E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	4.4E-11	2.1E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	7.4E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.6E-11	5.7E-10	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	3.7E-10	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-09	MG/M3	4.6E-11	mg/kg/day	NA	NA	NA	3.6E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.3E-04	MG/M3	3.1E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	8.6E-04	mg/kg/day	2.8E-02
			Exp. Route Total								5.2E-07					9.2E-02
		Exposure Point Total									5.2E-07					9.2E-02
	Exposure Medium Total										5.2E-07					9.2E-02
Surface Soil Total											4.4E-05					1.0E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	3.4E-04	mg/kg/day	NA	NA	NA	2.6E-03	mg/kg/day	1.0E+00	mg/kg/day	2.6E-03
				Antimony	2.3E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	4.0E-04	mg/kg/day	2.7E-03
				Arsenic	3.7E+02	MG/KG	2.1E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.2E-05	1.7E-04	mg/kg/day	3.0E-04	mg/kg/day	5.6E-01
				Barium	3.5E+04	MG/KG	2.1E-03	mg/kg/day	NA	NA	NA	1.6E-02	mg/kg/day	7.0E-02	mg/kg/day	2.3E-01
				Cadmium	3.0E+00	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	1.0E-03	mg/kg/day	1.4E-03
				Chromium	2.8E+02	MG/KG	1.6E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	3.0E-03	mg/kg/day	4.3E-02
				Copper	2.6E+02	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	4.0E-02	mg/kg/day	3.0E-03
				Iron	2.0E+04	MG/KG	1.2E-03	mg/kg/day	NA	NA	NA	9.4E-03	mg/kg/day	3.0E-01	mg/kg/day	3.1E-02
				Lead	8.5E+02	MG/KG	5.0E-05	mg/kg/day	NA	NA	NA	3.9E-04	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	1.0E-05	mg/kg/day	NA	NA	NA	8.0E-05	mg/kg/day	1.4E-01	mg/kg/day	5.7E-04
				Mercury	1.8E+00	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	8.2E-07	mg/kg/day	3.0E-04	mg/kg/day	2.7E-03
				Thallium	9.6E-01	MG/KG	5.7E-08	mg/kg/day	NA	NA	NA	4.4E-07	mg/kg/day	9.0E-05	mg/kg/day	4.9E-03
				Aldrin	4.3E-02	MG/KG	2.5E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.3E-08	2.0E-08	mg/kg/day	3.0E-05	mg/kg/day	6.6E-04
				Chlordane - alpha	6.3E+00	MG/KG	3.7E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-07	2.9E-06	mg/kg/day	5.0E-04	mg/kg/day	5.8E-03
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	4.3E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-07	3.3E-06	mg/kg/day	5.0E-04	mg/kg/day	6.6E-03
				Dieldrin	2.3E-01	MG/KG	1.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.1E-07	1.0E-07	mg/kg/day	5.0E-05	mg/kg/day	2.1E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	2.6E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.3E-07	2.0E-07	mg/kg/day	1.3E-05	mg/kg/day	1.5E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	1.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.2E-07	8.7E-07	mg/kg/day	2.0E-05	mg/kg/day	4.4E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	3.8E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.6E-08	3.0E-07	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	3.1E-09	mg/kg/day	NA	NA	NA	2.4E-08	mg/kg/day	1.0E-01	mg/kg/day	2.4E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	1.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-06	1.1E-05	mg/kg/day	3.0E-02	mg/kg/day	3.7E-04

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TABLE 7.10.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	1.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.7E-06	8.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	9.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.9E-07	7.3E-06	mg/kg/day	3.0E-02	mg/kg/day	2.4E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	8.2E-08	8.7E-06	mg/kg/day	3.0E-02	mg/kg/day	2.9E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	1.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-06	1.1E-06	mg/kg/day	3.0E-02	mg/kg/day	3.7E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	3.8E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.8E-07	2.9E-06	mg/kg/day	5.0E-02	mg/kg/day	5.9E-05
				Naphthalene	4.4E+00	MG/KG	2.6E-07	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	2.0E-02	mg/kg/day	1.0E-04
			Exp. Route Total								4.4E-05					9.5E-01
			Dermal													
				Aluminum	5.7E+03	MG/KG	3.8E-06	mg/kg/day	NA	NA	NA	3.0E-05	mg/kg/day	1.0E+00	mg/kg/day	3.0E-05
				Antimony	2.3E+00	MG/KG	1.6E-09	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	6.0E-05	mg/kg/day	2.0E-04
				Arsenic	3.7E+02	MG/KG	7.3E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.1E-06	5.7E-06	mg/kg/day	3.0E-04	mg/kg/day	1.9E-02
				Barium	3.5E+04	MG/KG	2.4E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	4.9E-03	mg/kg/day	3.8E-02
				Cadmium	3.0E+00	MG/KG	2.0E-10	mg/kg/day	NA	NA	NA	1.6E-09	mg/kg/day	5.0E-05	mg/kg/day	3.1E-05
				Chromium	2.8E+02	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	7.5E-05	mg/kg/day	1.9E-02
				Copper	2.6E+02	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	4.0E-02	mg/kg/day	3.4E-05
				Iron	2.0E+04	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.6E-04
				Lead	8.5E+02	MG/KG	5.7E-07	mg/kg/day	NA	NA	NA	4.5E-06	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	9.1E-07	mg/kg/day	5.8E-03	mg/kg/day	1.6E-04
				Mercury	1.8E+00	MG/KG	1.2E-09	mg/kg/day	NA	NA	NA	9.4E-09	mg/kg/day	2.1E-05	mg/kg/day	4.5E-04
				Thallium	9.6E-01	MG/KG	6.4E-10	mg/kg/day	NA	NA	NA	5.0E-09	mg/kg/day	9.0E-05	mg/kg/day	5.6E-05
				Aldrin	4.3E-02	MG/KG	2.9E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.9E-09	2.3E-09	mg/kg/day	3.0E-05	mg/kg/day	7.5E-05
				Chlordane - alpha	6.3E+00	MG/KG	1.7E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.9E-09	1.3E-07	mg/kg/day	5.0E-04	mg/kg/day	2.6E-04
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	1.9E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	6.8E-09	1.5E-07	mg/kg/day	5.0E-04	mg/kg/day	3.0E-04
				Dieldrin	2.3E-01	MG/KG	1.5E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.4E-08	1.2E-08	mg/kg/day	5.0E-05	mg/kg/day	2.4E-04
				Heptachlor Epoxide	4.4E-01	MG/KG	2.9E-09	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.7E-08	2.3E-08	mg/kg/day	1.3E-05	mg/kg/day	1.7E-03
				Pcb-Aroclor 1254	1.9E+00	MG/KG	1.8E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.6E-08	1.4E-07	mg/kg/day	2.0E-05	mg/kg/day	7.0E-03
				Pcb-Aroclor 1260	6.5E-01	MG/KG	6.1E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.2E-08	4.7E-08	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	3.5E-10	mg/kg/day	NA	NA	NA	2.7E-09	mg/kg/day	1.0E-01	mg/kg/day	2.7E-08
				Benzo(a)anthracene	2.4E+01	MG/KG	2.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-07	1.6E-06	mg/kg/day	3.0E-02	mg/kg/day	5.4E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-07	1.1E-06	mg/kg/day	3.0E-02	mg/kg/day	3.6E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.2E-08	1.3E-06	mg/kg/day	3.0E-02	mg/kg/day	4.3E-05
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	2.1E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.5E-07	1.6E-07	mg/kg/day	3.0E-02	mg/kg/day	5.4E-06
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	5.6E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.1E-08	4.3E-07	mg/kg/day	5.0E-02	mg/kg/day	8.7E-06
				Naphthalene	4.4E+00	MG/KG	3.9E-08	mg/kg/day	NA	NA	NA	3.0E-07	mg/kg/day	2.0E-02	mg/kg/day	1.5E-05
			Exp. Route Total								2.8E-06					8.7E-02
		Exposure Point Total									4.7E-05					1.0E+00
	Exposure Medium Total										4.7E-05					1.0E+00

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TABLE 7.10.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	1.3E-07	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	1.4E-03	mg/kg/day	7.2E-04
				Antimony	2.3E-09	MG/M3	5.3E-11	mg/kg/day	NA	NA	NA	4.2E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.6E-07	MG/M3	8.4E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.3E-07	6.5E-08	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	8.1E-07	mg/kg/day	NA	NA	NA	6.3E-06	mg/kg/day	1.4E-04	mg/kg/day	4.5E-02
				Cadmium	2.9E-09	MG/M3	6.9E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	4.4E-10	5.4E-10	mg/kg/day	5.7E-05	mg/kg/day	9.4E-06
				Chromium	2.7E-07	MG/M3	6.4E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.7E-07	5.0E-08	mg/kg/day	2.3E-06	mg/kg/day	2.2E-02
				Copper	2.6E-07	MG/M3	6.0E-09	mg/kg/day	NA	NA	NA	4.7E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	4.7E-07	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	2.0E-08	mg/kg/day	NA	NA	NA	1.5E-07	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	4.0E-09	mg/kg/day	NA	NA	NA	3.1E-08	mg/kg/day	1.4E-05	mg/kg/day	2.2E-03
				Mercury	1.8E-09	MG/M3	4.1E-11	mg/kg/day	NA	NA	NA	3.2E-10	mg/kg/day	8.6E-05	mg/kg/day	3.7E-06
				Thallium	9.4E-10	MG/M3	2.2E-11	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	9.9E-13	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.7E-11	7.7E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	1.5E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.1E-11	1.1E-09	mg/kg/day	2.0E-04	mg/kg/day	5.6E-06
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	1.7E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.8E-11	1.3E-09	mg/kg/day	2.0E-04	mg/kg/day	6.5E-06
				Dieldrin	2.2E-10	MG/M3	5.2E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	8.4E-11	4.1E-11	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	1.0E-11	mg/kg/day	9.1E+00	1/(mg/kg-day)	9.1E-11	7.8E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	4.4E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.5E-11	3.4E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	1.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.2E-12	1.2E-10	mg/kg/day	NA	NA	NA
				Acetophenone	9.0E-07	MG/M3	2.1E-08	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	5.5E-10	mg/kg/day	NA	NA	NA	4.3E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	3.7E-10	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	4.4E-10	mg/kg/day	NA	NA	NA	3.4E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	5.5E-11	mg/kg/day	NA	NA	NA	4.3E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Naphthalene	9.8E-05	MG/M3	2.3E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	8.6E-04	mg/kg/day	2.1E-02
			Exp. Route Total								4.0E-07					9.1E-02
		Exposure Point Total									4.0E-07					9.1E-02
	Exposure Medium Total										4.0E-07					9.1E-02
Subsurface Soil Total											4.7E-05					1.1E+00

NA = Not applicable.

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TABLE 7.11.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion	Antimony	3.4E+00	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	2.0E-04	mg/kg/day	7.3E-02
				Arsenic	3.4E+02	MG/KG	1.2E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.9E-04	1.4E-03	mg/kg/day	5.0E-03	mg/kg/day	2.9E-01
				Barium	2.3E+04	MG/KG	8.3E-03	mg/kg/day	NA	NA	NA	9.7E-02	mg/kg/day	7.0E-02	mg/kg/day	1.4E+00
				Cadmium	4.6E+00	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	1.0E-03	mg/kg/day	2.0E-02
				Chromium	4.1E+02	MG/KG	1.5E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	2.0E-02	mg/kg/day	8.8E-02
				Iron	2.8E+04	MG/KG	1.0E-02	mg/kg/day	NA	NA	NA	1.2E-01	mg/kg/day	3.0E-01	mg/kg/day	3.9E-01
				Lead	6.6E+02	MG/KG	2.4E-04	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	7.7E-05	mg/kg/day	NA	NA	NA	9.0E-04	mg/kg/day	1.4E-01	mg/kg/day	6.4E-03
				Mercury	5.7E+00	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	3.0E-04	mg/kg/day	8.1E-02
				Aldrin	7.3E-02	MG/KG	2.7E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.5E-07	3.1E-07	mg/kg/day	3.0E-05	mg/kg/day	1.0E-02
				Dieldrin	1.2E-01	MG/KG	4.4E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.0E-07	5.1E-07	mg/kg/day	5.0E-05	mg/kg/day	1.0E-02
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.2E-06	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.3E-06	1.4E-05	mg/kg/day	5.0E-05	mg/kg/day	2.7E-01
				Benzo(a)anthracene	2.4E+01	MG/KG	8.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.4E-06	1.0E-04	mg/kg/day	3.0E-01	mg/kg/day	3.4E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.8E-05	7.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	5.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-06	6.8E-05	mg/kg/day	3.0E-01	mg/kg/day	2.3E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	6.6E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	4.8E-07	7.7E-05	mg/kg/day	3.0E-01	mg/kg/day	2.6E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	7.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-06	8.5E-06	mg/kg/day	3.0E-01	mg/kg/day	2.8E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	2.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-06	2.4E-05	mg/kg/day	6.0E-01	mg/kg/day	4.1E-05
				Naphthalene	5.9E+00	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	2.5E-05	mg/kg/day	2.0E-02	mg/kg/day	1.3E-03
			Exp. Route Total								2.6E-04					2.6E+00
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal	Antimony	3.4E+00	MG/KG	1.4E-08	mg/kg/day	NA	NA	NA	1.6E-07	mg/kg/day	3.0E-05	mg/kg/day	5.4E-03
				Arsenic	3.4E+02	MG/KG	4.2E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.3E-06	4.9E-05	mg/kg/day	5.0E-03	mg/kg/day	9.7E-03
				Barium	2.3E+04	MG/KG	9.3E-05	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	4.9E-03	mg/kg/day	2.2E-01
				Cadmium	4.6E+00	MG/KG	1.9E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	5.0E-05	mg/kg/day	4.4E-04
				Chromium	4.1E+02	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	5.0E-04	mg/kg/day	4.0E-02
				Iron	2.8E+04	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	3.0E-01	mg/kg/day	4.4E-03
				Lead	6.6E+02	MG/KG	2.7E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	8.7E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	5.6E-03	mg/kg/day	1.8E-03
				Mercury	5.7E+00	MG/KG	2.3E-08	mg/kg/day	NA	NA	NA	2.7E-07	mg/kg/day	2.1E-05	mg/kg/day	1.3E-02
				Aldrin	7.3E-02	MG/KG	3.0E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.1E-08	3.5E-08	mg/kg/day	3.0E-05	mg/kg/day	1.2E-03
				Dieldrin	1.2E-01	MG/KG	4.9E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.9E-08	5.7E-08	mg/kg/day	5.0E-05	mg/kg/day	1.1E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.8E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.7E-07	2.1E-06	mg/kg/day	5.0E-05	mg/kg/day	4.3E-02
				Benzo(a)anthracene	2.4E+01	MG/KG	1.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.3E-07	1.5E-05	mg/kg/day	3.0E-01	mg/kg/day	5.0E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	9.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.0E-06	1.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	8.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-07	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.3E-05
				Benzo(k)fluoranthene	1.8E+01	MG/KG	9.6E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	7.0E-08	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.7E-05
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	1.1E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.8E-07	1.2E-06	mg/kg/day	3.0E-01	mg/kg/day	4.1E-06
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	3.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-07	3.5E-06	mg/kg/day	6.0E-01	mg/kg/day	5.9E-06
				Naphthalene	5.9E+00	MG/KG	3.1E-07	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	2.0E-02	mg/kg/day	1.8E-04
			Exp. Route Total								1.6E-05					3.4E-01
		Exposure Point Total									2.7E-04					3.0E+00
	Exposure Medium Total										2.7E-04					3.0E+00

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TABLE 7.11.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	1.4E-09	mg/kg/day	1.1E-04	NA	1.3E-05
				Arsenic	3.3E-07	MG/M3	1.2E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.8E-07	1.4E-07	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	8.2E-07	mg/kg/day	NA	NA	NA	9.5E-06	mg/kg/day	1.4E-03	mg/kg/day	6.8E-03
				Cadmium	4.5E-09	MG/M3	1.7E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.0E-09	1.9E-09	mg/kg/day	2.6E-04	mg/kg/day	7.6E-06
				Chromium	4.0E-07	MG/M3	1.5E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	6.3E-07	1.7E-07	mg/kg/day	2.3E-06	mg/kg/day	7.6E-02
				Iron	2.7E-05	MG/M3	1.0E-06	mg/kg/day	NA	NA	NA	1.2E-05	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	2.4E-08	mg/kg/day	NA	NA	NA	2.8E-07	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	7.6E-09	mg/kg/day	NA	NA	NA	8.9E-08	mg/kg/day	1.4E-05	mg/kg/day	6.2E-03
				Mercury	5.6E-09	MG/M3	2.1E-10	mg/kg/day	NA	NA	NA	2.4E-09	mg/kg/day	8.6E-05	mg/kg/day	2.8E-05
				Aldrin	7.2E-11	MG/M3	2.6E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	4.5E-11	3.1E-11	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	4.3E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.0E-11	5.1E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	1.2E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.1E-11	1.4E-09	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	8.7E-10	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	6.5E-10	mg/kg/day	NA	NA	NA	7.6E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	5.8E-10	mg/kg/day	NA	NA	NA	6.8E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	6.5E-10	mg/kg/day	NA	NA	NA	7.6E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-09	MG/M3	7.2E-11	mg/kg/day	NA	NA	NA	8.4E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	2.1E-10	mg/kg/day	NA	NA	NA	2.4E-09	mg/kg/day	NA	NA	NA
				Naphthalene	1.3E-04	MG/M3	4.8E-06	mg/kg/day	NA	NA	NA	5.6E-05	mg/kg/day	8.6E-04	mg/kg/day	6.6E-02
			Exp. Route Total								8.1E-07					1.6E-01
		Exposure Point Total									8.1E-07					1.6E-01
	Exposure Medium Total										8.1E-07					1.6E-01
Surface Soil Total											2.7E-04					3.1E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	2.1E-03	mg/kg/day	NA	NA	NA	2.4E-02	mg/kg/day	1.0E+00	mg/kg/day	2.4E-02
				Antimony	2.3E+00	MG/KG	8.5E-07	mg/kg/day	NA	NA	NA	9.9E-06	mg/kg/day	2.0E-04	mg/kg/day	5.0E-02
				Arsenic	3.7E+02	MG/KG	1.3E-04	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.0E-04	1.6E-03	mg/kg/day	5.0E-03	mg/kg/day	3.1E-01
				Barium	3.5E+04	MG/KG	1.3E-02	mg/kg/day	NA	NA	NA	1.5E-01	mg/kg/day	7.0E-02	mg/kg/day	2.2E+00
				Cadmium	3.0E+00	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	1.0E-03	mg/kg/day	1.3E-02
				Chromium	2.8E+02	MG/KG	1.0E-04	mg/kg/day	NA	NA	NA	1.2E-03	mg/kg/day	2.0E-02	mg/kg/day	6.0E-02
				Copper	2.6E+02	MG/KG	9.6E-05	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	4.0E-02	mg/kg/day	2.8E-02
				Iron	2.0E+04	MG/KG	7.5E-03	mg/kg/day	NA	NA	NA	8.8E-02	mg/kg/day	3.0E-01	mg/kg/day	2.9E-01
				Lead	8.5E+02	MG/KG	3.1E-04	mg/kg/day	NA	NA	NA	3.6E-03	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	6.4E-05	mg/kg/day	NA	NA	NA	7.4E-04	mg/kg/day	1.4E-01	mg/kg/day	5.3E-03
				Mercury	1.8E+00	MG/KG	6.6E-07	mg/kg/day	NA	NA	NA	7.7E-06	mg/kg/day	3.0E-04	mg/kg/day	2.6E-02
				Thallium	9.6E-01	MG/KG	3.5E-07	mg/kg/day	NA	NA	NA	4.1E-06	mg/kg/day	9.0E-04	mg/kg/day	4.6E-03
				Aldrin	4.3E-02	MG/KG	1.6E-08	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.7E-07	1.8E-07	mg/kg/day	3.0E-05	mg/kg/day	6.2E-03
				Chlordane - alpha	6.3E+00	MG/KG	2.3E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.1E-07	2.7E-05	mg/kg/day	6.0E-05	mg/kg/day	4.5E-01
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	2.6E-06	mg/kg/day	3.5E-01	1/(mg/kg-day)	9.3E-07	3.1E-05	mg/kg/day	6.0E-05	mg/kg/day	5.1E-01
				Dieldrin	2.3E-01	MG/KG	8.3E-08	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.3E-06	9.7E-07	mg/kg/day	5.0E-05	mg/kg/day	1.9E-02
				Heptachlor Epoxide	4.4E-01	MG/KG	1.6E-07	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.5E-06	1.9E-06	mg/kg/day	1.3E-05	mg/kg/day	1.4E-01
				Pcb-Aroclor 1254	1.9E+00	MG/KG	7.0E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.4E-06	8.1E-06	mg/kg/day	5.0E-05	mg/kg/day	1.6E-01
				Pcb-Aroclor 1260	6.5E-01	MG/KG	2.4E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.7E-07	2.8E-06	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	2.2E-07	mg/kg/day	1.0E+00	mg/kg/day	2.2E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	8.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.4E-06	1.0E-04	mg/kg/day	3.0E-01	mg/kg/day	3.4E-04

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TABLE 7.11.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	6.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.8E-05	7.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	5.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-06	6.8E-05	mg/kg/day	3.0E-01	mg/kg/day	2.3E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	7.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.1E-07	8.1E-05	mg/kg/day	3.0E-01	mg/kg/day	2.7E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	8.8E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.4E-06	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.4E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	2.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-06	2.7E-05	mg/kg/day	6.0E-01	mg/kg/day	4.6E-05
				Naphthalene	4.4E+00	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	2.0E-02	mg/kg/day	9.5E-04
			Exp. Route Total								2.7E-04					4.3E+00
			Dermal													
				Aluminum	5.7E+03	MG/KG	2.3E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	1.0E+00	mg/kg/day	2.7E-04
				Antimony	2.3E+00	MG/KG	9.5E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	3.0E-05	mg/kg/day	3.7E-03
				Arsenic	3.7E+02	MG/KG	4.5E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.7E-06	5.2E-05	mg/kg/day	5.0E-03	mg/kg/day	1.0E-02
				Barium	3.5E+04	MG/KG	1.4E-04	mg/kg/day	NA	NA	NA	1.7E-03	mg/kg/day	4.9E-03	mg/kg/day	3.4E-01
				Cadmium	3.0E+00	MG/KG	1.2E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	5.0E-05	mg/kg/day	2.9E-04
				Chromium	2.8E+02	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	5.0E-04	mg/kg/day	2.7E-02
				Copper	2.6E+02	MG/KG	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	4.0E-02	mg/kg/day	3.1E-04
				Iron	2.0E+04	MG/KG	8.4E-05	mg/kg/day	NA	NA	NA	9.8E-04	mg/kg/day	3.0E-01	mg/kg/day	3.3E-03
				Lead	8.5E+02	MG/KG	3.5E-06	mg/kg/day	NA	NA	NA	4.1E-05	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	7.1E-07	mg/kg/day	NA	NA	NA	8.3E-06	mg/kg/day	5.6E-03	mg/kg/day	1.5E-03
				Mercury	1.8E+00	MG/KG	7.4E-09	mg/kg/day	NA	NA	NA	8.6E-08	mg/kg/day	2.1E-05	mg/kg/day	4.1E-03
				Thallium	9.6E-01	MG/KG	3.9E-09	mg/kg/day	NA	NA	NA	4.6E-08	mg/kg/day	9.0E-04	mg/kg/day	5.1E-05
				Aldrin	4.3E-02	MG/KG	1.8E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.0E-08	2.1E-08	mg/kg/day	3.0E-05	mg/kg/day	6.9E-04
				Chlordane - alpha	6.3E+00	MG/KG	1.0E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	3.6E-08	1.2E-06	mg/kg/day	6.0E-05	mg/kg/day	2.0E-02
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	1.2E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.2E-08	1.4E-06	mg/kg/day	6.0E-05	mg/kg/day	2.3E-02
				Dieldrin	2.3E-01	MG/KG	9.3E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.5E-07	1.1E-07	mg/kg/day	5.0E-05	mg/kg/day	2.2E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	1.8E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.6E-07	2.1E-07	mg/kg/day	1.3E-05	mg/kg/day	1.6E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	1.1E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.2E-07	1.3E-06	mg/kg/day	5.0E-05	mg/kg/day	2.6E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	3.7E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	7.4E-08	4.3E-07	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	2.1E-09	mg/kg/day	NA	NA	NA	2.5E-08	mg/kg/day	1.0E+00	mg/kg/day	2.5E-08
				Benzo(a)anthracene	2.4E+01	MG/KG	1.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.3E-07	1.5E-05	mg/kg/day	3.0E-01	mg/kg/day	5.0E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	9.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.0E-06	1.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	8.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-07	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.3E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	7.4E-08	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	3.9E-05
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	1.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.3E-07	1.5E-06	mg/kg/day	3.0E-01	mg/kg/day	5.0E-06
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	3.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.5E-07	4.0E-06	mg/kg/day	6.0E-01	mg/kg/day	6.6E-06
				Naphthalene	4.4E+00	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	2.0E-02	mg/kg/day	1.4E-04
			Exp. Route Total								1.7E-05					4.8E-01
		Exposure Point Total									2.9E-04					4.7E+00
	Exposure Medium Total										2.9E-04					4.7E+00

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TABLE 7.11.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	2.1E-07	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	1.4E-03	mg/kg/day	1.7E-03
				Antimony	2.3E-09	MG/M3	8.4E-11	mg/kg/day	NA	NA	NA	9.8E-10	mg/kg/day	1.1E-04	NA	8.6E-06
				Arsenic	3.6E-07	MG/M3	1.3E-08	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.0E-07	1.5E-07	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	1.3E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	1.4E-03	mg/kg/day	1.1E-02
				Cadmium	2.9E-09	MG/M3	1.1E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	6.8E-10	1.3E-09	mg/kg/day	2.6E-04	mg/kg/day	4.9E-06
				Chromium	2.7E-07	MG/M3	1.0E-08	mg/kg/day	4.2E+01	1/(mg/kg-day)	4.2E-07	1.2E-07	mg/kg/day	2.3E-06	mg/kg/day	5.1E-02
				Copper	2.6E-07	MG/M3	9.5E-09	mg/kg/day	NA	NA	NA	1.1E-07	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	7.4E-07	mg/kg/day	NA	NA	NA	8.6E-06	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	3.1E-08	mg/kg/day	NA	NA	NA	3.6E-07	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	6.3E-09	mg/kg/day	NA	NA	NA	7.3E-08	mg/kg/day	1.4E-05	mg/kg/day	5.1E-03
				Mercury	1.8E-09	MG/M3	6.5E-11	mg/kg/day	NA	NA	NA	7.6E-10	mg/kg/day	8.6E-05	mg/kg/day	8.8E-06
				Thallium	9.4E-10	MG/M3	3.5E-11	mg/kg/day	NA	NA	NA	4.1E-10	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	1.6E-12	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.7E-11	1.8E-11	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	2.3E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.0E-11	2.7E-09	mg/kg/day	2.0E-04	mg/kg/day	1.3E-05
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	2.6E-10	mg/kg/day	3.5E-01	1/(mg/kg-day)	9.2E-11	3.1E-09	mg/kg/day	2.0E-04	mg/kg/day	1.5E-05
				Dieldrin	2.2E-10	MG/M3	8.2E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.3E-10	9.6E-11	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	1.6E-11	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.4E-10	1.8E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	6.9E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.4E-11	8.0E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	2.3E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.2E-12	2.7E-10	mg/kg/day	NA	NA	NA
				Acetophenone	9.0E-07	MG/M3	3.3E-08	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	8.7E-10	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	6.5E-10	mg/kg/day	NA	NA	NA	7.6E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	5.8E-10	mg/kg/day	NA	NA	NA	6.8E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	6.9E-10	mg/kg/day	NA	NA	NA	8.0E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	8.7E-11	mg/kg/day	NA	NA	NA	1.0E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	2.3E-10	mg/kg/day	NA	NA	NA	2.7E-09	mg/kg/day	NA	NA	NA
				Naphthalene	9.8E-05	MG/M3	3.6E-06	mg/kg/day	NA	NA	NA	4.2E-05	mg/kg/day	8.6E-04	mg/kg/day	4.9E-02
			Exp. Route Total								6.2E-07					1.2E-01
		Exposure Point Total									6.2E-07					1.2E-01
	Exposure Medium Total										6.2E-07					1.2E-01
Subsurface Soil Total											2.9E-04					4.9E+00

NA = Not applicable.

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TABLE 7.12.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion	Antimony	3.4E+00	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	4.0E-04	mg/kg/day	3.6E-03
				Arsenic	3.4E+02	MG/KG	1.4E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.1E-05	1.5E-04	mg/kg/day	3.0E-04	mg/kg/day	4.8E-01
				Barium	2.3E+04	MG/KG	9.1E-04	mg/kg/day	NA	NA	NA	9.7E-03	mg/kg/day	7.0E-02	mg/kg/day	1.4E-01
				Cadmium	4.6E+00	MG/KG	1.9E-07	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	1.0E-03	mg/kg/day	2.0E-03
				Chromium	4.1E+02	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.8E-04	mg/kg/day	3.0E-03	mg/kg/day	5.9E-02
				Iron	2.8E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	3.0E-01	mg/kg/day	4.0E-02
				Lead	6.6E+02	MG/KG	2.7E-05	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	8.5E-06	mg/kg/day	NA	NA	NA	9.0E-05	mg/kg/day	1.4E-01	mg/kg/day	6.5E-04
				Mercury	5.7E+00	MG/KG	2.3E-07	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	3.0E-04	mg/kg/day	8.1E-03
				Aldrin	7.3E-02	MG/KG	2.9E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.0E-08	3.1E-08	mg/kg/day	3.0E-05	mg/kg/day	1.0E-03
				Dieldrin	1.2E-01	MG/KG	4.8E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.8E-08	5.1E-08	mg/kg/day	5.0E-05	mg/kg/day	1.0E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	1.3E-07	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.6E-07	1.4E-06	mg/kg/day	2.0E-05	mg/kg/day	6.9E-02
				Benzo(a)anthracene	2.4E+01	MG/KG	9.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.1E-07	1.0E-05	mg/kg/day	3.0E-02	mg/kg/day	3.4E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	7.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-06	7.7E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	6.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-07	6.9E-06	mg/kg/day	3.0E-02	mg/kg/day	2.3E-04
				Benzo(k)fluoranthene	1.8E+01	MG/KG	7.3E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.3E-08	7.7E-06	mg/kg/day	3.0E-02	mg/kg/day	2.6E-04
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	8.1E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.9E-07	8.6E-07	mg/kg/day	3.0E-02	mg/kg/day	2.9E-05
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	2.3E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-07	2.4E-06	mg/kg/day	5.0E-02	mg/kg/day	4.9E-05
				Naphthalene	5.9E+00	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	2.0E-02	mg/kg/day	1.3E-04
			Exp. Route Total								2.8E-05					8.1E-01
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal	Antimony	3.4E+00	MG/KG	1.8E-09	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	6.0E-05	mg/kg/day	3.2E-04
				Arsenic	3.4E+02	MG/KG	5.4E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.1E-07	5.8E-06	mg/kg/day	3.0E-04	mg/kg/day	1.9E-02
				Barium	2.3E+04	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	4.9E-03	mg/kg/day	2.6E-02
				Cadmium	4.6E+00	MG/KG	2.5E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	5.0E-05	mg/kg/day	5.2E-05
				Chromium	4.1E+02	MG/KG	2.2E-07	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	7.5E-05	mg/kg/day	3.1E-02
				Iron	2.8E+04	MG/KG	1.5E-05	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	3.0E-01	mg/kg/day	5.2E-04
				Lead	6.6E+02	MG/KG	3.5E-07	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	NA	NA	NA
				Manganese	2.1E+02	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	5.6E-03	mg/kg/day	2.1E-04
				Mercury	5.7E+00	MG/KG	3.0E-09	mg/kg/day	NA	NA	NA	3.2E-08	mg/kg/day	2.1E-05	mg/kg/day	1.5E-03
				Aldrin	7.3E-02	MG/KG	3.9E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	6.6E-09	4.1E-09	mg/kg/day	3.0E-05	mg/kg/day	1.4E-04
				Dieldrin	1.2E-01	MG/KG	6.4E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.0E-08	6.8E-09	mg/kg/day	5.0E-05	mg/kg/day	1.4E-04
				Pcb-Aroclor 1254	3.2E+00	MG/KG	2.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	4.8E-08	2.5E-07	mg/kg/day	2.0E-05	mg/kg/day	1.3E-02
				Benzo(a)anthracene	2.4E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-07	1.8E-06	mg/kg/day	3.0E-02	mg/kg/day	5.9E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.1E-07	1.3E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.1E-08	1.2E-06	mg/kg/day	3.0E-02	mg/kg/day	3.9E-05
				Benzo(k)fluoranthene	1.8E+01	MG/KG	1.2E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	9.1E-09	1.3E-06	mg/kg/day	3.0E-02	mg/kg/day	4.4E-05
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	1.4E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-07	1.5E-07	mg/kg/day	3.0E-02	mg/kg/day	4.9E-06
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	4.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.9E-08	4.2E-07	mg/kg/day	5.0E-02	mg/kg/day	8.4E-06
				Naphthalene	5.9E+00	MG/KG	4.1E-08	mg/kg/day	NA	NA	NA	4.3E-07	mg/kg/day	2.0E-02	mg/kg/day	2.2E-05
			Exp. Route Total								2.1E-06					9.2E-02
		Exposure Point Total									3.0E-05					9.0E-01
	Exposure Medium Total										3.0E-05					9.0E-01

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TABLE 7.12.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	2.7E-11	mg/kg/day	NA	NA	NA	2.9E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.3E-07	MG/M3	2.7E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.0E-08	2.8E-08	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	1.8E-07	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	1.4E-04	mg/kg/day	1.4E-02
				Cadmium	4.5E-09	MG/M3	3.6E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.3E-10	3.9E-10	mg/kg/day	5.7E-05	mg/kg/day	6.8E-06
				Chromium	4.0E-07	MG/M3	3.3E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.4E-07	3.5E-08	mg/kg/day	2.3E-06	mg/kg/day	1.5E-02
				Iron	2.7E-05	MG/M3	2.2E-07	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	5.2E-09	mg/kg/day	NA	NA	NA	5.6E-08	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	1.7E-09	mg/kg/day	NA	NA	NA	1.8E-08	mg/kg/day	1.4E-05	mg/kg/day	1.2E-03
				Mercury	5.6E-09	MG/M3	4.5E-11	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	8.6E-05	mg/kg/day	5.6E-06
				Aldrin	7.2E-11	MG/M3	5.8E-13	mg/kg/day	1.7E+01	1/(mg/kg-day)	9.9E-12	6.1E-12	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	9.5E-13	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.5E-11	1.0E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	2.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.9E-12	2.7E-10	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	1.9E-10	mg/kg/day	NA	NA	NA	2.0E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.3E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-08	MG/M3	1.6E-11	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	4.5E-11	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	NA	NA	NA
				Naphthalene	1.3E-04	MG/M3	1.1E-06	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	8.6E-04	mg/kg/day	1.3E-02
			Exp. Route Total								1.8E-07					4.3E-02
		Exposure Point Total									1.8E-07					4.3E-02
	Exposure Medium Total										1.8E-07					4.3E-02
Surface Soil Total											3.1E-05					9.4E-01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	2.3E-04	mg/kg/day	NA	NA	NA	2.4E-03	mg/kg/day	1.0E+00	mg/kg/day	2.4E-03
				Antimony	2.3E+00	MG/KG	9.4E-08	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	4.0E-04	mg/kg/day	2.5E-03
				Arsenic	3.7E+02	MG/KG	1.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.2E-05	1.6E-04	mg/kg/day	3.0E-04	mg/kg/day	5.2E-01
				Barium	3.5E+04	MG/KG	1.4E-03	mg/kg/day	NA	NA	NA	1.5E-02	mg/kg/day	7.0E-02	mg/kg/day	2.2E-01
				Cadmium	3.0E+00	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	1.0E-03	mg/kg/day	1.3E-03
				Chromium	2.8E+02	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.0E-03	mg/kg/day	4.0E-02
				Copper	2.6E+02	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	4.0E-02	mg/kg/day	2.8E-03
				Iron	2.0E+04	MG/KG	8.3E-04	mg/kg/day	NA	NA	NA	8.8E-03	mg/kg/day	3.0E-01	mg/kg/day	2.9E-02
				Lead	8.5E+02	MG/KG	3.4E-05	mg/kg/day	NA	NA	NA	3.7E-04	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	7.0E-06	mg/kg/day	NA	NA	NA	7.4E-05	mg/kg/day	1.4E-01	mg/kg/day	5.3E-04
				Mercury	1.8E+00	MG/KG	7.3E-08	mg/kg/day	NA	NA	NA	7.7E-07	mg/kg/day	3.0E-04	mg/kg/day	2.6E-03
				Thallium	9.6E-01	MG/KG	3.9E-08	mg/kg/day	NA	NA	NA	4.1E-07	mg/kg/day	9.0E-05	mg/kg/day	4.6E-03
				Aldrin	4.3E-02	MG/KG	1.7E-09	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.0E-08	1.9E-08	mg/kg/day	3.0E-05	mg/kg/day	6.2E-04
				Chlordane - alpha	6.3E+00	MG/KG	2.6E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	8.9E-08	2.7E-06	mg/kg/day	5.0E-04	mg/kg/day	5.4E-03
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	2.9E-07	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.0E-07	3.1E-06	mg/kg/day	5.0E-04	mg/kg/day	6.2E-03
				Dieldrin	2.3E-01	MG/KG	9.2E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.5E-07	9.7E-08	mg/kg/day	5.0E-05	mg/kg/day	1.9E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	1.8E-08	mg/kg/day	9.1E+00	1/(mg/kg-day)	1.6E-07	1.9E-07	mg/kg/day	1.3E-05	mg/kg/day	1.4E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	7.7E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.5E-07	8.2E-07	mg/kg/day	2.0E-05	mg/kg/day	4.1E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	2.6E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.2E-08	2.8E-07	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	2.1E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	1.0E-01	mg/kg/day	2.2E-07
				Benzo(a)anthracene	2.4E+01	MG/KG	9.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.1E-07	1.0E-05	mg/kg/day	3.0E-02	mg/kg/day	3.4E-04

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TABLE 7.12.CTE
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CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	7.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-06	7.7E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	6.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.7E-07	6.9E-06	mg/kg/day	3.0E-02	mg/kg/day	2.3E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	7.7E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.6E-08	8.1E-06	mg/kg/day	3.0E-02	mg/kg/day	2.7E-04
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	9.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.1E-07	1.0E-06	mg/kg/day	3.0E-02	mg/kg/day	3.4E-05
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	2.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-07	2.7E-06	mg/kg/day	5.0E-02	mg/kg/day	5.5E-05
				Naphthalene	4.4E+00	MG/KG	1.8E-07	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	2.0E-02	mg/kg/day	9.5E-05
			Exp. Route Total								3.0E-05					8.9E-01
			Dermal													
				Aluminum	5.7E+03	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	1.0E+00	mg/kg/day	3.2E-05
				Antimony	2.3E+00	MG/KG	1.2E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	6.0E-05	mg/kg/day	2.2E-04
				Arsenic	3.7E+02	MG/KG	5.8E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.8E-07	6.2E-06	mg/kg/day	3.0E-04	mg/kg/day	2.1E-02
				Barium	3.5E+04	MG/KG	1.9E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	4.9E-03	mg/kg/day	4.1E-02
				Cadmium	3.0E+00	MG/KG	1.6E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	5.0E-05	mg/kg/day	3.4E-05
				Chromium	2.8E+02	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	7.5E-05	mg/kg/day	2.1E-02
				Copper	2.6E+02	MG/KG	1.4E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	4.0E-02	mg/kg/day	3.7E-05
				Iron	2.0E+04	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.0E-01	mg/kg/day	3.9E-04
				Lead	8.5E+02	MG/KG	4.6E-07	mg/kg/day	NA	NA	NA	4.8E-06	mg/kg/day	NA	NA	NA
				Manganese	1.7E+02	MG/KG	9.3E-08	mg/kg/day	NA	NA	NA	9.8E-07	mg/kg/day	5.6E-03	mg/kg/day	1.8E-04
				Mercury	1.8E+00	MG/KG	9.6E-10	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	2.1E-05	mg/kg/day	4.8E-04
				Thallium	9.6E-01	MG/KG	5.1E-10	mg/kg/day	NA	NA	NA	5.4E-09	mg/kg/day	9.0E-05	mg/kg/day	6.0E-05
				Aldrin	4.3E-02	MG/KG	2.3E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	3.9E-09	2.4E-09	mg/kg/day	3.0E-05	mg/kg/day	8.2E-05
				Chlordane - alpha	6.3E+00	MG/KG	1.3E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.7E-09	1.4E-07	mg/kg/day	5.0E-04	mg/kg/day	2.9E-04
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	1.5E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.4E-09	1.6E-07	mg/kg/day	5.0E-04	mg/kg/day	3.3E-04
				Dieldrin	2.3E-01	MG/KG	1.2E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.9E-08	1.3E-08	mg/kg/day	5.0E-05	mg/kg/day	2.6E-04
				Heptachlor Epoxide	4.4E-01	MG/KG	2.3E-09	mg/kg/day	9.1E+00	1/(mg/kg-day)	2.1E-08	2.5E-08	mg/kg/day	1.3E-05	mg/kg/day	1.9E-03
				Pcb-Aroclor 1254	1.9E+00	MG/KG	1.4E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.8E-08	1.5E-07	mg/kg/day	2.0E-05	mg/kg/day	7.5E-03
				Pcb-Aroclor 1260	6.5E-01	MG/KG	4.8E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	9.7E-09	5.1E-08	mg/kg/day	NA	NA	NA
				Acetophenone	5.2E-02	MG/KG	2.8E-10	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	1.0E-01	mg/kg/day	2.9E-08
				Benzo(a)anthracene	2.4E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-07	1.8E-06	mg/kg/day	3.0E-02	mg/kg/day	5.9E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.1E-07	1.3E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.1E-08	1.2E-06	mg/kg/day	3.0E-02	mg/kg/day	3.9E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.3E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	9.6E-09	1.4E-06	mg/kg/day	3.0E-02	mg/kg/day	4.7E-05
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	1.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-07	1.8E-07	mg/kg/day	3.0E-02	mg/kg/day	5.9E-06
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	4.4E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.2E-08	4.7E-07	mg/kg/day	5.0E-02	mg/kg/day	9.4E-06
				Naphthalene	4.4E+00	MG/KG	3.1E-08	mg/kg/day	NA	NA	NA	3.3E-07	mg/kg/day	2.0E-02	mg/kg/day	1.6E-05
			Exp. Route Total								2.2E-06					9.4E-02
		Exposure Point Total									3.3E-05					9.9E-01
	Exposure Medium Total										3.3E-05					9.9E-01

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TABLE 7.12.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	4.5E-08	mg/kg/day	NA	NA	NA	4.8E-07	mg/kg/day	1.4E-03	mg/kg/day	3.4E-04
				Antimony	2.3E-09	MG/M3	1.8E-11	mg/kg/day	NA	NA	NA	2.0E-10	mg/kg/day	NA	NA	NA
				Arsenic	3.6E-07	MG/M3	2.9E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.4E-08	3.1E-08	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	2.8E-07	mg/kg/day	NA	NA	NA	3.0E-06	mg/kg/day	1.4E-04	mg/kg/day	2.1E-02
				Cadmium	2.9E-09	MG/M3	2.4E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.5E-10	2.5E-10	mg/kg/day	5.7E-05	mg/kg/day	4.4E-06
				Chromium	2.7E-07	MG/M3	2.2E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	9.3E-08	2.3E-08	mg/kg/day	2.3E-06	mg/kg/day	1.0E-02
				Copper	2.6E-07	MG/M3	2.1E-09	mg/kg/day	NA	NA	NA	2.2E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	1.6E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	6.8E-09	mg/kg/day	NA	NA	NA	7.2E-08	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	1.4E-05	mg/kg/day	1.0E-03
				Mercury	1.8E-09	MG/M3	1.4E-11	mg/kg/day	NA	NA	NA	1.5E-10	mg/kg/day	8.6E-05	mg/kg/day	1.8E-06
				Thallium	9.4E-10	MG/M3	7.6E-12	mg/kg/day	NA	NA	NA	8.1E-11	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	3.4E-13	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.9E-12	3.6E-12	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	5.0E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-11	5.3E-10	mg/kg/day	2.0E-04	mg/kg/day	2.7E-06
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	5.7E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-11	6.1E-10	mg/kg/day	2.0E-04	mg/kg/day	3.0E-06
				Dieldrin	2.2E-10	MG/M3	1.8E-12	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.9E-11	1.9E-11	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	3.4E-12	mg/kg/day	9.1E+00	1/(mg/kg-day)	3.1E-11	3.7E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	1.5E-11	mg/kg/day	3.5E-01	1/(mg/kg-day)	5.3E-12	1.6E-10	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	5.1E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.8E-12	5.4E-11	mg/kg/day	NA	NA	NA
				Acetophenone	9.0E-07	MG/M3	7.3E-09	mg/kg/day	NA	NA	NA	7.7E-08	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	1.9E-10	mg/kg/day	NA	NA	NA	2.0E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	1.3E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.6E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	1.9E-11	mg/kg/day	NA	NA	NA	2.0E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	5.1E-11	mg/kg/day	NA	NA	NA	5.4E-10	mg/kg/day	NA	NA	NA
				Naphthalene	9.8E-05	MG/M3	7.9E-07	mg/kg/day	NA	NA	NA	8.4E-06	mg/kg/day	8.6E-04	mg/kg/day	9.8E-03
			Exp. Route Total								1.4E-07					4.3E-02
		Exposure Point Total									1.4E-07					4.3E-02
	Exposure Medium Total										1.4E-07					4.3E-02
Subsurface Soil Total											3.3E-05					1.0E+00

NA = Not applicable.

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TABLE 7.13.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Ingestion													
				Antimony	3.4E+00	MG/KG	2.6E-08	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	2.0E-04	mg/kg/day	9.2E-03
				Arsenic	3.4E+02	MG/KG	2.6E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.9E-06	1.8E-04	mg/kg/day	5.0E-03	mg/kg/day	3.7E-02
				Barium	2.3E+04	MG/KG	1.8E-04	mg/kg/day	NA	NA	NA	1.2E-02	mg/kg/day	7.0E-02	mg/kg/day	1.8E-01
				Cadmium	4.6E+00	MG/KG	3.6E-08	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	1.0E-03	mg/kg/day	2.5E-03
				Chromium	4.1E+02	MG/KG	3.2E-06	mg/kg/day	NA	NA	NA	2.2E-04	mg/kg/day	2.0E-02	mg/kg/day	1.1E-02
				Iron	2.8E+04	MG/KG	2.1E-04	mg/kg/day	NA	NA	NA	1.5E-02	mg/kg/day	3.0E-01	mg/kg/day	5.0E-02
				Lead	6.6E+02	MG/KG	5.1E-06	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.1E+02	MG/KG	1.6E-06	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	1.4E-01	mg/kg/day	8.2E-04
				Mercury	5.7E+00	MG/KG	4.4E-08	mg/kg/day	NA	NA	NA	3.1E-06	mg/kg/day	3.0E-04	mg/kg/day	1.0E-02
				Aldrin	7.3E-02	MG/KG	5.7E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	9.6E-09	4.0E-08	mg/kg/day	3.0E-05	mg/kg/day	1.3E-03
				Dieldrin	1.2E-01	MG/KG	9.3E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	1.5E-08	6.5E-08	mg/kg/day	5.0E-05	mg/kg/day	1.3E-03
				Pcb-Aroclor 1254	3.2E+00	MG/KG	2.5E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	5.0E-08	1.7E-06	mg/kg/day	5.0E-05	mg/kg/day	3.5E-02
				Benzo(a)anthracene	2.4E+01	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.3E-05	mg/kg/day	3.0E-01	mg/kg/day	4.3E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-06	9.8E-06	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.1E-08	8.7E-06	mg/kg/day	3.0E-01	mg/kg/day	2.9E-05
				Benzo(k)fluoranthene	1.8E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.0E-08	9.8E-06	mg/kg/day	3.0E-01	mg/kg/day	3.3E-05
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	1.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-07	1.1E-06	mg/kg/day	3.0E-01	mg/kg/day	3.6E-06
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	4.4E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.2E-08	3.1E-06	mg/kg/day	6.0E-01	mg/kg/day	5.2E-06
				Naphthalene	5.9E+00	MG/KG	4.6E-08	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	2.0E-02	mg/kg/day	1.6E-04
			Exp. Route Total								5.4E-06					3.3E-01
Surface Soil (cont.)	Surface Soil (cont.)	Row Homes and Industrial	Dermal													
				Antimony	3.4E+00	MG/KG	5.3E-10	mg/kg/day	NA	NA	NA	3.7E-08	mg/kg/day	3.0E-05	mg/kg/day	1.2E-03
				Arsenic	3.4E+02	MG/KG	1.6E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.4E-07	1.1E-05	mg/kg/day	5.0E-03	mg/kg/day	2.2E-03
				Barium	2.3E+04	MG/KG	3.5E-06	mg/kg/day	NA	NA	NA	2.5E-04	mg/kg/day	4.9E-03	mg/kg/day	5.0E-02
				Cadmium	4.6E+00	MG/KG	7.1E-11	mg/kg/day	NA	NA	NA	5.0E-09	mg/kg/day	5.0E-05	mg/kg/day	1.0E-04
				Chromium	4.1E+02	MG/KG	6.4E-08	mg/kg/day	NA	NA	NA	4.5E-06	mg/kg/day	5.0E-04	mg/kg/day	9.0E-03
				Iron	2.8E+04	MG/KG	4.3E-06	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	3.0E-01	mg/kg/day	1.0E-03
				Lead	6.6E+02	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	7.2E-06	mg/kg/day	NA	mg/kg/day	NA
				Manganese	2.1E+02	MG/KG	3.3E-08	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	5.6E-03	mg/kg/day	4.1E-04
				Mercury	5.7E+00	MG/KG	8.8E-10	mg/kg/day	NA	NA	NA	6.2E-08	mg/kg/day	2.1E-05	mg/kg/day	2.9E-03
				Aldrin	7.3E-02	MG/KG	1.1E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.9E-09	7.9E-09	mg/kg/day	3.0E-05	mg/kg/day	2.6E-04
				Dieldrin	1.2E-01	MG/KG	1.9E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.0E-09	1.3E-08	mg/kg/day	5.0E-05	mg/kg/day	2.6E-04
				Pcb-Aroclor 1254	3.2E+00	MG/KG	6.9E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.4E-08	4.9E-07	mg/kg/day	5.0E-05	mg/kg/day	9.7E-03
				Benzo(a)anthracene	2.4E+01	MG/KG	4.8E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-08	3.4E-06	mg/kg/day	3.0E-01	mg/kg/day	1.1E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	3.6E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.6E-07	2.5E-06	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	3.2E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-08	2.3E-06	mg/kg/day	3.0E-01	mg/kg/day	7.5E-06
				Benzo(k)fluoranthene	1.8E+01	MG/KG	3.6E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.6E-09	2.5E-06	mg/kg/day	3.0E-01	mg/kg/day	8.5E-06
				Dibenzo(a,h)anthracene	2.0E+00	MG/KG	4.0E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.9E-08	2.8E-07	mg/kg/day	3.0E-01	mg/kg/day	9.4E-07
				Indeno(1,2,3-cd)pyrene	5.7E+00	MG/KG	1.1E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.4E-09	8.0E-07	mg/kg/day	6.0E-01	mg/kg/day	1.3E-06
				Naphthalene	5.9E+00	MG/KG	1.2E-08	mg/kg/day	NA	NA	NA	8.3E-07	mg/kg/day	2.0E-02	mg/kg/day	4.2E-05
			Exp. Route Total								6.2E-07					7.7E-02
		Exposure Point Total									6.0E-06					4.1E-01
	Exposure Medium Total										6.0E-06					4.1E-01

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TABLE 7.13.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Surface Soil	Inhalation	Antimony	3.3E-09	MG/M3	6.6E-13	mg/kg/day	NA	NA	NA	4.6E-11	mg/kg/day	1.1E-04	NA	4.0E-07
				Arsenic	3.3E-07	MG/M3	6.6E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	9.9E-10	4.6E-09	mg/kg/day	NA	NA	NA
				Barium	2.2E-05	MG/M3	4.4E-09	mg/kg/day	NA	NA	NA	3.1E-07	mg/kg/day	1.4E-03	mg/kg/day	2.2E-04
				Cadmium	4.5E-09	MG/M3	8.9E-13	mg/kg/day	6.3E+00	1/(mg/kg-day)	5.6E-12	6.2E-11	mg/kg/day	2.6E-04	mg/kg/day	2.4E-07
				Chromium	4.0E-07	MG/M3	8.0E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	3.4E-09	5.6E-09	mg/kg/day	2.3E-06	mg/kg/day	2.4E-03
				Iron	2.7E-05	MG/M3	5.4E-09	mg/kg/day	NA	NA	NA	3.7E-07	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	8.9E-09	mg/kg/day	NA	NA	NA
				Manganese	2.1E-07	MG/M3	4.1E-11	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	1.4E-05	mg/kg/day	2.0E-04
				Mercury	5.6E-09	MG/M3	1.1E-12	mg/kg/day	NA	NA	NA	7.7E-11	mg/kg/day	8.6E-05	mg/kg/day	9.0E-07
				Aldrin	7.2E-11	MG/M3	1.4E-14	mg/kg/day	1.7E+01	1/(mg/kg-day)	2.4E-13	9.9E-13	mg/kg/day	NA	NA	NA
				Dieldrin	1.2E-10	MG/M3	2.3E-14	mg/kg/day	1.6E+01	1/(mg/kg-day)	3.7E-13	1.6E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	3.1E-09	MG/M3	6.2E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.2E-13	4.3E-11	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	4.6E-12	mg/kg/day	NA	NA	NA	3.2E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.5E-12	mg/kg/day	NA	NA	NA	2.4E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	3.1E-12	mg/kg/day	NA	NA	NA	2.2E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	3.5E-12	mg/kg/day	NA	NA	NA	2.4E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.0E-09	MG/M3	3.9E-13	mg/kg/day	NA	NA	NA	2.7E-11	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	5.6E-09	MG/M3	1.1E-12	mg/kg/day	NA	NA	NA	7.7E-11	mg/kg/day	NA	NA	NA
				Naphthalene	5.7E-05	MG/M3	1.1E-08	mg/kg/day	NA	NA	NA	7.9E-07	mg/kg/day	8.6E-04	mg/kg/day	9.2E-04
			Exp. Route Total								4.3E-09					3.8E-03
		Exposure Point Total									4.3E-09					3.8E-03
	Exposure Medium Total										4.3E-09					3.8E-03
Surface Soil Total											6.0E-06					4.1E-01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Ingestion	Aluminum	5.7E+03	MG/KG	4.4E-05	mg/kg/day	NA	NA	NA	3.1E-03	mg/kg/day	1.0E+00	mg/kg/day	3.1E-03
				Antimony	2.3E+00	MG/KG	1.8E-08	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	2.0E-04	mg/kg/day	6.3E-03
				Arsenic	3.7E+02	MG/KG	2.8E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	4.2E-06	2.0E-04	mg/kg/day	5.0E-03	mg/kg/day	4.0E-02
				Barium	3.5E+04	MG/KG	2.7E-04	mg/kg/day	NA	NA	NA	1.9E-02	mg/kg/day	7.0E-02	mg/kg/day	2.7E-01
				Cadmium	3.0E+00	MG/KG	2.3E-08	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	1.0E-03	mg/kg/day	1.6E-03
				Chromium	2.8E+02	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	2.0E-02	mg/kg/day	7.6E-03
				Copper	2.6E+02	MG/KG	2.0E-06	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	4.0E-02	mg/kg/day	3.5E-03
				Iron	2.0E+04	MG/KG	1.6E-04	mg/kg/day	NA	NA	NA	1.1E-02	mg/kg/day	3.0E-01	mg/kg/day	3.7E-02
				Lead	8.5E+02	MG/KG	6.6E-06	mg/kg/day	NA	NA	NA	4.6E-04	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.7E+02	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	9.4E-05	mg/kg/day	1.4E-01	mg/kg/day	6.7E-04
				Mercury	1.8E+00	MG/KG	1.4E-08	mg/kg/day	NA	NA	NA	9.7E-07	mg/kg/day	3.0E-04	mg/kg/day	3.2E-03
				Thallium	9.6E-01	MG/KG	7.4E-09	mg/kg/day	NA	NA	NA	5.2E-07	mg/kg/day	9.0E-04	mg/kg/day	5.8E-04
				Aldrin	4.3E-02	MG/KG	3.4E-10	mg/kg/day	1.7E+01	1/(mg/kg-day)	5.7E-09	2.3E-08	mg/kg/day	3.0E-05	mg/kg/day	7.8E-04
				Chlordane - alpha	6.3E+00	MG/KG	4.9E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.7E-08	3.4E-06	mg/kg/day	6.0E-05	mg/kg/day	5.7E-02
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	5.6E-08	mg/kg/day	3.5E-01	1/(mg/kg-day)	2.0E-08	3.9E-06	mg/kg/day	6.0E-05	mg/kg/day	6.5E-02
				Dieldrin	2.3E-01	MG/KG	1.8E-09	mg/kg/day	1.6E+01	1/(mg/kg-day)	2.8E-08	1.2E-07	mg/kg/day	5.0E-05	mg/kg/day	2.5E-03
				Heptachlor Epoxide	4.4E-01	MG/KG	3.4E-09	mg/kg/day	9.1E+00	1/(mg/kg-day)	3.1E-08	2.4E-07	mg/kg/day	1.3E-05	mg/kg/day	1.8E-02
				Pcb-Aroclor 1254	1.9E+00	MG/KG	1.5E-08	mg/kg/day	2.0E+00	1/(mg/kg-day)	3.0E-08	1.0E-06	mg/kg/day	5.0E-05	mg/kg/day	2.1E-02
				Pcb-Aroclor 1260	6.5E-01	MG/KG	5.0E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	1.0E-08	3.5E-07	mg/kg/day	NA	mg/kg/day	NA
				Acetophenone	5.2E-02	MG/KG	4.0E-10	mg/kg/day	NA	NA	NA	2.8E-08	mg/kg/day	1.0E+00	mg/kg/day	2.8E-08
				Benzo(a)anthracene	2.4E+01	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.3E-05	mg/kg/day	3.0E-01	mg/kg/day	4.3E-05

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TABLE 7.13.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Row Homes and Industrial Area Subsurface Soil (cont.)	Ingestion (cont.)	Benzo(a)pyrene	1.8E+01	MG/KG	1.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-06	9.8E-06	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	1.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.1E-08	8.7E-06	mg/kg/day	3.0E-01	mg/kg/day	2.9E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.5E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.1E-08	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.4E-05
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	1.9E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.4E-07	1.3E-06	mg/kg/day	3.0E-01	mg/kg/day	4.3E-06
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	5.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.6E-08	3.5E-06	mg/kg/day	6.0E-01	mg/kg/day	5.8E-06
				Naphthalene	4.4E+00	MG/KG	3.4E-08	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	2.0E-02	mg/kg/day	1.2E-04
			Exp. Route Total								5.8E-06					5.4E-01
			Dermal													
				Aluminum	5.7E+03	MG/KG	8.9E-07	mg/kg/day	NA	NA	NA	6.2E-05	mg/kg/day	1.0E+00	mg/kg/day	6.2E-05
				Antimony	2.3E+00	MG/KG	3.6E-10	mg/kg/day	NA	NA	NA	2.5E-08	mg/kg/day	2.0E-04	mg/kg/day	1.3E-04
				Arsenic	3.7E+02	MG/KG	1.7E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.5E-07	1.2E-05	mg/kg/day	5.0E-03	mg/kg/day	2.4E-03
				Barium	3.5E+04	MG/KG	5.5E-06	mg/kg/day	NA	NA	NA	3.8E-04	mg/kg/day	7.0E-02	mg/kg/day	5.5E-03
				Cadmium	3.0E+00	MG/KG	4.7E-11	mg/kg/day	NA	NA	NA	3.3E-09	mg/kg/day	1.0E-03	mg/kg/day	3.3E-06
				Chromium	2.8E+02	MG/KG	4.3E-08	mg/kg/day	NA	NA	NA	3.0E-06	mg/kg/day	2.0E-02	mg/kg/day	1.5E-04
				Copper	2.6E+02	MG/KG	4.1E-08	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	4.0E-02	mg/kg/day	7.1E-05
				Iron	2.0E+04	MG/KG	3.2E-06	mg/kg/day	NA	NA	NA	2.2E-04	mg/kg/day	3.0E-01	mg/kg/day	7.4E-04
				Lead	8.5E+02	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	9.3E-06	mg/kg/day	NA	mg/kg/day	NA
				Manganese	1.7E+02	MG/KG	2.7E-08	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	1.4E-01	mg/kg/day	1.3E-05
				Mercury	1.8E+00	MG/KG	2.8E-10	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	3.0E-04	mg/kg/day	6.5E-05
				Thallium	9.6E-01	MG/KG	1.5E-10	mg/kg/day	NA	NA	NA	1.0E-08	mg/kg/day	9.0E-04	mg/kg/day	1.2E-05
				Aldrin	4.3E-02	MG/KG	6.7E-11	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.1E-09	4.7E-09	mg/kg/day	3.0E-05	mg/kg/day	1.6E-04
				Chlordane - alpha	6.3E+00	MG/KG	3.9E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.4E-09	2.7E-07	mg/kg/day	6.0E-05	mg/kg/day	4.6E-03
				Chlordane - gamma (technical mixture)	7.2E+00	MG/KG	4.5E-09	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.6E-09	3.1E-07	mg/kg/day	6.0E-05	mg/kg/day	5.2E-03
				Dieldrin	2.3E-01	MG/KG	3.5E-10	mg/kg/day	1.6E+01	1/(mg/kg-day)	5.6E-09	2.5E-08	mg/kg/day	5.0E-05	mg/kg/day	4.9E-04
				Heptachlor Epoxide	4.4E-01	MG/KG	6.7E-10	mg/kg/day	9.1E+00	1/(mg/kg-day)	6.1E-09	4.7E-08	mg/kg/day	1.3E-05	mg/kg/day	3.6E-03
				Pcb-Aroclor 1254	1.9E+00	MG/KG	4.1E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	8.3E-09	2.9E-07	mg/kg/day	5.0E-05	mg/kg/day	5.8E-03
				Pcb-Aroclor 1260	6.5E-01	MG/KG	1.4E-09	mg/kg/day	2.0E+00	1/(mg/kg-day)	2.8E-09	9.8E-08	mg/kg/day	NA	mg/kg/day	NA
				Acetophenone	5.2E-02	MG/KG	8.1E-11	mg/kg/day	NA	NA	NA	5.6E-09	mg/kg/day	1.0E+00	mg/kg/day	5.6E-09
				Benzo(a)anthracene	2.4E+01	MG/KG	4.8E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-08	3.4E-06	mg/kg/day	3.0E-01	mg/kg/day	1.1E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	3.6E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.6E-07	2.5E-06	mg/kg/day	NA	mg/kg/day	NA
				Benzo(b)fluoranthene	1.6E+01	MG/KG	3.2E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.4E-08	2.3E-06	mg/kg/day	3.0E-01	mg/kg/day	7.5E-06
				Benzo(k)fluoranthene	1.9E+01	MG/KG	3.8E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.8E-09	2.7E-06	mg/kg/day	3.0E-01	mg/kg/day	8.9E-06
				Dibenzo(a,h)anthracene	2.4E+00	MG/KG	4.8E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.5E-08	3.4E-07	mg/kg/day	3.0E-01	mg/kg/day	1.1E-06
				Indeno(1,2,3-cd)pyrene	6.4E+00	MG/KG	1.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.4E-09	9.0E-07	mg/kg/day	6.0E-01	mg/kg/day	1.5E-06
				Naphthalene	4.4E+00	MG/KG	8.9E-09	mg/kg/day	NA	NA	NA	6.2E-07	mg/kg/day	2.0E-02	mg/kg/day	3.1E-05
			Exp. Route Total								6.5E-07					2.9E-02
		Exposure Point Total									6.5E-06					5.7E-01
	Exposure Medium Total										6.5E-06					5.7E-01

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TABLE 7.13.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil	Inhalation	Aluminum	5.6E-06	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	7.7E-08	mg/kg/day	1.4E-03	mg/kg/day	5.4E-05
				Antimony	2.3E-09	MG/M3	4.5E-13	mg/kg/day	NA	NA	NA	3.1E-11	mg/kg/day	1.1E-04	NA	2.8E-07
				Arsenic	3.6E-07	MG/M3	7.1E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.1E-09	4.9E-09	mg/kg/day	NA	NA	NA
				Barium	3.5E-05	MG/M3	6.8E-09	mg/kg/day	NA	NA	NA	4.8E-07	mg/kg/day	1.4E-03	mg/kg/day	3.4E-04
				Cadmium	2.9E-09	MG/M3	5.8E-13	mg/kg/day	6.3E+00	1/(mg/kg-day)	3.7E-12	4.1E-11	mg/kg/day	2.6E-04	mg/kg/day	1.6E-07
				Chromium	2.7E-07	MG/M3	5.4E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.3E-09	3.8E-09	mg/kg/day	2.3E-06	mg/kg/day	1.7E-03
				Copper	2.6E-07	MG/M3	5.1E-11	mg/kg/day	NA	NA	NA	3.5E-09	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	4.0E-09	mg/kg/day	NA	NA	NA	2.8E-07	mg/kg/day	NA	NA	NA
				Lead	8.4E-07	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	1.2E-08	mg/kg/day	NA	NA	NA
				Manganese	1.7E-07	MG/M3	3.4E-11	mg/kg/day	NA	NA	NA	2.4E-09	mg/kg/day	1.4E-05	mg/kg/day	1.6E-04
				Mercury	1.8E-09	MG/M3	3.5E-13	mg/kg/day	NA	NA	NA	2.4E-11	mg/kg/day	8.6E-05	mg/kg/day	2.8E-07
				Thallium	9.4E-10	MG/M3	1.9E-13	mg/kg/day	NA	NA	NA	1.3E-11	mg/kg/day	NA	NA	NA
				Aldrin	4.2E-11	MG/M3	8.4E-15	mg/kg/day	1.7E+01	1/(mg/kg-day)	1.4E-13	5.9E-13	mg/kg/day	NA	NA	NA
				Chlordane - alpha	6.2E-09	MG/M3	1.2E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.3E-13	8.6E-11	mg/kg/day	2.0E-04	mg/kg/day	4.3E-07
				Chlordane - gamma (technical mixture)	7.1E-09	MG/M3	1.4E-12	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.9E-13	9.8E-11	mg/kg/day	2.0E-04	mg/kg/day	4.9E-07
				Dieldrin	2.2E-10	MG/M3	4.4E-14	mg/kg/day	1.6E+01	1/(mg/kg-day)	7.1E-13	3.1E-12	mg/kg/day	NA	NA	NA
				Heptachlor Epoxide	4.3E-10	MG/M3	8.4E-14	mg/kg/day	9.1E+00	1/(mg/kg-day)	7.7E-13	5.9E-12	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1254	1.9E-09	MG/M3	3.7E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	1.3E-13	2.6E-11	mg/kg/day	NA	NA	NA
				Pcb-Aroclor 1260	6.3E-10	MG/M3	1.3E-13	mg/kg/day	3.5E-01	1/(mg/kg-day)	4.4E-14	8.8E-12	mg/kg/day	NA	NA	NA
				Acetophenone	2.6E-07	MG/M3	5.2E-11	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.4E-08	MG/M3	4.6E-12	mg/kg/day	NA	NA	NA	3.2E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.5E-12	mg/kg/day	NA	NA	NA	2.4E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	1.6E-08	MG/M3	3.1E-12	mg/kg/day	NA	NA	NA	2.2E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.9E-08	MG/M3	3.7E-12	mg/kg/day	NA	NA	NA	2.6E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	2.4E-09	MG/M3	4.6E-13	mg/kg/day	NA	NA	NA	3.2E-11	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	6.3E-09	MG/M3	1.2E-12	mg/kg/day	NA	NA	NA	8.7E-11	mg/kg/day	NA	NA	NA
				Naphthalene	4.3E-05	MG/M3	8.5E-09	mg/kg/day	NA	NA	NA	5.9E-07	mg/kg/day	8.6E-04	mg/kg/day	6.9E-04
			Exp. Route Total								3.3E-09					2.9E-03
		Exposure Point Total									3.3E-09					2.9E-03
	Exposure Medium Total										3.3E-09					2.9E-03
Subsurface Soil Total											6.5E-06					5.7E-01

NA = Not applicable.

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TABLE 7.14.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	1.0E+00	mg/kg/day	1.3E-03
				Arsenic	3.2E+01	MG/KG	9.5E-07	mg/kg/day	1.5E+00	NA	1.4E-06	7.4E-06	mg/kg/day	3.0E-04	mg/kg/day	2.5E-02
				Barium	4.2E+03	MG/KG	1.2E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	9.6E-04	mg/kg/day	7.0E-02	mg/kg/day	1.4E-02
				Cadmium	4.1E+00	MG/KG	1.2E-07	mg/kg/day	NA	1/(mg/kg-day)	NA	9.3E-07	mg/kg/day	1.0E-03	mg/kg/day	9.3E-04
				Chromium	9.0E+01	MG/KG	2.6E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	2.1E-05	mg/kg/day	3.0E-03	mg/kg/day	6.9E-03
				Copper	1.6E+02	MG/KG	4.6E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	3.6E-05	mg/kg/day	4.0E-02	mg/kg/day	8.9E-04
				Iron	1.9E+04	MG/KG	5.6E-04	mg/kg/day	NA	1/(mg/kg-day)	NA	4.4E-03	mg/kg/day	3.0E-01	mg/kg/day	1.5E-02
				Lead	6.6E+02	MG/KG	1.9E-05	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	8.6E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	6.7E-05	mg/kg/day	1.4E-01	mg/kg/day	4.8E-04
				Mercury	8.5E-01	MG/KG	2.5E-08	mg/kg/day	NA	1/(mg/kg-day)	NA	1.9E-07	mg/kg/day	3.0E-04	mg/kg/day	6.5E-04
				Benzo(a)anthracene	8.5E-01	MG/KG	2.5E-08	mg/kg/day	7.3E-01	NA	1.8E-08	1.9E-07	mg/kg/day	3.0E-02	mg/kg/day	6.5E-06
				Benzo(a)pyrene	3.8E+01	MG/KG	1.1E-06	mg/kg/day	7.3E+00	NA	8.1E-06	8.6E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.0E-06	mg/kg/day	7.3E-01	NA	7.4E-07	7.9E-06	mg/kg/day	3.0E-02	mg/kg/day	2.6E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.0E-06	mg/kg/day	7.3E-02	NA	7.6E-08	8.1E-06	mg/kg/day	3.0E-02	mg/kg/day	2.7E-04
				Carbazole	2.3E+01	MG/KG	6.8E-07	mg/kg/day	2.0E-02	NA	1.4E-08	5.3E-06	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-03	NA	8.8E-09	9.4E-06	mg/kg/day	3.0E-02	mg/kg/day	3.1E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	2.3E-08	mg/kg/day	7.3E+00	NA	1.7E-07	1.8E-07	mg/kg/day	3.0E-02	mg/kg/day	6.1E-06
				Fluoranthene	8.0E+01	MG/KG	2.4E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.8E-05	mg/kg/day	4.0E-02	mg/kg/day	4.6E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	6.3E-07	mg/kg/day	7.3E-01	NA	4.6E-07	4.9E-06	mg/kg/day	5.0E-02	mg/kg/day	9.8E-05
				Phenanthrene	6.6E+01	MG/KG	1.9E-06	mg/kg/day	NA	1/(mg/kg-day)	NA	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.0E-04
			Exp. Route Total								1.1E-05					6.6E-02
			Dermal													
				Aluminum	5.8E+03	MG/KG	2.5E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	1.0E+00	mg/kg/day	2.0E-04
				Arsenic	3.2E+01	MG/KG	4.2E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.3E-07	3.3E-06	mg/kg/day	3.0E-04	mg/kg/day	1.1E-02
				Barium	4.2E+03	MG/KG	1.8E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	4.9E-03	mg/kg/day	2.9E-02
				Cadmium	4.1E+00	MG/KG	1.8E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	5.0E-05	mg/kg/day	2.8E-04
				Chromium	9.0E+01	MG/KG	3.9E-07	mg/kg/day	NA	NA	NA	3.0E-06	mg/kg/day	7.5E-05	mg/kg/day	4.1E-02
				Copper	1.6E+02	MG/KG	6.8E-07	mg/kg/day	NA	NA	NA	5.3E-06	mg/kg/day	4.0E-02	mg/kg/day	1.3E-04
				Iron	1.9E+04	MG/KG	8.3E-05	mg/kg/day	NA	NA	NA	6.5E-04	mg/kg/day	3.0E-01	mg/kg/day	2.2E-03
				Lead	6.6E+02	MG/KG	2.9E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	9.9E-06	mg/kg/day	5.6E-03	mg/kg/day	1.8E-03
				Mercury	8.5E-01	MG/KG	3.7E-09	mg/kg/day	NA	NA	NA	2.9E-08	mg/kg/day	2.1E-05	mg/kg/day	1.4E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	4.8E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.5E-08	3.8E-07	mg/kg/day	3.0E-02	mg/kg/day	1.3E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	2.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.6E-05	1.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-06	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.0E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	2.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.5E-07	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.2E-04
				Carbazole	2.3E+01	MG/KG	1.3E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.6E-08	1.0E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	2.3E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.7E-08	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	6.0E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	4.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.3E-07	3.5E-07	mg/kg/day	3.0E-02	mg/kg/day	1.2E-05
				Fluoranthene	8.0E+01	MG/KG	4.5E-06	mg/kg/day	NA	NA	NA	3.5E-05	mg/kg/day	3.6E-02	mg/kg/day	9.9E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.8E-07	9.4E-06	mg/kg/day	5.0E-02	mg/kg/day	1.9E-04
				Phenanthrene	6.6E+01	MG/KG	3.7E-06	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	3.0E-02	mg/kg/day	9.6E-04
			Exp. Route Total								1.9E-05					9.0E-02
		Exposure Point Total									3.0E-05					1.6E-01
	Exposure Medium Total										3.0E-05					1.6E-01

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TABLE 7.14.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	5.6E-09	mg/kg/day	NA	NA	NA	4.3E-08	mg/kg/day	1.4E-03	mg/kg/day	3.0E-05
				Arsenic	3.2E-08	MG/M3	3.1E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	4.6E-10	2.4E-10	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	4.0E-09	mg/kg/day	NA	NA	NA	3.1E-08	mg/kg/day	1.4E-04	mg/kg/day	2.2E-04
				Cadmium	4.0E-09	MG/M3	3.9E-12	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.5E-11	3.0E-11	mg/kg/day	5.7E-05	mg/kg/day	5.3E-07
				Chromium	8.8E-08	MG/M3	8.6E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	3.6E-09	6.7E-10	mg/kg/day	2.3E-06	mg/kg/day	2.9E-04
				Copper	1.5E-07	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.2E-09	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	1.8E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	6.3E-10	mg/kg/day	NA	NA	NA	4.9E-09	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	2.8E-10	mg/kg/day	NA	NA	NA	2.2E-09	mg/kg/day	1.4E-05	mg/kg/day	1.5E-04
				Mercury	8.4E-10	MG/M3	8.2E-13	mg/kg/day	NA	NA	NA	6.3E-12	mg/kg/day	8.6E-05	mg/kg/day	7.4E-08
				Benzo(a)anthracene	8.4E-10	MG/M3	8.2E-13	mg/kg/day	NA	NA	NA	6.3E-12	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	3.6E-11	mg/kg/day	NA	NA	NA	2.8E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	3.3E-11	mg/kg/day	NA	NA	NA	2.6E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	3.4E-11	mg/kg/day	NA	NA	NA	2.6E-10	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	2.2E-11	mg/kg/day	NA	NA	NA	1.7E-10	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	3.9E-11	mg/kg/day	NA	NA	NA	3.0E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	7.6E-13	mg/kg/day	NA	NA	NA	5.9E-12	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	7.7E-11	mg/kg/day	NA	NA	NA	6.0E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	2.1E-11	mg/kg/day	NA	NA	NA	1.6E-10	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	1.6E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	NA	NA	NA
			Exp. Route Total								4.1E-09					7.0E-04
		Exposure Point Total									4.1E-09					7.0E-04
	Exposure Medium Total										4.1E-09					7.0E-04
Surface Soil Total											3.0E-05					1.6E-01

NA = Not applicable.

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TABLE 7.15.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	3.4E-04	mg/kg/day	NA	NA	NA	2.7E-03	mg/kg/day	1.0E+00	mg/kg/day	2.7E-03
				Arsenic	3.2E+01	MG/KG	1.9E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.9E-06	1.5E-05	mg/kg/day	3.0E-04	mg/kg/day	4.9E-02
				Barium	4.2E+03	MG/KG	2.5E-04	mg/kg/day	NA	NA	NA	1.9E-03	mg/kg/day	7.0E-02	mg/kg/day	2.8E-02
				Cadmium	4.1E+00	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	1.9E-06	mg/kg/day	1.0E-03	mg/kg/day	1.9E-03
				Chromium	9.0E+01	MG/KG	5.3E-06	mg/kg/day	NA	NA	NA	4.1E-05	mg/kg/day	3.0E-03	mg/kg/day	1.4E-02
				Copper	1.6E+02	MG/KG	9.2E-06	mg/kg/day	NA	NA	NA	7.1E-05	mg/kg/day	4.0E-02	mg/kg/day	1.8E-03
				Iron	1.9E+04	MG/KG	1.1E-03	mg/kg/day	NA	NA	NA	8.8E-03	mg/kg/day	3.0E-01	mg/kg/day	2.9E-02
				Lead	6.6E+02	MG/KG	3.9E-05	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	1.4E-01	mg/kg/day	9.6E-04
				Mercury	8.5E-01	MG/KG	5.0E-08	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	3.0E-04	mg/kg/day	1.3E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	5.0E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.7E-08	3.9E-07	mg/kg/day	3.0E-02	mg/kg/day	1.3E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	2.2E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.6E-05	1.7E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	2.0E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.5E-06	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.3E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	2.1E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.5E-07	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.4E-04
				Carbazole	2.3E+01	MG/KG	1.4E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.7E-08	1.1E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	2.4E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.8E-08	1.9E-05	mg/kg/day	3.0E-02	mg/kg/day	6.3E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	4.7E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.4E-07	3.7E-07	mg/kg/day	3.0E-02	mg/kg/day	1.2E-05
				Fluoranthene	8.0E+01	MG/KG	4.7E-06	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	4.0E-02	mg/kg/day	9.2E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.2E-07	9.8E-06	mg/kg/day	5.0E-02	mg/kg/day	2.0E-04
				Phenanthrene	6.6E+01	MG/KG	3.9E-06	mg/kg/day	NA	NA	NA	3.0E-05	mg/kg/day	3.0E-02	mg/kg/day	1.0E-03
			Exp. Route Total								2.2E-05					1.3E-01
			Dermal													
				Aluminum	5.8E+03	MG/KG	3.9E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	1.0E+00	mg/kg/day	3.1E-05
				Arsenic	3.2E+01	MG/KG	6.5E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	9.8E-08	5.1E-07	mg/kg/day	3.0E-04	mg/kg/day	1.7E-03
				Barium	4.2E+03	MG/KG	2.8E-06	mg/kg/day	NA	NA	NA	2.2E-05	mg/kg/day	4.9E-03	mg/kg/day	4.5E-03
				Cadmium	4.1E+00	MG/KG	2.7E-10	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	5.0E-05	mg/kg/day	4.3E-05
				Chromium	9.0E+01	MG/KG	6.1E-08	mg/kg/day	NA	NA	NA	4.7E-07	mg/kg/day	7.5E-05	mg/kg/day	6.3E-03
				Copper	1.6E+02	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	8.1E-07	mg/kg/day	4.0E-02	mg/kg/day	2.0E-05
				Iron	1.9E+04	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	3.0E-01	mg/kg/day	3.3E-04
				Lead	6.6E+02	MG/KG	4.4E-07	mg/kg/day	NA	NA	NA	3.5E-06	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	2.0E-07	mg/kg/day	NA	NA	NA	1.5E-06	mg/kg/day	5.6E-03	mg/kg/day	2.7E-04
				Mercury	8.5E-01	MG/KG	5.7E-10	mg/kg/day	NA	NA	NA	4.5E-09	mg/kg/day	2.1E-05	mg/kg/day	2.1E-04
				Benzo(a)anthracene	8.5E-01	MG/KG	7.5E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.4E-09	5.8E-08	mg/kg/day	3.0E-02	mg/kg/day	1.9E-06
				Benzo(a)pyrene	3.8E+01	MG/KG	3.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.4E-06	2.6E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	3.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.2E-07	2.3E-06	mg/kg/day	3.0E-02	mg/kg/day	7.8E-05
				Benzo(k)fluoranthene	3.6E+01	MG/KG	3.1E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.3E-08	2.4E-06	mg/kg/day	3.0E-02	mg/kg/day	8.0E-05
				Carbazole	2.3E+01	MG/KG	2.0E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	4.0E-09	1.6E-06	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	3.6E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.6E-09	2.8E-06	mg/kg/day	3.0E-02	mg/kg/day	9.3E-05
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	7.0E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.1E-08	5.4E-08	mg/kg/day	3.0E-02	mg/kg/day	1.8E-06
				Fluoranthene	8.0E+01	MG/KG	7.0E-07	mg/kg/day	NA	NA	NA	5.4E-06	mg/kg/day	3.6E-02	mg/kg/day	1.5E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.5E-06	mg/kg/day	5.0E-02	mg/kg/day	2.9E-05
				Phenanthrene	6.6E+01	MG/KG	5.7E-07	mg/kg/day	NA	NA	NA	4.5E-06	mg/kg/day	3.0E-02	mg/kg/day	1.5E-04
			Exp. Route Total								2.9E-06					1.4E-02
		Exposure Point Total									2.5E-05					1.5E-01
	Exposure Medium Total										2.5E-05					1.5E-01

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TABLE 7.15.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	1.3E-07	mg/kg/day	NA	NA	NA	1.0E-15	mg/kg/day	1.4E-03	mg/kg/day	7.2E-13
				Arsenic	3.2E-08	MG/M3	7.4E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.1E-08	5.7E-18	mg/kg/day	NA	mg/kg/day	NA
				Barium	4.1E-06	MG/M3	9.7E-08	mg/kg/day	NA	NA	NA	7.4E-16	mg/kg/day	1.4E-04	mg/kg/day	5.3E-12
				Cadmium	4.0E-09	MG/M3	9.4E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	5.9E-10	7.2E-19	mg/kg/day	5.7E-05	mg/kg/day	1.3E-14
				Chromium	8.8E-08	MG/M3	2.1E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	8.7E-08	1.6E-17	mg/kg/day	2.3E-06	mg/kg/day	6.9E-12
				Copper	1.5E-07	MG/M3	3.6E-09	mg/kg/day	NA	NA	NA	2.7E-17	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	4.4E-07	mg/kg/day	NA	NA	NA	3.4E-15	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	1.5E-08	mg/kg/day	NA	NA	NA	1.2E-16	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	6.7E-09	mg/kg/day	NA	NA	NA	5.1E-17	mg/kg/day	1.4E-05	mg/kg/day	3.6E-12
				Mercury	8.4E-10	MG/M3	2.0E-11	mg/kg/day	NA	NA	NA	1.5E-19	mg/kg/day	8.6E-05	mg/kg/day	1.7E-15
				Benzo(a)anthracene	8.4E-10	MG/M3	2.0E-11	mg/kg/day	NA	NA	NA	1.5E-19	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	8.7E-10	mg/kg/day	NA	NA	NA	6.6E-18	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	7.9E-10	mg/kg/day	NA	NA	NA	6.0E-18	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	8.2E-10	mg/kg/day	NA	NA	NA	6.2E-18	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	5.3E-10	mg/kg/day	NA	NA	NA	4.0E-18	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	9.4E-10	mg/kg/day	NA	NA	NA	7.2E-18	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	1.8E-11	mg/kg/day	NA	NA	NA	1.4E-19	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	1.8E-09	mg/kg/day	NA	NA	NA	1.4E-17	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	4.9E-10	mg/kg/day	NA	NA	NA	3.8E-18	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	3.9E-06	mg/kg/day	NA	NA	NA	7.8E-11	mg/kg/day	NA	NA	NA
			Exp. Route Total								9.9E-08					1.7E-11
		Exposure Point Total									9.9E-08					1.7E-11
	Exposure Medium Total										9.9E-08					1.7E-11
Surface Soil Total											2.5E-05					1.5E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	3.0E-04	mg/kg/day	NA	NA	NA	2.3E-03	mg/kg/day	1.0E+00	mg/kg/day	2.3E-03
				Antimony	2.6E+00	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	4.0E-04	mg/kg/day	3.0E-03
				Arsenic	9.6E+01	MG/KG	5.6E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	8.5E-06	4.4E-05	mg/kg/day	3.0E-04	mg/kg/day	1.5E-01
				Barium	5.6E+03	MG/KG	3.3E-04	mg/kg/day	NA	NA	NA	2.5E-03	mg/kg/day	7.0E-02	mg/kg/day	3.6E-02
				Cadmium	7.1E+01	MG/KG	4.2E-06	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	1.0E-03	mg/kg/day	3.3E-02
				Chromium	3.6E+01	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	3.0E-03	mg/kg/day	5.5E-03
				Copper	1.3E+02	MG/KG	7.7E-06	mg/kg/day	NA	NA	NA	6.0E-05	mg/kg/day	4.0E-02	mg/kg/day	1.5E-03
				Iron	2.0E+04	MG/KG	1.2E-03	mg/kg/day	NA	NA	NA	9.3E-03	mg/kg/day	3.0E-01	mg/kg/day	3.1E-02
				Lead	9.5E+02	MG/KG	5.6E-05	mg/kg/day	NA	NA	NA	4.3E-04	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	1.4E-01	mg/kg/day	7.4E-04
				Mercury	8.9E-01	MG/KG	5.2E-08	mg/kg/day	NA	NA	NA	4.1E-07	mg/kg/day	3.0E-04	mg/kg/day	1.4E-03
				Zinc	2.5E+03	MG/KG	1.5E-04	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	3.0E-01	mg/kg/day	3.8E-03
				Benzo(a)anthracene	2.2E+01	MG/KG	1.3E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.6E-07	1.0E-05	mg/kg/day	3.0E-02	mg/kg/day	3.4E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	1.1E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.7E-06	8.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.1E-07	9.7E-06	mg/kg/day	3.0E-02	mg/kg/day	3.2E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	8.0E-08	8.6E-06	mg/kg/day	3.0E-02	mg/kg/day	2.9E-04
				Carbazole	1.5E+01	MG/KG	8.6E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.7E-08	6.7E-06	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	8.6E-09	9.2E-06	mg/kg/day	3.0E-02	mg/kg/day	3.1E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	8.1E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.9E-06	6.3E-06	mg/kg/day	3.0E-02	mg/kg/day	2.1E-04
				Dibenzofuran	1.4E+01	MG/KG	8.4E-07	mg/kg/day	NA	NA	NA	6.5E-06	mg/kg/day	2.0E-03	mg/kg/day	3.3E-03

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TABLE 7.15.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	2.1E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	4.0E-02	mg/kg/day	4.1E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	7.9E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.8E-07	6.1E-06	mg/kg/day	5.0E-02	mg/kg/day	1.2E-04
				Naphthalene	1.5E+01	MG/KG	8.7E-07	mg/kg/day	NA	NA	NA	6.8E-06	mg/kg/day	2.0E-02	mg/kg/day	3.4E-04
				Phenanthrene	3.8E+01	MG/KG	2.3E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	5.8E-04
				Pyrene	3.1E+01	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	3.0E-02	mg/kg/day	4.8E-04
				Benzene	3.0E-03	MG/KG	1.8E-10	mg/kg/day	5.5E-02	1/(mg/kg-day)	9.7E-12	1.4E-09	mg/kg/day	4.0E-03	mg/kg/day	3.4E-07
			Exp. Route Total								2.5E-05					2.7E-01
			Dermal													
				Aluminum	5.1E+03	MG/KG	3.4E-06	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	1.0E+00	mg/kg/day	2.7E-05
				Antimony	2.6E+00	MG/KG	1.8E-09	mg/kg/day	NA	NA	NA	1.4E-08	mg/kg/day	6.0E-05	mg/kg/day	2.3E-04
				Arsenic	9.6E+01	MG/KG	1.9E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.9E-07	1.5E-06	mg/kg/day	3.0E-04	mg/kg/day	5.0E-03
				Barium	5.6E+03	MG/KG	3.7E-06	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	4.9E-03	mg/kg/day	5.9E-03
				Cadmium	7.1E+01	MG/KG	4.8E-09	mg/kg/day	NA	NA	NA	3.7E-08	mg/kg/day	5.0E-05	mg/kg/day	7.4E-04
				Chromium	3.6E+01	MG/KG	2.4E-08	mg/kg/day	NA	NA	NA	1.9E-07	mg/kg/day	7.5E-05	mg/kg/day	2.5E-03
				Copper	1.3E+02	MG/KG	8.8E-08	mg/kg/day	NA	NA	NA	6.8E-07	mg/kg/day	4.0E-02	mg/kg/day	1.7E-05
				Iron	2.0E+04	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.5E-04
				Lead	9.5E+02	MG/KG	6.4E-07	mg/kg/day	NA	NA	NA	5.0E-06	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.2E-06	mg/kg/day	5.6E-03	mg/kg/day	2.1E-04
				Mercury	8.9E-01	MG/KG	6.0E-10	mg/kg/day	NA	NA	NA	4.6E-09	mg/kg/day	2.1E-05	mg/kg/day	2.2E-04
				Zinc	2.5E+03	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	3.0E-01	mg/kg/day	4.4E-05
				Benzo(a)anthracene	2.2E+01	MG/KG	2.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.4E-07	1.5E-06	mg/kg/day	3.0E-02	mg/kg/day	5.1E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-06	1.2E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	1.8E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-07	1.4E-06	mg/kg/day	3.0E-02	mg/kg/day	4.8E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.2E-08	1.3E-06	mg/kg/day	3.0E-02	mg/kg/day	4.2E-05
				Carbazole	1.5E+01	MG/KG	1.3E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.5E-09	9.9E-07	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	1.8E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.3E-09	1.4E-06	mg/kg/day	3.0E-02	mg/kg/day	4.6E-05
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	1.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	8.7E-07	9.3E-07	mg/kg/day	3.0E-02	mg/kg/day	3.1E-05
				Dibenzofuran	1.4E+01	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	9.7E-07	mg/kg/day	2.0E-03	mg/kg/day	4.8E-04
				Fluoranthene	3.6E+01	MG/KG	3.2E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	3.6E-02	mg/kg/day	6.9E-05
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	1.2E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.5E-08	9.1E-07	mg/kg/day	5.0E-02	mg/kg/day	1.8E-05
				Naphthalene	1.5E+01	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	2.0E-02	mg/kg/day	5.0E-05
				Phenanthrene	3.8E+01	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	2.6E-06	mg/kg/day	3.0E-02	mg/kg/day	8.7E-05
				Pyrene	3.1E+01	MG/KG	2.7E-07	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	3.0E-02	mg/kg/day	7.1E-05
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								2.7E-06					1.6E-02
		Exposure Point Total									2.7E-05					2.9E-01
	Exposure Medium Total										2.7E-05					2.9E-01

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TABLE 7.15.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation	Aluminum	5.0E-06	MG/M3	1.2E-07	mg/kg/day	NA	NA	NA	9.1E-07	mg/kg/day	1.4E-03	mg/kg/day	6.4E-04
				Antimony	2.6E-09	MG/M3	6.1E-11	mg/kg/day	NA	NA	NA	4.7E-10	mg/kg/day	NA	NA	NA
				Arsenic	9.4E-08	MG/M3	2.2E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.3E-08	1.7E-08	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	1.3E-07	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	1.4E-04	mg/kg/day	7.1E-03
				Cadmium	7.0E-08	MG/M3	1.6E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.0E-08	1.3E-08	mg/kg/day	5.7E-05	mg/kg/day	2.2E-04
				Chromium	3.5E-08	MG/M3	8.3E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	3.5E-08	6.4E-09	mg/kg/day	2.3E-06	mg/kg/day	2.8E-03
				Copper	1.3E-07	MG/M3	3.0E-09	mg/kg/day	NA	NA	NA	2.3E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	4.7E-07	mg/kg/day	NA	NA	NA	3.6E-06	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	2.2E-08	mg/kg/day	NA	NA	NA	1.7E-07	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	5.2E-09	mg/kg/day	NA	NA	NA	4.0E-08	mg/kg/day	1.4E-05	mg/kg/day	2.8E-03
				Mercury	8.7E-10	MG/M3	2.0E-11	mg/kg/day	NA	NA	NA	1.6E-10	mg/kg/day	8.6E-05	mg/kg/day	1.9E-06
				Zinc	2.5E-06	MG/M3	5.8E-08	mg/kg/day	NA	NA	NA	4.5E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	5.1E-10	mg/kg/day	NA	NA	NA	4.0E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	4.1E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	4.9E-10	mg/kg/day	NA	NA	NA	3.8E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	4.3E-10	mg/kg/day	NA	NA	NA	3.3E-09	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	3.4E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	4.6E-10	mg/kg/day	NA	NA	NA	3.6E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	3.2E-10	mg/kg/day	NA	NA	NA	2.5E-09	mg/kg/day	NA	NA	NA
				Dibenzofuran	2.1E-05	MG/M3	4.9E-07	mg/kg/day	NA	NA	NA	3.8E-06	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	8.3E-10	mg/kg/day	NA	NA	NA	6.5E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	3.1E-10	mg/kg/day	NA	NA	NA	2.4E-09	mg/kg/day	NA	NA	NA
				Naphthalene	3.3E-04	MG/M3	7.7E-06	mg/kg/day	NA	NA	NA	6.0E-05	mg/kg/day	8.6E-04	mg/kg/day	7.0E-02
				Phenanthrene	9.8E-05	MG/M3	2.3E-06	mg/kg/day	NA	NA	NA	1.8E-05	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	7.2E-10	mg/kg/day	NA	NA	NA	5.6E-09	mg/kg/day	NA	NA	NA
				Benzene	1.0E-06	MG/M3	2.4E-08	mg/kg/day	2.7E-02	1/(mg/kg-day)	6.6E-10	1.9E-07	mg/kg/day	8.6E-03	mg/kg/day	2.2E-05
			Exp. Route Total								7.9E-08					8.4E-02
		Exposure Point Total									7.9E-08					8.4E-02
	Exposure Medium Total										7.9E-08					8.4E-02
Subsurface Soil Total											2.7E-05					3.7E-01

NA = Not applicable.

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TABLE 7.16.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	2.1E-03	mg/kg/day	NA	NA	NA	2.5E-02	mg/kg/day	1.0E+00	mg/kg/day	2.5E-02
				Arsenic	3.2E+01	MG/KG	1.2E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.8E-05	1.4E-04	mg/kg/day	5.0E-03	mg/kg/day	2.8E-02
				Barium	4.2E+03	MG/KG	1.5E-03	mg/kg/day	NA	NA	NA	1.8E-02	mg/kg/day	7.0E-02	mg/kg/day	2.6E-01
				Cadmium	4.1E+00	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	1.0E-03	mg/kg/day	1.7E-02
				Chromium	9.0E+01	MG/KG	3.3E-05	mg/kg/day	NA	NA	NA	3.9E-04	mg/kg/day	2.0E-02	mg/kg/day	1.9E-02
				Copper	1.6E+02	MG/KG	5.7E-05	mg/kg/day	NA	NA	NA	6.7E-04	mg/kg/day	4.0E-02	mg/kg/day	1.7E-02
				Iron	1.9E+04	MG/KG	7.0E-03	mg/kg/day	NA	NA	NA	8.2E-02	mg/kg/day	3.0E-01	mg/kg/day	2.7E-01
				Lead	6.6E+02	MG/KG	2.4E-04	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.1E-04	mg/kg/day	NA	NA	NA	1.3E-03	mg/kg/day	1.4E-01	mg/kg/day	8.9E-03
				Mercury	8.5E-01	MG/KG	3.1E-07	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	3.0E-04	mg/kg/day	1.2E-02
				Benzo(a)anthracene	8.5E-01	MG/KG	3.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.3E-07	3.7E-06	mg/kg/day	3.0E-01	mg/kg/day	1.2E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	1.4E-05	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-04	1.6E-04	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.3E-05	mg/kg/day	7.3E-01	1/(mg/kg-day)	9.2E-06	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	4.9E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.3E-05	mg/kg/day	7.3E-02	1/(mg/kg-day)	9.5E-07	1.5E-04	mg/kg/day	3.0E-01	mg/kg/day	5.1E-04
				Carbazole	2.3E+01	MG/KG	8.4E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.7E-07	9.8E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.5E-05	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.1E-07	1.8E-04	mg/kg/day	3.0E-01	mg/kg/day	5.8E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	2.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.1E-06	3.4E-06	mg/kg/day	3.0E-01	mg/kg/day	1.1E-05
				Fluoranthene	8.0E+01	MG/KG	2.9E-05	mg/kg/day	NA	NA	NA	3.4E-04	mg/kg/day	4.0E-01	mg/kg/day	8.6E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	7.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.7E-06	9.2E-05	mg/kg/day	6.0E-01	mg/kg/day	1.5E-04
				Phenanthrene	6.6E+01	MG/KG	2.4E-05	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	3.0E-01	mg/kg/day	9.4E-04
			Exp. Route Total								1.4E-04					6.6E-01
			Dermal													
				Aluminum	5.8E+03	MG/KG	2.4E-05	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	1.0E+00	mg/kg/day	2.8E-04
				Arsenic	3.2E+01	MG/KG	4.0E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.0E-07	4.6E-06	mg/kg/day	5.0E-03	mg/kg/day	9.3E-04
				Barium	4.2E+03	MG/KG	1.7E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	4.9E-03	mg/kg/day	4.1E-02
				Cadmium	4.1E+00	MG/KG	1.7E-09	mg/kg/day	NA	NA	NA	2.0E-08	mg/kg/day	5.0E-05	mg/kg/day	3.9E-04
				Chromium	9.0E+01	MG/KG	3.7E-07	mg/kg/day	NA	NA	NA	4.3E-06	mg/kg/day	5.0E-04	mg/kg/day	8.6E-03
				Copper	1.6E+02	MG/KG	6.4E-07	mg/kg/day	NA	NA	NA	7.5E-06	mg/kg/day	4.0E-02	mg/kg/day	1.9E-04
				Iron	1.9E+04	MG/KG	7.9E-05	mg/kg/day	NA	NA	NA	9.2E-04	mg/kg/day	3.0E-01	mg/kg/day	3.1E-03
				Lead	6.6E+02	MG/KG	2.7E-06	mg/kg/day	NA	NA	NA	3.2E-05	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	5.6E-03	mg/kg/day	2.5E-03
				Mercury	8.5E-01	MG/KG	3.5E-09	mg/kg/day	NA	NA	NA	4.1E-08	mg/kg/day	2.1E-05	mg/kg/day	1.9E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	4.6E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.3E-08	5.3E-07	mg/kg/day	3.0E-01	mg/kg/day	1.8E-06
				Benzo(a)pyrene	3.8E+01	MG/KG	2.0E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.5E-05	2.3E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.8E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-06	2.1E-05	mg/kg/day	3.0E-01	mg/kg/day	7.1E-05
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.9E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.4E-07	2.2E-05	mg/kg/day	3.0E-01	mg/kg/day	7.4E-05
				Carbazole	2.3E+01	MG/KG	1.2E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.5E-08	1.4E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	2.2E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.6E-08	2.6E-05	mg/kg/day	3.0E-01	mg/kg/day	8.5E-05
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	4.3E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.1E-07	5.0E-07	mg/kg/day	3.0E-01	mg/kg/day	1.7E-06
				Fluoranthene	8.0E+01	MG/KG	4.3E-06	mg/kg/day	NA	NA	NA	5.0E-05	mg/kg/day	3.6E-01	mg/kg/day	1.4E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.4E-07	1.3E-05	mg/kg/day	6.0E-01	mg/kg/day	2.2E-05
				Phenanthrene	6.6E+01	MG/KG	3.5E-06	mg/kg/day	NA	NA	NA	4.1E-05	mg/kg/day	3.0E-01	mg/kg/day	1.4E-04
			Exp. Route Total								1.8E-05					6.0E-02
		Exposure Point Total									1.6E-04					7.2E-01
	Exposure Medium Total										1.6E-04					7.2E-01

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TABLE 7.16.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	2.1E-07	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	1.4E-03	mg/kg/day	1.7E-03
				Arsenic	3.2E-08	MG/M3	1.2E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.8E-08	1.4E-08	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	1.5E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	1.4E-03	mg/kg/day	1.3E-03
				Cadmium	4.0E-09	MG/M3	1.5E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	9.3E-10	1.7E-09	mg/kg/day	2.6E-04	mg/kg/day	6.7E-06
				Chromium	8.8E-08	MG/M3	3.3E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.4E-07	3.8E-08	mg/kg/day	2.3E-06	mg/kg/day	1.7E-02
				Copper	1.5E-07	MG/M3	5.6E-09	mg/kg/day	NA	NA	NA	6.6E-08	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	6.9E-07	mg/kg/day	NA	NA	NA	8.1E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	2.4E-08	mg/kg/day	NA	NA	NA	2.8E-07	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	1.1E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	1.4E-05	mg/kg/day	8.7E-03
				Mercury	8.4E-10	MG/M3	3.1E-11	mg/kg/day	NA	NA	NA	3.6E-10	mg/kg/day	8.6E-05	mg/kg/day	4.2E-06
				Benzo(a)anthracene	8.4E-10	MG/M3	3.1E-11	mg/kg/day	NA	NA	NA	3.6E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	1.4E-09	mg/kg/day	NA	NA	NA	1.6E-08	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	8.3E-10	mg/kg/day	NA	NA	NA	9.7E-09	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	1.5E-09	mg/kg/day	NA	NA	NA	1.7E-08	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	2.9E-11	mg/kg/day	NA	NA	NA	3.4E-10	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	2.9E-09	mg/kg/day	NA	NA	NA	3.4E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	7.8E-10	mg/kg/day	NA	NA	NA	9.1E-09	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	6.2E-06	mg/kg/day	NA	NA	NA	7.2E-05	mg/kg/day	NA	NA	NA
			Exp. Route Total								1.6E-07					2.8E-02
		Exposure Point Total									1.6E-07					2.8E-02
	Exposure Medium Total										1.6E-07					2.8E-02
Surface Soil Total											1.6E-04					7.5E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	1.9E-03	mg/kg/day	NA	NA	NA	2.2E-02	mg/kg/day	1.0E+00	mg/kg/day	2.2E-02
				Antimony	2.6E+00	MG/KG	9.7E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	2.0E-04	mg/kg/day	5.7E-02
				Arsenic	9.6E+01	MG/KG	3.5E-05	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.3E-05	4.1E-04	mg/kg/day	5.0E-03	mg/kg/day	8.2E-02
				Barium	5.6E+03	MG/KG	2.0E-03	mg/kg/day	NA	NA	NA	2.4E-02	mg/kg/day	7.0E-02	mg/kg/day	3.4E-01
				Cadmium	7.1E+01	MG/KG	2.6E-05	mg/kg/day	NA	NA	NA	3.0E-04	mg/kg/day	1.0E-03	mg/kg/day	3.0E-01
				Chromium	3.6E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	2.0E-02	mg/kg/day	7.7E-03
				Copper	1.3E+02	MG/KG	4.8E-05	mg/kg/day	NA	NA	NA	5.6E-04	mg/kg/day	4.0E-02	mg/kg/day	1.4E-02
				Iron	2.0E+04	MG/KG	7.4E-03	mg/kg/day	NA	NA	NA	8.7E-02	mg/kg/day	3.0E-01	mg/kg/day	2.9E-01
				Lead	9.5E+02	MG/KG	3.5E-04	mg/kg/day	NA	NA	NA	4.1E-03	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	8.3E-05	mg/kg/day	NA	NA	NA	9.7E-04	mg/kg/day	1.4E-01	mg/kg/day	6.9E-03
				Mercury	8.9E-01	MG/KG	3.3E-07	mg/kg/day	NA	NA	NA	3.8E-06	mg/kg/day	3.0E-04	mg/kg/day	1.3E-02
				Zinc	2.5E+03	MG/KG	9.2E-04	mg/kg/day	NA	NA	NA	1.1E-02	mg/kg/day	3.0E-01	mg/kg/day	3.6E-02
				Benzo(a)anthracene	2.2E+01	MG/KG	8.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.0E-06	9.6E-05	mg/kg/day	3.0E-01	mg/kg/day	3.2E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	6.6E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.8E-05	7.6E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	7.7E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.7E-06	9.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.0E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	6.9E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.0E-07	8.0E-05	mg/kg/day	3.0E-01	mg/kg/day	2.7E-04
				Carbazole	1.5E+01	MG/KG	5.3E-06	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.1E-07	6.2E-05	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	7.4E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.4E-08	8.6E-05	mg/kg/day	3.0E-01	mg/kg/day	2.9E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	5.0E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	3.7E-05	5.9E-05	mg/kg/day	3.0E-01	mg/kg/day	2.0E-04
				Dibenzofuran	1.4E+01	MG/KG	5.2E-06	mg/kg/day	NA	NA	NA	6.1E-05	mg/kg/day	2.0E-03	mg/kg/day	3.0E-02

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TABLE 7.16.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	1.3E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	4.0E-01	mg/kg/day	3.9E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	4.9E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.6E-06	5.7E-05	mg/kg/day	6.0E-01	mg/kg/day	9.5E-05
				Naphthalene	1.5E+01	MG/KG	5.4E-06	mg/kg/day	NA	NA	NA	6.3E-05	mg/kg/day	2.0E-02	mg/kg/day	3.2E-03
				Phenanthrene	3.8E+01	MG/KG	1.4E-05	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	3.0E-01	mg/kg/day	5.4E-04
				Pyrene	3.1E+01	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	3.0E-01	mg/kg/day	4.5E-04
				Benzene	3.0E-03	MG/KG	1.1E-09	mg/kg/day	5.5E-02	1/(mg/kg-day)	6.0E-11	1.3E-08	mg/kg/day	3.0E-03	mg/kg/day	4.3E-06
			Exp. Route Total								1.5E-04					1.2E+00
			Dermal													
				Aluminum	5.1E+03	MG/KG	2.1E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	1.0E+00	mg/kg/day	2.4E-04
				Antimony	2.6E+00	MG/KG	1.1E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	3.0E-05	mg/kg/day	4.2E-03
				Arsenic	9.6E+01	MG/KG	1.2E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.8E-06	1.4E-05	mg/kg/day	5.0E-03	mg/kg/day	2.7E-03
				Barium	5.6E+03	MG/KG	2.3E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	4.9E-03	mg/kg/day	5.4E-02
				Cadmium	7.1E+01	MG/KG	2.9E-08	mg/kg/day	NA	NA	NA	3.4E-07	mg/kg/day	5.0E-05	mg/kg/day	6.8E-03
				Chromium	3.6E+01	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	5.0E-04	mg/kg/day	3.4E-03
				Copper	1.3E+02	MG/KG	5.4E-07	mg/kg/day	NA	NA	NA	6.2E-06	mg/kg/day	4.0E-02	mg/kg/day	1.6E-04
				Iron	2.0E+04	MG/KG	8.3E-05	mg/kg/day	NA	NA	NA	9.7E-04	mg/kg/day	3.0E-01	mg/kg/day	3.2E-03
				Lead	9.5E+02	MG/KG	3.9E-06	mg/kg/day	NA	NA	NA	4.5E-05	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	9.3E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	5.6E-03	mg/kg/day	1.9E-03
				Mercury	8.9E-01	MG/KG	3.7E-09	mg/kg/day	NA	NA	NA	4.3E-08	mg/kg/day	2.1E-05	mg/kg/day	2.0E-03
				Zinc	2.5E+03	MG/KG	1.0E-05	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	3.0E-01	mg/kg/day	4.0E-04
				Benzo(a)anthracene	2.2E+01	MG/KG	1.2E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.7E-07	1.4E-05	mg/kg/day	3.0E-01	mg/kg/day	4.6E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	9.5E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.0E-06	1.1E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	8.2E-07	1.3E-05	mg/kg/day	3.0E-01	mg/kg/day	4.4E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.0E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	7.3E-08	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	3.9E-05
				Carbazole	1.5E+01	MG/KG	7.8E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.6E-08	9.1E-06	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	1.1E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	7.8E-09	1.3E-05	mg/kg/day	3.0E-01	NA	4.2E-05
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	7.3E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-06	8.5E-06	mg/kg/day	3.0E-01	mg/kg/day	2.8E-05
				Dibenzofuran	1.4E+01	MG/KG	7.6E-07	mg/kg/day	NA	NA	NA	8.9E-06	mg/kg/day	2.0E-03	mg/kg/day	4.4E-03
				Fluoranthene	3.6E+01	MG/KG	1.9E-06	mg/kg/day	NA	NA	NA	2.3E-05	mg/kg/day	3.6E-01	mg/kg/day	6.3E-05
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	7.1E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.2E-07	8.3E-06	mg/kg/day	6.0E-01	mg/kg/day	1.4E-05
				Naphthalene	1.5E+01	MG/KG	7.9E-07	mg/kg/day	NA	NA	NA	9.2E-06	mg/kg/day	2.0E-02	mg/kg/day	4.6E-04
				Phenanthrene	3.8E+01	MG/KG	2.0E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	3.0E-01	mg/kg/day	7.9E-05
				Pyrene	3.1E+01	MG/KG	1.7E-06	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	3.0E-01	mg/kg/day	6.5E-05
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								1.6E-05					8.5E-02
		Exposure Point Total									1.7E-04					1.3E+00
	Exposure Medium Total										1.7E-04					1.3E+00

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TABLE 7.16.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation	Aluminum	5.0E-06	MG/M3	1.8E-07	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	1.4E-03	mg/kg/day	1.5E-03
				Antimony	2.6E-09	MG/M3	9.6E-11	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	1.1E-04	mg/kg/day	9.8E-06
				Arsenic	9.4E-08	MG/M3	3.5E-09	mg/kg/day	1.5E+01	1/(mg/kg-day)	5.2E-08	4.0E-08	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	2.0E-07	mg/kg/day	NA	NA	NA	2.4E-06	mg/kg/day	1.4E-03	mg/kg/day	1.7E-03
				Cadmium	7.0E-08	MG/M3	2.6E-09	mg/kg/day	6.3E+00	1/(mg/kg-day)	1.6E-08	3.0E-08	mg/kg/day	2.6E-04	mg/kg/day	1.2E-04
				Chromium	3.5E-08	MG/M3	1.3E-09	mg/kg/day	4.2E+01	1/(mg/kg-day)	5.5E-08	1.5E-08	mg/kg/day	2.3E-06	mg/kg/day	6.6E-03
				Copper	1.3E-07	MG/M3	4.7E-09	mg/kg/day	NA	NA	NA	5.5E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	7.3E-07	mg/kg/day	NA	NA	NA	8.6E-06	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	3.4E-08	mg/kg/day	NA	NA	NA	4.0E-07	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	8.2E-09	mg/kg/day	NA	NA	NA	9.5E-08	mg/kg/day	1.4E-05	mg/kg/day	6.7E-03
				Mercury	8.7E-10	MG/M3	3.2E-11	mg/kg/day	NA	NA	NA	3.8E-10	mg/kg/day	8.6E-05	mg/kg/day	4.4E-06
				Zinc	2.5E-06	MG/M3	9.1E-08	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	8.1E-10	mg/kg/day	NA	NA	NA	9.4E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	6.5E-10	mg/kg/day	NA	NA	NA	7.6E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	7.7E-10	mg/kg/day	NA	NA	NA	8.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	6.8E-10	mg/kg/day	NA	NA	NA	7.9E-09	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	5.3E-10	mg/kg/day	NA	NA	NA	6.2E-09	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	7.3E-10	mg/kg/day	NA	NA	NA	8.5E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	5.0E-10	mg/kg/day	NA	NA	NA	5.8E-09	mg/kg/day	NA	NA	NA
				Dibenzofuran	2.1E-05	MG/M3	7.8E-07	mg/kg/day	NA	NA	NA	9.1E-06	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	1.3E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	4.9E-10	mg/kg/day	NA	NA	NA	5.7E-09	mg/kg/day	NA	NA	NA
				Naphthalene	3.3E-04	MG/M3	1.2E-05	mg/kg/day	NA	NA	NA	1.4E-04	mg/kg/day	8.6E-04	mg/kg/day	1.7E-01
				Phenanthrene	9.8E-05	MG/M3	3.6E-06	mg/kg/day	NA	NA	NA	4.2E-05	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Benzene	1.0E-06	MG/M3	3.8E-08	mg/kg/day	2.7E-02	1/(mg/kg-day)	1.0E-09	4.5E-07	mg/kg/day	1.7E-02	mg/kg/day	2.6E-05
			Exp. Route Total								1.2E-07					1.8E-01
		Exposure Point Total									1.2E-07					1.8E-01
	Exposure Medium Total										1.2E-07					1.8E-01
Subsurface Soil Total											1.7E-04					1.5E+00

NA = Not applicable.

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TABLE 7.17.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	2.4E-04	mg/kg/day	NA	NA	NA	2.5E-03	mg/kg/day	1.0E+00	mg/kg/day	2.5E-03
				Arsenic	3.2E+01	MG/KG	1.3E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.0E-06	1.4E-05	mg/kg/day	3.0E-04	mg/kg/day	4.6E-02
				Barium	4.2E+03	MG/KG	1.7E-04	mg/kg/day	NA	NA	NA	1.8E-03	mg/kg/day	7.0E-02	mg/kg/day	2.6E-02
				Cadmium	4.1E+00	MG/KG	1.7E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	1.0E-03	mg/kg/day	1.6E-03
				Chromium	9.0E+01	MG/KG	3.6E-06	mg/kg/day	NA	NA	NA	3.9E-05	mg/kg/day	3.0E-03	mg/kg/day	1.3E-02
				Copper	1.6E+02	MG/KG	6.3E-06	mg/kg/day	NA	NA	NA	6.7E-05	mg/kg/day	4.0E-02	mg/kg/day	1.7E-03
				Iron	1.9E+04	MG/KG	7.7E-04	mg/kg/day	NA	NA	NA	8.2E-03	mg/kg/day	3.0E-01	mg/kg/day	2.7E-02
				Lead	6.6E+02	MG/KG	2.7E-05	mg/kg/day	NA	NA	NA	2.8E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.2E-05	mg/kg/day	NA	NA	NA	1.3E-04	mg/kg/day	1.4E-01	mg/kg/day	9.0E-04
				Mercury	8.5E-01	MG/KG	3.5E-08	mg/kg/day	NA	NA	NA	3.7E-07	mg/kg/day	3.0E-04	mg/kg/day	1.2E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	3.5E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.5E-08	3.7E-07	mg/kg/day	3.0E-02	mg/kg/day	1.2E-05
				Benzo(a)pyrene	3.8E+01	MG/KG	1.5E-06	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.1E-05	1.6E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	1.4E-06	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.0E-06	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	4.9E-04
				Benzo(k)fluoranthene	3.6E+01	MG/KG	1.4E-06	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.0E-07	1.5E-05	mg/kg/day	3.0E-02	mg/kg/day	5.1E-04
				Carbazole	2.3E+01	MG/KG	9.3E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.9E-08	9.9E-06	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	1.7E-06	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.2E-08	1.8E-05	mg/kg/day	3.0E-02	mg/kg/day	5.9E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	3.2E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.4E-07	3.4E-07	mg/kg/day	3.0E-02	mg/kg/day	1.1E-05
				Fluoranthene	8.0E+01	MG/KG	3.2E-06	mg/kg/day	NA	NA	NA	3.4E-05	mg/kg/day	4.0E-02	mg/kg/day	8.6E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	8.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.3E-07	9.2E-06	mg/kg/day	5.0E-02	mg/kg/day	1.8E-04
				Phenanthrene	6.6E+01	MG/KG	2.7E-06	mg/kg/day	NA	NA	NA	2.8E-05	mg/kg/day	3.0E-02	mg/kg/day	9.4E-04
			Exp. Route Total								1.5E-05					1.2E-01
			Dermal													
				Aluminum	5.8E+03	MG/KG	3.1E-06	mg/kg/day	NA	NA	NA	3.3E-05	mg/kg/day	1.0E+00	mg/kg/day	3.3E-05
				Arsenic	3.2E+01	MG/KG	5.2E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	7.8E-08	5.5E-07	mg/kg/day	3.0E-04	mg/kg/day	1.8E-03
				Barium	4.2E+03	MG/KG	2.2E-06	mg/kg/day	NA	NA	NA	2.4E-05	mg/kg/day	4.9E-03	mg/kg/day	4.9E-03
				Cadmium	4.1E+00	MG/KG	2.2E-10	mg/kg/day	NA	NA	NA	2.3E-09	mg/kg/day	5.0E-05	mg/kg/day	4.6E-05
				Chromium	9.0E+01	MG/KG	4.8E-08	mg/kg/day	NA	NA	NA	5.1E-07	mg/kg/day	7.5E-05	mg/kg/day	6.8E-03
				Copper	1.6E+02	MG/KG	8.3E-08	mg/kg/day	NA	NA	NA	8.8E-07	mg/kg/day	4.0E-02	mg/kg/day	2.2E-05
				Iron	1.9E+04	MG/KG	1.0E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.6E-04
				Lead	6.6E+02	MG/KG	3.5E-07	mg/kg/day	NA	NA	NA	3.7E-06	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	5.6E-03	mg/kg/day	3.0E-04
				Mercury	8.5E-01	MG/KG	4.6E-10	mg/kg/day	NA	NA	NA	4.8E-09	mg/kg/day	2.1E-05	mg/kg/day	2.3E-04
				Benzo(a)anthracene	8.5E-01	MG/KG	5.9E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.3E-09	6.3E-08	mg/kg/day	3.0E-02	mg/kg/day	2.1E-06
				Benzo(a)pyrene	3.8E+01	MG/KG	2.6E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.9E-06	2.8E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	2.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.7E-07	2.5E-06	mg/kg/day	3.0E-02	mg/kg/day	8.4E-05
				Benzo(k)fluoranthene	3.6E+01	MG/KG	2.5E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.8E-08	2.6E-06	mg/kg/day	3.0E-02	mg/kg/day	8.7E-05
				Carbazole	2.3E+01	MG/KG	1.6E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	3.2E-09	1.7E-06	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	2.8E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.1E-09	3.0E-06	mg/kg/day	3.0E-02	mg/kg/day	1.0E-04
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	5.5E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.0E-08	5.9E-08	mg/kg/day	3.0E-02	mg/kg/day	2.0E-06
				Fluoranthene	8.0E+01	MG/KG	5.6E-07	mg/kg/day	NA	NA	NA	5.9E-06	mg/kg/day	3.6E-02	mg/kg/day	1.7E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-07	1.6E-06	mg/kg/day	5.0E-02	mg/kg/day	3.2E-05
				Phenanthrene	6.6E+01	MG/KG	4.6E-07	mg/kg/day	NA	NA	NA	4.8E-06	mg/kg/day	3.0E-02	mg/kg/day	1.6E-04
			Exp. Route Total								2.3E-06					1.5E-02
		Exposure Point Total									1.7E-05					1.4E-01
	Exposure Medium Total										1.7E-05					1.4E-01

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TABLE 7.17.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	4.6E-08	mg/kg/day	NA	NA	NA	4.9E-07	mg/kg/day	1.4E-03	mg/kg/day	3.4E-04
				Arsenic	3.2E-08	MG/M3	2.6E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	3.9E-09	2.7E-09	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	3.3E-08	mg/kg/day	NA	NA	NA	3.5E-07	mg/kg/day	1.4E-04	mg/kg/day	2.5E-03
				Cadmium	4.0E-09	MG/M3	3.2E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	2.0E-10	3.4E-10	mg/kg/day	5.7E-05	mg/kg/day	6.0E-06
				Chromium	8.8E-08	MG/M3	7.1E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	3.0E-08	7.6E-09	mg/kg/day	2.3E-06	mg/kg/day	3.3E-03
				Copper	1.5E-07	MG/M3	1.2E-09	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	1.5E-07	mg/kg/day	NA	NA	NA	1.6E-06	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	5.2E-09	mg/kg/day	NA	NA	NA	5.6E-08	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	2.3E-09	mg/kg/day	NA	NA	NA	2.5E-08	mg/kg/day	1.4E-05	mg/kg/day	1.7E-03
				Mercury	8.4E-10	MG/M3	6.8E-12	mg/kg/day	NA	NA	NA	7.2E-11	mg/kg/day	8.6E-05	mg/kg/day	8.4E-07
				Benzo(a)anthracene	8.4E-10	MG/M3	6.8E-12	mg/kg/day	NA	NA	NA	7.2E-11	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	3.0E-10	mg/kg/day	NA	NA	NA	3.2E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	2.7E-10	mg/kg/day	NA	NA	NA	2.9E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	2.8E-10	mg/kg/day	NA	NA	NA	3.0E-09	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	1.9E-09	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	3.3E-10	mg/kg/day	NA	NA	NA	3.4E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	6.3E-12	mg/kg/day	NA	NA	NA	6.7E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	6.4E-10	mg/kg/day	NA	NA	NA	6.7E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	1.8E-09	mg/kg/day	NA	NA	NA
				Phenanthrene	1.7E-04	MG/M3	1.4E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	NA	NA	NA
			Exp. Route Total								3.4E-08					7.9E-03
		Exposure Point Total									3.4E-08					7.9E-03
	Exposure Medium Total										3.4E-08					7.9E-03
Surface Soil Total											1.7E-05					1.5E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	2.1E-04	mg/kg/day	NA	NA	NA	2.2E-03	mg/kg/day	1.0E+00	mg/kg/day	2.2E-03
				Antimony	2.6E+00	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	4.0E-04	mg/kg/day	2.8E-03
				Arsenic	9.6E+01	MG/KG	3.9E-06	mg/kg/day	1.5E+00	1/(mg/kg-day)	5.8E-06	4.1E-05	mg/kg/day	3.0E-04	mg/kg/day	1.4E-01
				Barium	5.6E+03	MG/KG	2.2E-04	mg/kg/day	NA	NA	NA	2.4E-03	mg/kg/day	7.0E-02	mg/kg/day	3.4E-02
				Cadmium	7.1E+01	MG/KG	2.9E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	1.0E-03	mg/kg/day	3.1E-02
				Chromium	3.6E+01	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.5E-05	mg/kg/day	3.0E-03	mg/kg/day	5.1E-03
				Copper	1.3E+02	MG/KG	5.3E-06	mg/kg/day	NA	NA	NA	5.6E-05	mg/kg/day	4.0E-02	mg/kg/day	1.4E-03
				Iron	2.0E+04	MG/KG	8.2E-04	mg/kg/day	NA	NA	NA	8.7E-03	mg/kg/day	3.0E-01	mg/kg/day	2.9E-02
				Lead	9.5E+02	MG/KG	3.8E-05	mg/kg/day	NA	NA	NA	4.1E-04	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	9.1E-06	mg/kg/day	NA	NA	NA	9.7E-05	mg/kg/day	1.4E-01	mg/kg/day	6.9E-04
				Mercury	8.9E-01	MG/KG	3.6E-08	mg/kg/day	NA	NA	NA	3.8E-07	mg/kg/day	3.0E-04	mg/kg/day	1.3E-03
				Zinc	2.5E+03	MG/KG	1.0E-04	mg/kg/day	NA	NA	NA	1.1E-03	mg/kg/day	3.0E-01	mg/kg/day	3.6E-03
				Benzo(a)anthracene	2.2E+01	MG/KG	9.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.6E-07	9.6E-06	mg/kg/day	3.0E-02	mg/kg/day	3.2E-04
				Benzo(a)pyrene	1.8E+01	MG/KG	7.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.3E-06	7.7E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	8.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.2E-07	9.1E-06	mg/kg/day	3.0E-02	mg/kg/day	3.0E-04
				Benzo(k)fluoranthene	1.9E+01	MG/KG	7.6E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.5E-08	8.0E-06	mg/kg/day	3.0E-02	mg/kg/day	2.7E-04
				Carbazole	1.5E+01	MG/KG	5.9E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	1.2E-08	6.3E-06	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	8.1E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	5.9E-09	8.6E-06	mg/kg/day	3.0E-02	mg/kg/day	2.9E-04
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	5.5E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.0E-06	5.9E-06	mg/kg/day	3.0E-02	mg/kg/day	2.0E-04
				Dibenzofuran	1.4E+01	MG/KG	5.8E-07	mg/kg/day	NA	NA	NA	6.1E-06	mg/kg/day	2.0E-03	mg/kg/day	3.1E-03

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TABLE 7.17.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	4.0E-02	mg/kg/day	3.9E-04
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	5.4E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.0E-07	5.7E-06	mg/kg/day	5.0E-02	mg/kg/day	1.1E-04
				Naphthalene	1.5E+01	MG/KG	6.0E-07	mg/kg/day	NA	NA	NA	6.4E-06	mg/kg/day	2.0E-02	mg/kg/day	3.2E-04
				Phenanthrene	3.8E+01	MG/KG	1.5E-06	mg/kg/day	NA	NA	NA	1.6E-05	mg/kg/day	3.0E-02	mg/kg/day	5.5E-04
				Pyrene	3.1E+01	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	3.0E-02	mg/kg/day	4.5E-04
				Benzene	3.0E-03	MG/KG	1.2E-10	mg/kg/day	5.5E-02	1/(mg/kg-day)	6.7E-12	1.3E-09	mg/kg/day	4.0E-03	mg/kg/day	3.2E-07
			Exp. Route Total								1.7E-05					2.5E-01
			Dermal													
				Aluminum	5.1E+03	MG/KG	2.7E-06	mg/kg/day	NA	NA	NA	2.9E-05	mg/kg/day	1.0E+00	mg/kg/day	2.9E-05
				Antimony	2.6E+00	MG/KG	1.4E-09	mg/kg/day	NA	NA	NA	1.5E-08	mg/kg/day	6.0E-05	mg/kg/day	2.5E-04
				Arsenic	9.6E+01	MG/KG	1.5E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.3E-07	1.6E-06	mg/kg/day	3.0E-04	mg/kg/day	5.4E-03
				Barium	5.6E+03	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	4.9E-03	mg/kg/day	6.4E-03
				Cadmium	7.1E+01	MG/KG	3.8E-09	mg/kg/day	NA	NA	NA	4.0E-08	mg/kg/day	5.0E-05	mg/kg/day	8.1E-04
				Chromium	3.6E+01	MG/KG	1.9E-08	mg/kg/day	NA	NA	NA	2.0E-07	mg/kg/day	7.5E-05	mg/kg/day	2.7E-03
				Copper	1.3E+02	MG/KG	7.0E-08	mg/kg/day	NA	NA	NA	7.4E-07	mg/kg/day	4.0E-02	mg/kg/day	1.8E-05
				Iron	2.0E+04	MG/KG	1.1E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	3.0E-01	mg/kg/day	3.8E-04
				Lead	9.5E+02	MG/KG	5.1E-07	mg/kg/day	NA	NA	NA	5.4E-06	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	1.2E-07	mg/kg/day	NA	NA	NA	1.3E-06	mg/kg/day	5.6E-03	mg/kg/day	2.3E-04
				Mercury	8.9E-01	MG/KG	4.7E-10	mg/kg/day	NA	NA	NA	5.0E-09	mg/kg/day	2.1E-05	mg/kg/day	2.4E-04
				Zinc	2.5E+03	MG/KG	1.3E-06	mg/kg/day	NA	NA	NA	1.4E-05	mg/kg/day	3.0E-01	mg/kg/day	4.7E-05
				Benzo(a)anthracene	2.2E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-07	1.6E-06	mg/kg/day	3.0E-02	mg/kg/day	5.5E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.2E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	9.1E-07	1.3E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	1.5E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.1E-07	1.6E-06	mg/kg/day	3.0E-02	mg/kg/day	5.2E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.3E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	9.5E-09	1.4E-06	mg/kg/day	3.0E-02	mg/kg/day	4.6E-05
				Carbazole	1.5E+01	MG/KG	1.0E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.0E-09	1.1E-06	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	1.4E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.0E-09	1.5E-06	mg/kg/day	3.0E-02	NA	4.9E-05
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	9.5E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	6.9E-07	1.0E-06	mg/kg/day	3.0E-02	mg/kg/day	3.4E-05
				Dibenzofuran	1.4E+01	MG/KG	9.9E-08	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	2.0E-03	mg/kg/day	5.2E-04
				Fluoranthene	3.6E+01	MG/KG	2.5E-07	mg/kg/day	NA	NA	NA	2.7E-06	mg/kg/day	3.6E-02	mg/kg/day	7.5E-05
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	9.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	6.8E-08	9.9E-07	mg/kg/day	5.0E-02	mg/kg/day	2.0E-05
				Naphthalene	1.5E+01	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	1.1E-06	mg/kg/day	2.0E-02	mg/kg/day	5.5E-05
				Phenanthrene	3.8E+01	MG/KG	2.7E-07	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	3.0E-02	mg/kg/day	9.4E-05
				Pyrene	3.1E+01	MG/KG	2.2E-07	mg/kg/day	NA	NA	NA	2.3E-06	mg/kg/day	3.0E-02	mg/kg/day	7.7E-05
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	4.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								2.1E-06					1.8E-02
		Exposure Point Total									1.9E-05					2.7E-01
	Exposure Medium Total										1.9E-05					2.7E-01

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TABLE 7.17.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation	Aluminum	5.0E-06	MG/M3	4.0E-08	mg/kg/day	NA	NA	NA	4.3E-07	mg/kg/day	1.4E-03	mg/kg/day	3.0E-04
				Antimony	2.6E-09	MG/M3	2.1E-11	mg/kg/day	NA	NA	NA	2.2E-10	mg/kg/day	NA	mg/kg/day	NA
				Arsenic	9.4E-08	MG/M3	7.6E-10	mg/kg/day	1.5E+01	1/(mg/kg-day)	1.1E-08	8.0E-09	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	4.4E-08	mg/kg/day	NA	NA	NA	4.7E-07	mg/kg/day	1.4E-04	mg/kg/day	3.3E-03
				Cadmium	7.0E-08	MG/M3	5.6E-10	mg/kg/day	6.3E+00	1/(mg/kg-day)	3.6E-09	6.0E-09	mg/kg/day	5.7E-05	mg/kg/day	1.0E-04
				Chromium	3.5E-08	MG/M3	2.8E-10	mg/kg/day	4.2E+01	1/(mg/kg-day)	1.2E-08	3.0E-09	mg/kg/day	2.3E-06	mg/kg/day	1.3E-03
				Copper	1.3E-07	MG/M3	1.0E-09	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	1.6E-07	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	7.5E-09	mg/kg/day	NA	NA	NA	8.0E-08	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	1.8E-09	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	1.4E-05	mg/kg/day	1.3E-03
				Mercury	8.7E-10	MG/M3	7.1E-12	mg/kg/day	NA	NA	NA	7.5E-11	mg/kg/day	8.6E-05	mg/kg/day	8.7E-07
				Zinc	2.5E-06	MG/M3	2.0E-08	mg/kg/day	NA	NA	NA	2.1E-07	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	1.9E-09	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	1.4E-10	mg/kg/day	NA	NA	NA	1.5E-09	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	1.7E-10	mg/kg/day	NA	NA	NA	1.8E-09	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	1.5E-10	mg/kg/day	NA	NA	NA	1.6E-09	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	1.2E-09	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	1.6E-10	mg/kg/day	NA	NA	NA	1.7E-09	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	1.2E-09	mg/kg/day	NA	NA	NA
				Dibenzofuran	2.1E-05	MG/M3	1.7E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	2.9E-10	mg/kg/day	NA	NA	NA	3.0E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	1.1E-10	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Naphthalene	3.3E-04	MG/M3	2.7E-06	mg/kg/day	NA	NA	NA	2.8E-05	mg/kg/day	8.6E-04	mg/kg/day	3.3E-02
				Phenanthrene	9.8E-05	MG/M3	7.9E-07	mg/kg/day	NA	NA	NA	8.4E-06	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	2.5E-10	mg/kg/day	NA	NA	NA	2.6E-09	mg/kg/day	NA	NA	NA
				Benzene	1.0E-06	MG/M3	8.4E-09	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.3E-10	8.9E-08	mg/kg/day	8.6E-03	mg/kg/day	1.0E-05
			Exp. Route Total								2.7E-08					3.9E-02
		Exposure Point Total									2.7E-08					3.9E-02
	Exposure Medium Total										2.7E-08					3.9E-02
Subsurface Soil Total											1.9E-05					3.1E-01

NA = Not applicable.

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TABLE 7.18.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Subsurface Soil	South Jersey Port property Surface Soil	Ingestion													
				Aluminum	5.8E+03	MG/KG	4.5E-05	mg/kg/day	NA	NA	NA	3.2E-03	mg/kg/day	1.0E+00	mg/kg/day	3.2E-03
				Arsenic	3.2E+01	MG/KG	2.5E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	3.8E-07	1.8E-05	mg/kg/day	5.0E-03	mg/kg/day	3.5E-03
				Barium	4.2E+03	MG/KG	3.3E-05	mg/kg/day	NA	NA	NA	2.3E-03	mg/kg/day	7.0E-02	mg/kg/day	3.3E-02
				Cadmium	4.1E+00	MG/KG	3.2E-08	mg/kg/day	NA	NA	NA	2.2E-06	mg/kg/day	1.0E-03	mg/kg/day	2.2E-03
				Chromium	9.0E+01	MG/KG	7.0E-07	mg/kg/day	NA	NA	NA	4.9E-05	mg/kg/day	2.0E-02	mg/kg/day	2.4E-03
				Copper	1.6E+02	MG/KG	1.2E-06	mg/kg/day	NA	NA	NA	8.5E-05	mg/kg/day	4.0E-02	mg/kg/day	2.1E-03
				Iron	1.9E+04	MG/KG	1.5E-04	mg/kg/day	NA	NA	NA	1.0E-02	mg/kg/day	3.0E-01	mg/kg/day	3.5E-02
				Lead	6.6E+02	MG/KG	5.1E-06	mg/kg/day	NA	NA	NA	3.6E-04	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	2.3E-06	mg/kg/day	NA	NA	NA	1.6E-04	mg/kg/day	1.4E-01	mg/kg/day	1.1E-03
				Mercury	8.5E-01	MG/KG	6.6E-09	mg/kg/day	NA	NA	NA	4.6E-07	mg/kg/day	3.0E-04	mg/kg/day	1.5E-03
				Benzo(a)anthracene	8.5E-01	MG/KG	6.6E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	4.8E-09	4.6E-07	mg/kg/day	3.0E-01	mg/kg/day	1.5E-06
				Benzo(a)pyrene	3.8E+01	MG/KG	2.9E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.1E-06	2.0E-05	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	2.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.9E-07	1.9E-05	mg/kg/day	3.0E-01	mg/kg/day	6.2E-05
				Benzo(k)fluoranthene	3.6E+01	MG/KG	2.8E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.0E-08	1.9E-05	mg/kg/day	3.0E-01	mg/kg/day	6.4E-05
				Carbazole	2.3E+01	MG/KG	1.8E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	3.6E-09	1.2E-05	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	3.2E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	2.3E-09	2.2E-05	mg/kg/day	3.0E-01	mg/kg/day	7.4E-05
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	6.2E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	4.5E-08	4.3E-07	mg/kg/day	3.0E-01	mg/kg/day	1.4E-06
				Fluoranthene	8.0E+01	MG/KG	6.2E-07	mg/kg/day	NA	NA	NA	4.4E-05	mg/kg/day	4.0E-01	mg/kg/day	1.1E-04
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-07	1.2E-05	mg/kg/day	6.0E-01	mg/kg/day	1.9E-05
				Phenanthrene	6.6E+01	MG/KG	5.1E-07	mg/kg/day	NA	NA	NA	3.6E-05	mg/kg/day	3.0E-01	mg/kg/day	1.2E-04
			Exp. Route Total								2.9E-06					8.4E-02
			Dermal													
				Aluminum	5.8E+03	MG/KG	9.1E-07	mg/kg/day	NA	NA	NA	6.3E-05	mg/kg/day	1.0E+00	mg/kg/day	6.3E-05
				Arsenic	3.2E+01	MG/KG	1.5E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	2.3E-08	1.1E-06	mg/kg/day	5.0E-03	mg/kg/day	2.1E-04
				Barium	4.2E+03	MG/KG	6.5E-07	mg/kg/day	NA	NA	NA	4.6E-05	mg/kg/day	4.9E-03	mg/kg/day	9.3E-03
				Cadmium	4.1E+00	MG/KG	6.3E-11	mg/kg/day	NA	NA	NA	4.4E-09	mg/kg/day	5.0E-05	mg/kg/day	8.9E-05
				Chromium	9.0E+01	MG/KG	1.4E-08	mg/kg/day	NA	NA	NA	9.8E-07	mg/kg/day	5.0E-04	mg/kg/day	2.0E-03
				Copper	1.6E+02	MG/KG	2.4E-08	mg/kg/day	NA	NA	NA	1.7E-06	mg/kg/day	4.0E-02	mg/kg/day	4.2E-05
				Iron	1.9E+04	MG/KG	3.0E-06	mg/kg/day	NA	NA	NA	2.1E-04	mg/kg/day	3.0E-01	mg/kg/day	6.9E-04
				Lead	6.6E+02	MG/KG	1.0E-07	mg/kg/day	NA	NA	NA	7.2E-06	mg/kg/day	NA	NA	NA
				Manganese	2.9E+02	MG/KG	4.5E-08	mg/kg/day	NA	NA	NA	3.2E-06	mg/kg/day	5.6E-03	mg/kg/day	5.7E-04
				Mercury	8.5E-01	MG/KG	1.3E-10	mg/kg/day	NA	NA	NA	9.3E-09	mg/kg/day	2.1E-05	mg/kg/day	4.4E-04
				Benzo(a)anthracene	8.5E-01	MG/KG	1.7E-09	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-09	1.2E-07	mg/kg/day	3.0E-01	mg/kg/day	4.0E-07
				Benzo(a)pyrene	3.8E+01	MG/KG	7.6E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	5.5E-07	5.3E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E+01	MG/KG	6.9E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	5.1E-08	4.9E-06	mg/kg/day	3.0E-01	mg/kg/day	1.6E-05
				Benzo(k)fluoranthene	3.6E+01	MG/KG	7.2E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	5.2E-09	5.0E-06	mg/kg/day	3.0E-01	mg/kg/day	1.7E-05
				Carbazole	2.3E+01	MG/KG	4.6E-08	mg/kg/day	2.0E-02	1/(mg/kg-day)	9.3E-10	3.2E-06	mg/kg/day	NA	NA	NA
				Chrysene	4.1E+01	MG/KG	8.3E-08	mg/kg/day	7.3E-03	1/(mg/kg-day)	6.0E-10	5.8E-06	mg/kg/day	3.0E-01	mg/kg/day	1.9E-05
				Dibenzo(a,h)anthracene	8.0E-01	MG/KG	1.6E-09	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.2E-08	1.1E-07	mg/kg/day	3.0E-01	mg/kg/day	3.8E-07
				Fluoranthene	8.0E+01	MG/KG	1.6E-07	mg/kg/day	NA	NA	NA	1.1E-05	mg/kg/day	3.6E-01	mg/kg/day	3.2E-05
				Indeno(1,2,3-cd)pyrene	2.1E+01	MG/KG	4.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.2E-08	3.0E-06	mg/kg/day	6.0E-01	mg/kg/day	5.0E-06
				Phenanthrene	6.6E+01	MG/KG	1.3E-07	mg/kg/day	NA	NA	NA	9.3E-06	mg/kg/day	3.0E-01	mg/kg/day	3.1E-05
			Exp. Route Total								*6.8E-07*					*1.4E-02*
		Exposure Point Total									3.6E-06					9.7E-02
	Exposure Medium Total										3.6E-06					9.7E-02

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TABLE 7.18.CTE

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

CENTRAL TENDENCY EXPOSURE

Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface Soil	Ambient Air	Emissions from South Jersey Port property Surface Soil	Inhalation	Aluminum	5.7E-06	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	7.9E-08	mg/kg/day	1.4E-03	mg/kg/day	5.5E-05
				Arsenic	3.2E-08	MG/M3	6.2E-12	mg/kg/day	1.5E+01	1/(mg/kg-day)	9.4E-11	4.4E-10	mg/kg/day	NA	NA	NA
				Barium	4.1E-06	MG/M3	8.1E-10	mg/kg/day	NA	NA	NA	5.7E-08	mg/kg/day	1.4E-03	mg/kg/day	4.1E-05
				Cadmium	4.0E-09	MG/M3	7.9E-13	mg/kg/day	6.3E+00	1/(mg/kg-day)	5.0E-12	5.5E-11	mg/kg/day	2.6E-04	mg/kg/day	2.2E-07
				Chromium	8.8E-08	MG/M3	1.7E-11	mg/kg/day	4.2E+01	1/(mg/kg-day)	7.3E-10	1.2E-09	mg/kg/day	2.3E-06	mg/kg/day	5.3E-04
				Copper	1.5E-07	MG/M3	3.0E-11	mg/kg/day	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Iron	1.9E-05	MG/M3	3.7E-09	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	NA	NA	NA
				Lead	6.5E-07	MG/M3	1.3E-10	mg/kg/day	NA	NA	NA	9.0E-09	mg/kg/day	NA	NA	NA
				Manganese	2.9E-07	MG/M3	5.7E-11	mg/kg/day	NA	NA	NA	4.0E-09	mg/kg/day	1.4E-05	mg/kg/day	2.8E-04
				Mercury	8.4E-10	MG/M3	1.7E-13	mg/kg/day	NA	NA	NA	1.2E-11	mg/kg/day	8.6E-05	mg/kg/day	1.3E-07
				Benzo(a)anthracene	8.4E-10	MG/M3	1.7E-13	mg/kg/day	NA	NA	NA	1.2E-11	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	3.7E-08	MG/M3	7.3E-12	mg/kg/day	NA	NA	NA	5.1E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	3.4E-08	MG/M3	6.7E-12	mg/kg/day	NA	NA	NA	4.7E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	3.5E-08	MG/M3	6.9E-12	mg/kg/day	NA	NA	NA	4.8E-10	mg/kg/day	NA	NA	NA
				Carbazole	2.3E-08	MG/M3	4.5E-12	mg/kg/day	NA	NA	NA	3.1E-10	mg/kg/day	NA	NA	NA
				Chrysene	4.0E-08	MG/M3	7.9E-12	mg/kg/day	NA	NA	NA	5.6E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	7.8E-10	MG/M3	1.5E-13	mg/kg/day	NA	NA	NA	1.1E-11	mg/kg/day	NA	NA	NA
				Fluoranthene	7.9E-08	MG/M3	1.6E-11	mg/kg/day	NA	NA	NA	1.1E-09	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	2.1E-08	MG/M3	4.2E-12	mg/kg/day	NA	NA	NA	2.9E-10	mg/kg/day	NA	NA	NA
				Phenanthrene	4.9E-06	MG/M3	9.6E-10	mg/kg/day	NA	NA	NA	6.7E-08	mg/kg/day	NA	NA	NA
			Exp. Route Total								8.3E-10					9.1E-04
		Exposure Point Total									8.3E-10					9.1E-04
	Exposure Medium Total										8.3E-10					9.1E-04
Subsurface Soil Total											3.6E-06					9.8E-02
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Ingestion	Aluminum	5.1E+03	MG/KG	4.0E-05	mg/kg/day	NA	NA	NA	2.8E-03	mg/kg/day	1.0E+00	mg/kg/day	2.8E-03
				Antimony	2.6E+00	MG/KG	2.1E-08	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	2.0E-04	mg/kg/day	7.2E-03
				Arsenic	9.6E+01	MG/KG	7.4E-07	mg/kg/day	1.5E+00	1/(mg/kg-day)	1.1E-06	5.2E-05	mg/kg/day	5.0E-03	mg/kg/day	1.0E-02
				Barium	5.6E+03	MG/KG	4.3E-05	mg/kg/day	NA	NA	NA	3.0E-03	mg/kg/day	7.0E-02	mg/kg/day	4.3E-02
				Cadmium	7.1E+01	MG/KG	5.5E-07	mg/kg/day	NA	NA	NA	3.9E-05	mg/kg/day	1.0E-03	mg/kg/day	3.9E-02
				Chromium	3.6E+01	MG/KG	2.8E-07	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	2.0E-02	mg/kg/day	9.7E-04
				Copper	1.3E+02	MG/KG	1.0E-06	mg/kg/day	NA	NA	NA	7.1E-05	mg/kg/day	4.0E-02	mg/kg/day	1.8E-03
				Iron	2.0E+04	MG/KG	1.6E-04	mg/kg/day	NA	NA	NA	1.1E-02	mg/kg/day	3.0E-01	mg/kg/day	3.7E-02
				Lead	9.5E+02	MG/KG	7.4E-06	mg/kg/day	NA	NA	NA	5.2E-04	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	1.8E-06	mg/kg/day	NA	NA	NA	1.2E-04	mg/kg/day	1.4E-01	mg/kg/day	8.8E-04
				Mercury	8.9E-01	MG/KG	6.9E-09	mg/kg/day	NA	NA	NA	4.8E-07	mg/kg/day	3.0E-04	mg/kg/day	1.6E-03
				Zinc	2.5E+03	MG/KG	1.9E-05	mg/kg/day	NA	NA	NA	1.4E-03	mg/kg/day	3.0E-01	mg/kg/day	4.5E-03
				Benzo(a)anthracene	2.2E+01	MG/KG	1.7E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.3E-07	1.2E-05	mg/kg/day	3.0E-01	mg/kg/day	4.0E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	1.4E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	1.0E-06	9.7E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	1.2E-07	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.8E-05
				Benzo(k)fluoranthene	1.9E+01	MG/KG	1.5E-07	mg/kg/day	7.3E-02	1/(mg/kg-day)	1.1E-08	1.0E-05	mg/kg/day	3.0E-01	mg/kg/day	3.4E-05
				Carbazole	1.5E+01	MG/KG	1.1E-07	mg/kg/day	2.0E-02	1/(mg/kg-day)	2.3E-09	7.9E-06	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	1.6E-07	mg/kg/day	7.3E-03	1/(mg/kg-day)	1.1E-09	1.1E-05	mg/kg/day	3.0E-01	mg/kg/day	3.6E-05
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	1.1E-07	mg/kg/day	7.3E+00	1/(mg/kg-day)	7.8E-07	7.4E-06	mg/kg/day	3.0E-01	mg/kg/day	2.5E-05
				Dibenzofuran	1.4E+01	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	7.7E-06	mg/kg/day	2.0E-03	mg/kg/day	3.9E-03

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TABLE 7.18.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Subsurface Soil (cont.)	Ingestion (cont.)	Fluoranthene	3.6E+01	MG/KG	2.8E-07	mg/kg/day	NA	NA	NA	2.0E-05	mg/kg/day	4.0E-01	mg/kg/day	4.9E-05
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	1.0E-07	mg/kg/day	7.3E-01	1/(mg/kg-day)	7.6E-08	7.3E-06	mg/kg/day	6.0E-01	mg/kg/day	1.2E-05
				Naphthalene	1.5E+01	MG/KG	1.1E-07	mg/kg/day	NA	NA	NA	8.0E-06	mg/kg/day	2.0E-02	mg/kg/day	4.0E-04
				Phenanthrene	3.8E+01	MG/KG	3.0E-07	mg/kg/day	NA	NA	NA	2.1E-05	mg/kg/day	3.0E-01	mg/kg/day	6.9E-05
				Pyrene	3.1E+01	MG/KG	2.4E-07	mg/kg/day	NA	NA	NA	1.7E-05	mg/kg/day	3.0E-01	mg/kg/day	5.7E-05
				Benzene	3.0E-03	MG/KG	2.3E-11	mg/kg/day	5.5E-02	1/(mg/kg-day)	1.3E-12	1.6E-09	mg/kg/day	3.0E-03	mg/kg/day	5.4E-07
			Exp. Route Total								3.2E-06					1.5E-01
			Dermal													
				Aluminum	5.1E+03	MG/KG	7.9E-07	mg/kg/day	NA	NA	NA	5.5E-05	mg/kg/day	1.0E+00	mg/kg/day	5.5E-05
				Antimony	2.6E+00	MG/KG	4.1E-10	mg/kg/day	NA	NA	NA	2.9E-08	mg/kg/day	2.0E-04	mg/kg/day	1.4E-04
				Arsenic	9.6E+01	MG/KG	4.4E-08	mg/kg/day	1.5E+00	1/(mg/kg-day)	6.7E-08	3.1E-06	mg/kg/day	5.0E-03	mg/kg/day	6.2E-04
				Barium	5.6E+03	MG/KG	8.6E-07	mg/kg/day	NA	NA	NA	6.0E-05	mg/kg/day	7.0E-02	mg/kg/day	8.6E-04
				Cadmium	7.1E+01	MG/KG	1.1E-09	mg/kg/day	NA	NA	NA	7.7E-08	mg/kg/day	1.0E-03	mg/kg/day	7.7E-05
				Chromium	3.6E+01	MG/KG	5.6E-09	mg/kg/day	NA	NA	NA	3.9E-07	mg/kg/day	2.0E-02	mg/kg/day	1.9E-05
				Copper	1.3E+02	MG/KG	2.0E-08	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	4.0E-02	mg/kg/day	3.5E-05
				Iron	2.0E+04	MG/KG	3.1E-06	mg/kg/day	NA	NA	NA	2.2E-04	mg/kg/day	3.0E-01	mg/kg/day	7.3E-04
				Lead	9.5E+02	MG/KG	1.5E-07	mg/kg/day	NA	NA	NA	1.0E-05	mg/kg/day	NA	NA	NA
				Manganese	2.3E+02	MG/KG	3.5E-08	mg/kg/day	NA	NA	NA	2.5E-06	mg/kg/day	1.4E-01	mg/kg/day	1.8E-05
				Mercury	8.9E-01	MG/KG	1.4E-10	mg/kg/day	NA	NA	NA	9.7E-09	mg/kg/day	3.0E-04	mg/kg/day	3.2E-05
				Zinc	2.5E+03	MG/KG	3.9E-07	mg/kg/day	NA	NA	NA	2.7E-05	mg/kg/day	3.0E-01	mg/kg/day	9.1E-05
				Benzo(a)anthracene	2.2E+01	MG/KG	4.5E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.3E-08	3.2E-06	mg/kg/day	3.0E-01	mg/kg/day	1.1E-05
				Benzo(a)pyrene	1.8E+01	MG/KG	3.6E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.6E-07	2.5E-06	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E+01	MG/KG	4.3E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	3.1E-08	3.0E-06	mg/kg/day	3.0E-01	mg/kg/day	9.9E-06
				Benzo(k)fluoranthene	1.9E+01	MG/KG	3.8E-08	mg/kg/day	7.3E-02	1/(mg/kg-day)	2.8E-09	2.6E-06	mg/kg/day	3.0E-01	mg/kg/day	8.8E-06
				Carbazole	1.5E+01	MG/KG	2.9E-08	mg/kg/day	2.0E-02	1/(mg/kg-day)	5.9E-10	2.1E-06	mg/kg/day	NA	NA	NA
				Chrysene	2.0E+01	MG/KG	4.1E-08	mg/kg/day	7.3E-03	1/(mg/kg-day)	3.0E-10	2.8E-06	mg/kg/day	3.0E-01	mg/kg/day	9.5E-06
				Dibenzo(a,h)anthracene	1.4E+01	MG/KG	2.8E-08	mg/kg/day	7.3E+00	1/(mg/kg-day)	2.0E-07	1.9E-06	mg/kg/day	3.0E-01	mg/kg/day	6.4E-06
				Dibenzofuran	1.4E+01	MG/KG	2.9E-08	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	2.0E-03	mg/kg/day	1.0E-03
				Fluoranthene	3.6E+01	MG/KG	7.3E-08	mg/kg/day	NA	NA	NA	5.1E-06	mg/kg/day	4.0E-01	mg/kg/day	1.3E-05
				Indeno(1,2,3-cd)pyrene	1.3E+01	MG/KG	2.7E-08	mg/kg/day	7.3E-01	1/(mg/kg-day)	2.0E-08	1.9E-06	mg/kg/day	6.0E-01	mg/kg/day	3.1E-06
				Naphthalene	1.5E+01	MG/KG	3.0E-08	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	2.0E-02	mg/kg/day	1.0E-04
				Phenanthrene	3.8E+01	MG/KG	7.7E-08	mg/kg/day	NA	NA	NA	5.4E-06	mg/kg/day	3.0E-01	mg/kg/day	1.8E-05
				Pyrene	3.1E+01	MG/KG	6.3E-08	mg/kg/day	NA	NA	NA	4.4E-06	mg/kg/day	3.0E-01	mg/kg/day	1.5E-05
				Benzene	3.0E-03	MG/KG	0.0E+00	mg/kg/day	5.5E-02	1/(mg/kg-day)	0.0E+00	0.0E+00	mg/kg/day	3.0E-03	mg/kg/day	0.0E+00
			Exp. Route Total								6.2E-07					3.9E-03
		Exposure Point Total									3.9E-06					1.6E-01
	Exposure Medium Total										3.9E-06					1.6E-01

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TABLE 7.18.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Subsurface Soil	Ambient Air	Emissions from South Jersey Port property Subsurface Soil	Inhalation	Aluminum	5.0E-06	MG/M3	9.9E-10	mg/kg/day	NA	NA	NA	6.9E-08	mg/kg/day	1.4E-03	mg/kg/day	4.8E-05
				Antimony	2.6E-09	MG/M3	5.1E-13	mg/kg/day	NA	NA	NA	3.6E-11	mg/kg/day	1.1E-04	mg/kg/day	3.1E-07
				Arsenic	9.4E-08	MG/M3	1.9E-11	mg/kg/day	1.5E+01	1/(mg/kg-day)	2.8E-10	1.3E-09	mg/kg/day	NA	NA	NA
				Barium	5.5E-06	MG/M3	1.1E-09	mg/kg/day	NA	NA	NA	7.5E-08	mg/kg/day	1.4E-03	mg/kg/day	5.4E-05
				Cadmium	7.0E-08	MG/M3	1.4E-11	mg/kg/day	6.3E+00	1/(mg/kg-day)	8.7E-11	9.6E-10	mg/kg/day	2.6E-04	mg/kg/day	3.7E-06
				Chromium	3.5E-08	MG/M3	6.9E-12	mg/kg/day	4.2E+01	1/(mg/kg-day)	2.9E-10	4.9E-10	mg/kg/day	2.3E-06	mg/kg/day	2.1E-04
				Copper	1.3E-07	MG/M3	2.5E-11	mg/kg/day	NA	NA	NA	1.8E-09	mg/kg/day	NA	NA	NA
				Iron	2.0E-05	MG/M3	3.9E-09	mg/kg/day	NA	NA	NA	2.7E-07	mg/kg/day	NA	NA	NA
				Lead	9.3E-07	MG/M3	1.8E-10	mg/kg/day	NA	NA	NA	1.3E-08	mg/kg/day	NA	NA	NA
				Manganese	2.2E-07	MG/M3	4.4E-11	mg/kg/day	NA	NA	NA	3.1E-09	mg/kg/day	1.4E-05	mg/kg/day	2.1E-04
				Mercury	8.7E-10	MG/M3	1.7E-13	mg/kg/day	NA	NA	NA	1.2E-11	mg/kg/day	8.6E-05	mg/kg/day	1.4E-07
				Zinc	2.5E-06	MG/M3	4.9E-10	mg/kg/day	NA	NA	NA	3.4E-08	mg/kg/day	NA	NA	NA
				Benzo(a)anthracene	2.2E-08	MG/M3	4.3E-12	mg/kg/day	NA	NA	NA	3.0E-10	mg/kg/day	NA	NA	NA
				Benzo(a)pyrene	1.8E-08	MG/M3	3.5E-12	mg/kg/day	NA	NA	NA	2.4E-10	mg/kg/day	NA	NA	NA
				Benzo(b)fluoranthene	2.1E-08	MG/M3	4.1E-12	mg/kg/day	NA	NA	NA	2.9E-10	mg/kg/day	NA	NA	NA
				Benzo(k)fluoranthene	1.8E-08	MG/M3	3.6E-12	mg/kg/day	NA	NA	NA	2.5E-10	mg/kg/day	NA	NA	NA
				Carbazole	1.4E-08	MG/M3	2.8E-12	mg/kg/day	NA	NA	NA	2.0E-10	mg/kg/day	NA	NA	NA
				Chrysene	2.0E-08	MG/M3	3.9E-12	mg/kg/day	NA	NA	NA	2.7E-10	mg/kg/day	NA	NA	NA
				Dibenzo(a,h)anthracene	1.3E-08	MG/M3	2.7E-12	mg/kg/day	NA	NA	NA	1.9E-10	mg/kg/day	NA	NA	NA
				Dibenzofuran	5.9E-07	MG/M3	1.2E-10	mg/kg/day	NA	NA	NA	8.2E-09	mg/kg/day	NA	NA	NA
				Fluoranthene	3.6E-08	MG/M3	7.0E-12	mg/kg/day	NA	NA	NA	4.9E-10	mg/kg/day	NA	NA	NA
				Indeno(1,2,3-cd)pyrene	1.3E-08	MG/M3	2.6E-12	mg/kg/day	NA	NA	NA	1.8E-10	mg/kg/day	NA	NA	NA
				Naphthalene	1.4E-04	MG/M3	2.8E-08	mg/kg/day	NA	NA	NA	2.0E-06	mg/kg/day	8.6E-04	mg/kg/day	2.3E-03
				Phenanthrene	4.8E-06	MG/M3	9.5E-10	mg/kg/day	NA	NA	NA	6.7E-08	mg/kg/day	NA	NA	NA
				Pyrene	3.1E-08	MG/M3	6.1E-12	mg/kg/day	NA	NA	NA	4.2E-10	mg/kg/day	NA	NA	NA
				Benzene	4.8E-06	MG/M3	9.5E-10	mg/kg/day	2.7E-02	1/(mg/kg-day)	2.6E-11	6.6E-08	mg/kg/day	1.7E-02	mg/kg/day	3.9E-06
			Exp. Route Total								6.8E-10					2.9E-03
		Exposure Point Total									6.8E-10					2.9E-03
	Exposure Medium Total										6.8E-10					2.9E-03
Subsurface Soil Total											3.9E-06					1.6E-01

NA = Not applicable.

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TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	1.4E-03	NA	2.0E-04	1.6E-03
			Antimony	NA	NA	NA	NA	Circulatory	2.7E-03	NA	2.7E-03	5.3E-03
			Arsenic	1.3E-05	NA	5.6E-06	1.8E-05	Skin, Circulatory	2.2E-01	NA	9.6E-02	3.1E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E-01	NA	2.6E-01	3.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	4.7E-03	NA	1.4E-03	6.0E-03
			Chromium	NA	NA	NA	NA	N/A	2.3E-02	NA	1.3E-01	1.6E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.3E-03	NA	4.9E-04	3.8E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.0E-02	NA	5.9E-03	4.6E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.4E-04	NA	3.1E-03	3.9E-03
			Mercury	NA	NA	NA	NA	Immune	6.9E-04	NA	1.5E-03	2.2E-03
			Nickel	NA	NA	NA	NA	Body Weight	8.7E-04	NA	3.2E-03	4.1E-03
			Silver	NA	NA	NA	NA	Skin	6.8E-04	NA	2.5E-03	3.2E-03
			Zinc	NA	NA	NA	NA	Circulatory	1.8E-03	NA	2.6E-04	2.0E-03
			Aldrin	2.1E-07	NA	3.1E-07	5.2E-07	Liver	3.2E-03	NA	4.7E-03	7.9E-03
			Chlordane - alpha	4.1E-08	NA	2.4E-08	6.5E-08	Liver	1.8E-03	NA	1.1E-03	2.9E-03
			Chlordane - gamma (technical mixture)	4.5E-08	NA	2.7E-08	7.2E-08	Liver	2.0E-03	NA	1.2E-03	3.2E-03
			DDE-4,4'	7.5E-08	NA	3.4E-08	1.1E-07	Reproductive, Fetotoxicity	5.8E-03	NA	2.6E-03	8.3E-03
			DDT-4,4'	1.6E-08	NA	7.0E-09	2.3E-08	Liver	7.2E-04	NA	3.2E-04	1.0E-03
			Dieldrin	6.1E-07	NA	9.0E-07	1.5E-06	Liver	5.9E-03	NA	8.8E-03	1.5E-02
			Heptachlor	1.3E-08	NA	1.9E-08	3.1E-08	Liver	4.3E-05	NA	6.4E-05	1.1E-04
			Pcb-Aroclor 1248	1.4E-08	NA	2.8E-08	4.1E-08	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	6.3E-07	NA	1.3E-06	1.9E-06	Immune	1.2E-01	NA	2.5E-01	3.8E-01
			Pcb-Aroclor 1260	1.3E-07	NA	2.7E-07	4.0E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	6.6E-06	NA	9.8E-06	1.6E-05
			Benzo(a)anthracene	1.4E-06	NA	2.7E-06	4.1E-06	Kidney	5.0E-04	NA	9.6E-04	1.5E-03
			Benzo(a)pyrene	1.3E-05	NA	2.6E-05	3.9E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.5E-06	NA	2.9E-06	4.4E-06	Kidney	5.3E-04	NA	1.0E-03	1.6E-03
			Benzo(k)fluoranthene	7.4E-08	NA	1.4E-07	2.2E-07	Kidney	2.6E-04	NA	5.1E-04	7.7E-04
			Chrysene	1.4E-08	NA	2.7E-08	4.0E-08	Kidney	4.9E-04	NA	9.4E-04	1.4E-03
			Dibenzo(a,h)anthracene	9.1E-07	NA	1.8E-06	2.7E-06	Kidney	3.2E-05	NA	6.2E-05	9.5E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	8.5E-04	NA	1.8E-03	2.7E-03
			Indeno(1,2,3-cd)pyrene	3.6E-07	NA	6.9E-07	1.0E-06	Body Weight	7.6E-05	NA	1.5E-04	2.2E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	8.3E-05	NA	1.6E-04	2.4E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	6.2E-09	NA	9.1E-09	1.5E-08	Liver	1.7E-04	NA	1.3E-03	1.5E-03
			Benzene	6.2E-09	NA	0.0E+00	6.2E-09	Circulatory	2.2E-04	NA	0.0E+00	2.2E-04
			Chloroform	NA	NA	NA	NA	Liver	3.2E-05	NA	0.0E+00	3.2E-05

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TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.5E-04	NA	0.0E+00	2.5E-04
			Tetrachloroethylene	1.9E-07	NA	0.0E+00	1.9E-07	Liver	2.8E-04	NA	0.0E+00	2.8E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	8.4E-05	NA	0.0E+00	8.4E-05
			Trichloroethylene	3.8E-08	NA	0.0E+00	3.8E-08	Liver, Kidney, Fetotoxicity	2.5E-03	NA	0.0E+00	2.5E-03
			Vinyl chloride	1.4E-08	NA	0.0E+00	1.4E-08	Liver	2.4E-05	NA	0.0E+00	2.4E-05
			Xylenes, total	NA	NA	NA	NA	Body Weight	3.3E-05	NA	0.0E+00	3.3E-05
		Exposure Point Total		3.2E-05	NA	4.2E-05	7.5E-05		5.7E-01	NA	7.9E-01	1.4E+00
	Exposure Medium Total			3.2E-05	NA	4.2E-05	7.5E-05		5.7E-01	NA	7.9E-01	1.4E+00
	Ambient Air	Emissions from Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	3.1E-05	NA	3.1E-05
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	4.1E-09	NA	4.1E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.0E-03	NA	2.0E-03
			Cadmium	NA	1.2E-10	NA	1.2E-10	Kidney	NA	2.7E-06	NA	2.7E-06
			Chromium	NA	1.2E-08	NA	1.2E-08	Respiratory	NA	9.7E-04	NA	9.7E-04
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.7E-04	NA	2.7E-04
			Mercury	NA	NA	NA	NA	CNS	NA	7.9E-08	NA	7.9E-08
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	3.9E-05	NA	3.9E-05
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	6.8E-12	NA	6.8E-12	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.3E-12	NA	1.3E-12	Liver	NA	1.5E-07	NA	1.5E-07
			Chlordane - gamma (technical mixture)	NA	1.5E-12	NA	1.5E-12	Liver	NA	1.6E-07	NA	1.6E-07
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	5.1E-13	NA	5.1E-13	N/A	NA	NA	NA	NA
			Dieldrin	NA	2.0E-11	NA	2.0E-11	N/A	NA	NA	NA	NA
			Heptachlor	NA	4.1E-13	NA	4.1E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	7.7E-14	NA	7.7E-14	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	3.6E-12	NA	3.6E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	7.4E-13	NA	7.4E-13	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Surface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.4E-03	NA	1.4E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	3.5E-08	NA	3.5E-08	Circulatory	NA	1.2E-03	NA	1.2E-03
			Chloroform	NA	3.6E-08	NA	3.6E-08	Liver, Kidney, CNS	NA	2.4E-04	NA	2.4E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	7.5E-08	NA	7.5E-08	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	1.3E-03	NA	1.3E-03
			Trichloroethylene	NA	3.7E-07	NA	3.7E-07	CNS, Liver, Endocrine	NA	7.2E-04	NA	7.2E-04
			Vinyl chloride	NA	4.4E-09	NA	4.4E-09	Liver	NA	7.8E-05	NA	7.8E-05
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.7E-03	NA	1.7E-03
		Exposure Point Total		NA	5.4E-07	NA	5.4E-07		NA	1.0E-02	NA	1.0E-02
	Exposure Medium Total			NA	5.4E-07	NA	5.4E-07		NA	1.0E-02	NA	1.0E-02
Medium Total				3.2E-05	5.4E-07	4.2E-05	7.5E-05		5.7E-01	1.0E-02	7.9E-01	1.4E+00
Receptor Total				3.2E-05	5.4E-07	4.2E-05	7.5E-05		5.7E-01	1.0E-02	7.9E-01	1.4E+00

Total Body Weight HI Across Media =	5E-03
Total Circulatory HI Across Media =	8E-01
Total CNS HI Across Media =	1E-02
Total Fetotoxicity HI Across Media =	1E-02
Total Gastrointestinal HI Across Media =	5E-02
Total General HI Across Media =	2E-05
Total Immune HI Across Media =	4E-01
Total Kidney HI Across Media =	4E-01
Total Liver HI Across Media =	8E-02
Total Reproductive HI Across Media =	8E-03
Total Respiratory HI Across Media =	2E-03
Total Skin HI Across Media =	3E-01

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	2.6E-03	NA	2.1E-05	2.6E-03
			Antimony	NA	NA	NA	NA	Circulatory	5.1E-03	NA	2.7E-04	5.3E-03
			Arsenic	1.7E-05	NA	4.2E-07	1.8E-05	Skin, Circulatory	4.1E-01	NA	9.8E-03	4.2E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.3E-01	NA	2.7E-02	2.6E-01
			Cadmium	NA	NA	NA	NA	Kidney	8.8E-03	NA	1.4E-04	8.9E-03
			Chromium	NA	NA	NA	NA	N/A	4.2E-02	NA	1.4E-02	5.6E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.2E-03	NA	4.9E-05	6.2E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	7.5E-02	NA	6.0E-04	7.5E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.6E-03	NA	3.1E-04	1.9E-03
			Mercury	NA	NA	NA	NA	Immune	1.3E-03	NA	1.5E-04	1.5E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.6E-03	NA	3.2E-04	1.9E-03
			Silver	NA	NA	NA	NA	Skin	1.3E-03	NA	2.6E-04	1.5E-03
			Zinc	NA	NA	NA	NA	Circulatory	3.3E-03	NA	2.7E-05	3.4E-03
			Aldrin	2.9E-07	NA	2.3E-08	3.1E-07	Liver	6.0E-03	NA	4.8E-04	6.4E-03
			Chlordane - alpha	5.7E-08	NA	1.8E-09	5.8E-08	Liver	3.4E-03	NA	1.1E-04	3.5E-03
			Chlordane - gamma (technical mixture)	6.2E-08	NA	2.0E-09	6.4E-08	Liver	3.8E-03	NA	1.2E-04	3.9E-03
			DDE-4,4'	1.0E-07	NA	2.5E-09	1.1E-07	Reproductive, Fetotoxicity	1.1E-02	NA	2.6E-04	1.1E-02
			DDT-4,4'	2.2E-08	NA	5.2E-10	2.2E-08	Liver	1.4E-03	NA	3.2E-05	1.4E-03
			Dieldrin	8.4E-07	NA	6.7E-08	9.1E-07	Liver	1.1E-02	NA	8.9E-04	1.2E-02
			Heptachlor	1.7E-08	NA	1.4E-09	1.9E-08	Liver	8.1E-05	NA	6.5E-06	8.8E-05
			Pcb-Aroclor 1248	1.9E-08	NA	2.1E-09	2.1E-08	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	8.6E-07	NA	9.7E-08	9.6E-07	Immune	2.3E-01	NA	2.6E-02	2.5E-01
			Pcb-Aroclor 1260	1.8E-07	NA	2.0E-08	2.0E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.2E-05	NA	9.9E-07	1.3E-05
			Benzo(a)anthracene	1.9E-06	NA	2.0E-07	2.1E-06	Kidney	9.4E-04	NA	9.8E-05	1.0E-03
			Benzo(a)pyrene	1.8E-05	NA	1.9E-06	2.0E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	2.1E-06	NA	2.1E-07	2.3E-06	Kidney	1.0E-03	NA	1.0E-04	1.1E-03
			Benzo(k)fluoranthene	1.0E-07	NA	1.1E-08	1.1E-07	Kidney	5.0E-04	NA	5.2E-05	5.5E-04
			Chrysene	1.9E-08	NA	2.0E-09	2.1E-08	Kidney	9.2E-04	NA	9.6E-05	1.0E-03
			Dibenzo(a,h)anthracene	1.3E-06	NA	1.3E-07	1.4E-06	Kidney	6.1E-05	NA	6.3E-06	6.7E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.6E-03	NA	1.9E-04	1.8E-03
			Indeno(1,2,3-cd)pyrene	4.9E-07	NA	5.1E-08	5.4E-07	Body Weight	1.4E-04	NA	1.5E-05	1.6E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	1.6E-04	NA	1.6E-05	1.7E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	8.5E-09	NA	6.8E-10	9.2E-09	Liver	3.2E-04	NA	1.4E-04	4.6E-04
			Benzene	8.6E-09	NA	0.0E+00	8.6E-09	Circulatory	4.1E-04	NA	0.0E+00	4.1E-04
			Chloroform	NA	NA	NA	NA	Liver	6.0E-05	NA	0.0E+00	6.0E-05
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	4.8E-04	NA	0.0E+00	4.8E-04
			Tetrachloroethylene	2.6E-07	NA	0.0E+00	2.6E-07	Liver	5.2E-04	NA	0.0E+00	5.2E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	1.6E-04	NA	0.0E+00	1.6E-04
			Trichloroethylene	5.2E-08	NA	0.0E+00	5.2E-08	Liver, Kidney, Fetotoxicity	4.6E-03	NA	0.0E+00	4.6E-03
			Vinyl chloride	1.9E-08	NA	0.0E+00	1.9E-08	Liver	4.6E-05	NA	0.0E+00	4.6E-05

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Xylenes, total	NA	NA	NA	NA	Body Weight	6.3E-05	NA	0.0E+00	6.3E-05
		Exposure Point Total		4.4E-05	NA	3.2E-06	4.8E-05		1.1E+00	NA	8.0E-02	1.1E+00
	Exposure Medium Total			4.4E-05	NA	3.2E-06	4.8E-05		1.1E+00	NA	8.0E-02	1.1E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	3.5E-04	NA	3.5E-04
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil	Arsenic	NA	3.4E-08	NA	3.4E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.3E-02	NA	2.3E-02
			Cadmium	NA	1.0E-09	NA	1.0E-09	Kidney	NA	3.0E-05	NA	3.0E-05
			Chromium	NA	9.9E-08	NA	9.9E-08	Respiratory	NA	1.1E-02	NA	1.1E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.0E-03	NA	3.0E-03
			Mercury	NA	NA	NA	NA	CNS	NA	8.9E-07	NA	8.9E-07
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	4.4E-04	NA	4.4E-04
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	5.7E-11	NA	5.7E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.1E-11	NA	1.1E-11	Liver	NA	1.7E-06	NA	1.7E-06
			Chlordane - gamma (technical mixture)	NA	1.2E-11	NA	1.2E-11	Liver	NA	1.9E-06	NA	1.9E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	4.2E-12	NA	4.2E-12	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.7E-10	NA	1.7E-10	N/A	NA	NA	NA	NA
			Heptachlor	NA	3.4E-12	NA	3.4E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	6.4E-13	NA	6.4E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	3.0E-11	NA	3.0E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	6.2E-12	NA	6.2E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	Emissions from	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Martin Aaron property	Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.6E-02	NA	1.6E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.9E-07	NA	2.9E-07	Circulatory	NA	1.3E-02	NA	1.3E-02
			Chloroform	NA	3.0E-07	NA	3.0E-07	Liver, Kidney, CNS	NA	2.7E-03	NA	2.7E-03

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	6.2E-07	NA	6.2E-07	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	1.5E-02	NA	1.5E-02
			Trichloroethylene	NA	3.1E-06	NA	3.1E-06	CNS, Liver, Endocrine	NA	8.2E-03	NA	8.2E-03
			Vinyl chloride	NA	3.7E-08	NA	3.7E-08	Liver	NA	8.9E-04	NA	8.9E-04
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.9E-02	NA	1.9E-02
		Exposure Point Total		NA	4.5E-06	NA	4.5E-06		NA	1.1E-01	NA	1.1E-01
	Exposure Medium Total			NA	4.5E-06	NA	4.5E-06		NA	1.1E-01	NA	1.1E-01
Medium Total				4.4E-05	4.5E-06	3.2E-06	5.2E-05		1.1E+00	1.1E-01	8.0E-02	1.3E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.6E-03	NA	2.1E-05	2.6E-03
			Antimony	NA	NA	NA	NA	Circulatory	1.1E-02	NA	5.8E-04	1.1E-02
			Arsenic	4.4E-05	NA	1.1E-06	4.6E-05	Skin, Circulatory	1.0E+00	NA	2.5E-02	1.1E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.3E-01	NA	1.5E-02	1.5E-01
			Cadmium	NA	NA	NA	NA	Kidney	8.1E-03	NA	1.3E-04	8.3E-03
			Chromium	NA	NA	NA	NA	N/A	3.9E-01	NA	1.2E-01	5.1E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.5E-03	NA	4.4E-05	5.6E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.8E-02	NA	3.1E-04	3.8E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.9E-04	NA	2.0E-04	1.2E-03
			Mercury	NA	NA	NA	NA	Immune	4.0E-02	NA	4.6E-03	4.4E-02
			Nickel	NA	NA	NA	NA	Body Weight	1.5E-03	NA	3.0E-04	1.8E-03
			Silver	NA	NA	NA	NA	Skin	5.1E-04	NA	1.0E-04	6.2E-04
			Thallium	NA	NA	NA	NA	Circulatory	6.9E-03	NA	5.5E-05	6.9E-03
			Vanadium	NA	NA	NA	NA	Kidney	1.0E-02	NA	3.1E-03	1.3E-02
			Zinc	NA	NA	NA	NA	Circulatory	2.8E-03	NA	2.2E-05	2.8E-03
			Aldrin	1.2E-07	NA	9.5E-09	1.3E-07	Liver	2.5E-03	NA	2.0E-04	2.7E-03
Subsurface Soil	Subsurface Soil	Martin Aaron property	Chlordane - alpha	2.2E-08	NA	7.2E-10	2.3E-08	Liver	1.4E-03	NA	4.3E-05	1.4E-03
(cont.)	(cont.)	Subsurface Soil (cont.)	Chlordane - gamma (technical mixture)	2.7E-08	NA	8.6E-10	2.8E-08	Liver	1.6E-03	NA	5.2E-05	1.7E-03
			DDE-4,4'	6.7E-08	NA	1.6E-09	6.8E-08	Reproductive, Fetotoxicity	6.9E-03	NA	1.7E-04	7.1E-03
			DDT-4,4'	5.4E-09	NA	1.3E-10	5.5E-09	Liver	3.4E-04	NA	8.1E-06	3.4E-04
			Dieldrin	1.2E-07	NA	9.3E-09	1.3E-07	Liver	1.5E-03	NA	1.2E-04	1.7E-03
			Heptachlor	6.9E-09	NA	5.5E-10	7.4E-09	Liver	3.2E-05	NA	2.6E-06	3.5E-05
			Pcb-Aroclor 1248	7.5E-09	NA	8.4E-10	8.3E-09	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	8.7E-07	NA	9.7E-08	9.7E-07	Immune	2.3E-01	NA	2.6E-02	2.6E-01
			Pcb-Aroclor 1260	1.9E-08	NA	2.1E-09	2.1E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.2E-05	NA	9.9E-07	1.3E-05
			Benzo(a)anthracene	5.8E-07	NA	6.0E-08	6.4E-07	Kidney	2.8E-04	NA	2.9E-05	3.1E-04
			Benzo(a)pyrene	5.3E-06	NA	5.5E-07	5.9E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	6.4E-07	NA	6.6E-08	7.0E-07	Kidney	3.1E-04	NA	3.2E-05	3.4E-04

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	2.4E-08	NA	2.5E-09	2.6E-08	Kidney	1.1E-04	NA	1.2E-05	1.3E-04
			Chrysene	5.4E-09	NA	5.6E-10	6.0E-09	Kidney	2.6E-04	NA	2.7E-05	2.9E-04
			Dibenzo(a,h)anthracene	1.2E-06	NA	1.2E-07	1.3E-06	Kidney	5.8E-05	NA	6.0E-06	6.4E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	4.0E-04	NA	4.7E-05	4.5E-04
			Indeno(1,2,3-cd)pyrene	2.9E-07	NA	3.0E-08	3.2E-07	Body Weight	8.4E-05	NA	8.7E-06	9.2E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	6.9E-04	NA	7.2E-05	7.7E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	1.5E-08	NA	1.2E-09	1.6E-08	Liver	5.5E-04	NA	2.3E-04	7.8E-04
			Benzene	1.3E-08	NA	0.0E+00	1.3E-08	Circulatory	6.3E-04	NA	0.0E+00	6.3E-04
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	1.6E-04	NA	0.0E+00	1.6E-04
			Chloroform	NA	NA	NA	NA	Liver	9.6E-05	NA	0.0E+00	9.6E-05
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.4E-04	NA	0.0E+00	2.4E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	2.7E-05	NA	0.0E+00	2.7E-05
			Tetrachloroethylene	5.0E-07	NA	0.0E+00	5.0E-07	Liver	9.8E-04	NA	0.0E+00	9.8E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	6.5E-05	NA	0.0E+00	6.5E-05
			Trichloroethylene	1.8E-06	NA	0.0E+00	1.8E-06	Liver, Kidney, Fetotoxicity	1.6E-01	NA	0.0E+00	1.6E-01
			Vinyl chloride	2.9E-08	NA	0.0E+00	2.9E-08	Liver	6.9E-05	NA	0.0E+00	6.9E-05
			Xylenes, total	NA	NA	NA	NA	Body Weight	9.5E-05	NA	0.0E+00	9.5E-05
		Exposure Point Total		5.6E-05	NA	2.0E-06	5.8E-05		2.1E+00	NA	2.0E-01	2.3E+00
	Exposure Medium Total			5.6E-05	NA	2.0E-06	5.8E-05		2.1E+00	NA	2.0E-01	2.3E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	3.6E-04	NA	3.6E-04
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Subsurface Soil	*Arsenic*	NA	*8.8E-08*	NA	*8.8E-08*	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.3E-02	NA	1.3E-02
Subsurface Soil	Ambient Air	Emissions from	Cadmium	NA	9.5E-10	NA	9.5E-10	Kidney	NA	2.8E-05	NA	2.8E-05
(cont.)	(cont.)	Martin Aaron property	Chromium	NA	9.0E-07	NA	9.0E-07	Respiratory	NA	9.9E-02	NA	9.9E-02
		Subsurface Soil (cont.)	Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.9E-03	NA	1.9E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.7E-05	NA	2.7E-05
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	1.8E-04	NA	1.8E-04
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	2.3E-11	NA	2.3E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	4.4E-12	NA	4.4E-12	Liver	NA	6.7E-07	NA	6.7E-07
			Chlordane - gamma (technical mixture)	NA	5.3E-12	NA	5.3E-12	Liver	NA	8.0E-07	NA	8.0E-07
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	1.1E-12	NA	1.1E-12	N/A	NA	NA	NA	NA

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Dieldrin	NA	2.3E-11	NA	2.3E-11	N/A	NA	NA	NA	NA
			Heptachlor	NA	1.4E-12	NA	1.4E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	2.6E-13	NA	2.6E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	3.0E-11	NA	3.0E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	6.4E-13	NA	6.4E-13	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	7.2E-02	NA	7.2E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	4.5E-07	NA	4.5E-07	Circulatory	NA	2.0E-02	NA	2.0E-02
			Bromomethane	NA	NA	NA	NA	Respiratory	NA	1.7E-02	NA	1.7E-02
			Chloroform	NA	4.7E-07	NA	4.7E-07	Liver, Kidney, CNS	NA	4.4E-03	NA	4.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	4.4E-04	NA	4.4E-04
			Tetrachloroethylene	NA	1.2E-06	NA	1.2E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	6.2E-03	NA	6.2E-03
			Trichloroethylene	NA	1.1E-04	NA	1.1E-04	CNS, Liver, Endocrine	NA	2.9E-01	NA	2.9E-01
			Vinyl chloride	NA	5.5E-08	NA	5.5E-08	Liver	NA	1.3E-03	NA	1.3E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	2.9E-02	NA	2.9E-02
		Exposure Point Total		NA	1.1E-04	NA	1.1E-04		NA	5.5E-01	NA	5.5E-01
	Exposure Medium Total			NA	1.1E-04	NA	1.1E-04		NA	5.5E-01	NA	5.5E-01
Medium Total				5.6E-05	1.1E-04	2.0E-06	1.7E-04		2.1E+00	5.5E-01	2.0E-01	2.9E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	8.8E-02	NA	1.6E-04	8.8E-02
			Antimony	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
			Arsenic	4.4E-03	NA	7.9E-06	4.4E-03	Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	1.7E-02	NA	4.3E-03	2.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium	NA	NA	NA	NA	N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.1E-02	NA	2.0E-05	1.1E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.2E-01	NA	5.5E-03	1.3E-01

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	5.9E-03	NA	1.5E-04	6.1E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.3E-02	NA	1.1E-04	1.3E-02
			Selenium	NA	NA	NA	NA	Skin	1.2E-02	NA	2.2E-05	1.2E-02
			Thallium	NA	NA	NA	NA	Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.0E-01	NA	3.5E-02	5.3E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.3E-02	NA	3.6E-05	3.3E-02
			Chlordane - alpha	6.3E-09	NA	1.1E-08	1.7E-08	Liver	3.8E-04	NA	6.6E-04	1.0E-03
			Dieldrin	2.8E-07	NA	1.6E-07	4.4E-07	Liver	3.7E-03	NA	2.1E-03	5.9E-03
			Heptachlor Epoxide	7.3E-08	NA	2.9E-08	1.0E-07	Liver	6.5E-03	NA	2.6E-03	9.1E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	8.7E-03	NA	6.9E-04	9.4E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Nitrosodiphenylamine-n	4.3E-08	NA	1.2E-08	5.5E-08	Body Weight, Developmental, Reproductive	4.7E-03	NA	1.3E-03	5.9E-03
			Phenol	NA	NA	NA	NA	Body Weight	2.8E-02	NA	1.1E-03	2.9E-02
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06	Circulatory	7.3E-02	NA	9.2E-03	8.2E-02
			Chloroethane	3.1E-09	NA	1.5E-10	3.2E-09	Fetotoxicity	2.8E-05	NA	1.3E-06	3.0E-05
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	6.3E-03	NA	4.8E-03	1.1E-02
			Dichlorobenzene-1,4	1.8E-08	NA	9.9E-09	2.8E-08	Liver, Developmental	2.6E-04	NA	1.5E-04	4.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.7E-03	NA	1.1E-04	1.8E-03
			Dichloroethane-1,2	7.0E-08	NA	2.8E-09	7.3E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.1E-04	NA	1.7E-05	4.2E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.1E-03	NA	1.6E-04	2.3E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.0E-01	NA	7.5E-03	1.1E-01
			Dichloropropane-1,2	4.8E-08	NA	4.0E-09	5.1E-08	Kidney	3.7E-04	NA	3.1E-05	4.0E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.0E-03	NA	5.0E-04	1.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.5E-03	NA	9.2E-05	3.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	3.5E-07	NA	1.7E-07	5.3E-07	Liver	6.9E-04	NA	3.4E-04	1.0E-03
			Trichloroethane-1,1,2	2.0E-08	NA	1.5E-09	2.1E-08	Circulatory	9.2E-04	NA	7.2E-05	9.9E-04
			Trichloroethylene	9.4E-07	NA	1.3E-07	1.1E-06	Liver, Kidney, Fetotoxicity	8.3E-02	NA	1.2E-02	9.5E-02
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05	Liver	4.0E-02	NA	1.7E-03	4.2E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	8.1E-04	NA	4.4E-04	1.2E-03
		Exposure Point Total		4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
			Benzene	NA	2.5E-07	NA	2.5E-07	Circulatory	NA	1.1E-02	NA	1.1E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-06	NA	1.3E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	5.5E-09	NA	5.5E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.0E-04	NA	4.0E-04

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethane-1,2	NA	2.4E-08	NA	2.4E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-03	NA	2.2E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.2E-04	NA	1.2E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-04	NA	1.1E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.9E-05	NA	7.9E-05
			Tetrachloroethylene	NA	4.6E-09	NA	4.6E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	6.6E-09	NA	6.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	3.2E-07	NA	3.2E-07	CNS, Liver, Endocrine	NA	8.4E-04	NA	8.4E-04
			Vinyl chloride	NA	5.9E-08	NA	5.9E-08	Liver	NA	1.4E-03	NA	1.4E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.9E-03	NA	1.9E-03
Groundwater	Air	Chemical Total		NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	6.7E-07	9.7E-06	4.4E-03		1.1E+02	1.2E+00	4.5E-01	1.1E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.1E-02	NA	5.7E-05	3.2E-02
			Antimony	NA	NA	NA	NA	Circulatory	6.2E-02	NA	7.5E-04	6.3E-02
			Arsenic	4.2E-06	NA	7.6E-09	4.3E-06	Skin, Circulatory	1.0E-01	NA	1.8E-04	1.0E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.6E-02	NA	9.3E-04	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	4.6E-02	NA	3.3E-03	5.0E-02
			Chromium	NA	NA	NA	NA	N/A	3.0E-02	NA	4.4E-03	3.5E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.2E-02	NA	2.3E-05	3.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.2E-02	NA	9.4E-05	5.2E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.1E-01	NA	9.5E-03	2.2E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
			Benzene	1.5E-08	NA	1.9E-09	1.7E-08	Circulatory	7.1E-04	NA	9.0E-05	8.0E-04
			Dichloroethane-1,2	6.4E-08	NA	2.6E-09	6.7E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.7E-04	NA	1.5E-05	3.9E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.7E-02	NA	2.0E-03	2.9E-02
			Dichloropropane-1,2	4.1E-08	NA	3.4E-09	4.4E-08	Kidney	3.2E-04	NA	2.6E-05	3.4E-04
			Tetrachloroethylene	4.4E-07	NA	2.2E-07	6.5E-07	Liver	8.6E-04	NA	4.2E-04	1.3E-03
			Trichloroethylene	4.8E-07	NA	7.0E-08	5.5E-07	Liver, Kidney, Fetotoxicity	4.3E-02	NA	6.2E-03	4.9E-02
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05	Liver	2.6E-02	NA	1.1E-03	2.7E-02
		Chemical Total		1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Exposure Medium Total			1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	2.5E-09	NA	2.5E-09	Circulatory	NA	1.1E-04	NA	1.1E-04
			Dichloroethane-1,2	NA	2.2E-08	NA	2.2E-08	Gastrointestinal, Liver, Kidney	NA	1.8E-03	NA	1.8E-03

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TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-03	NA	1.9E-03
			Tetrachloroethylene	NA	5.7E-09	NA	5.7E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.6E-07	NA	1.6E-07	CNS, Liver, Endocrine	NA	4.3E-04	NA	4.3E-04
			Vinyl chloride	NA	3.8E-08	NA	3.8E-08	Liver	NA	9.1E-04	NA	9.1E-04
		Chemical Total		NA	2.3E-07	NA	2.3E-07		NA	5.1E-03	NA	5.1E-03
	Exposure Medium Total			NA	2.3E-07	NA	1.7E-05		NA	5.1E-03	NA	6.5E+00
Medium Total				1.6E-05	2.3E-07	7.7E-07	1.7E-05		6.5E+00	5.1E-03	3.9E-02	6.5E+00

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Table 9.2.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	4.4E-05	4.5E-06	3.2E-06	5.2E-05	**1.1E+00**	1.1E-01	8.0E-02	**1.3E+00**
Subsurface Soil	5.6E-05	1.1E-04	2.0E-06	**1.7E-04**	**2.1E+00**	5.5E-01	2.0E-01	**2.9E+00**
Upper PRM Aquifer	**4.4E-03**	6.7E-07	9.7E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.5E-01	**1.1E+02**
Middle PRM Aquifer	1.6E-05	2.3E-07	7.7E-07	1.7E-05	**6.5E+00**	5.1E-03	3.9E-02	**6.5E+00**
Surface Soil + Upper PRM Aquifer	**4.5E-03**	5.1E-06	1.3E-05	**4.5E-03**	**1.1E+02**	**1.3E+00**	5.3E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	6.1E-05	4.7E-06	3.9E-06	6.9E-05	**7.6E+00**	1.2E-01	1.2E-01	**7.8E+00**
Subsurface Soil + Upper PRM Aquifer	**4.5E-03**	1.1E-04	1.2E-05	**4.6E-03**	**1.1E+02**	**1.8E+00**	6.5E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	7.2E-05	1.1E-04	2.8E-06	**1.9E-04**	**8.6E+00**	5.6E-01	2.4E-01	**9.4E+00**

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Table 9.2.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	2E-03	3E-03	6E-01	NA	6E-01	2E-03	6E-01	3E-03
Total Circulatory HI Across Media =	8E-01	1E+00	**1E+02**	**6E+00**	**1E+02**	**7E+00**	**1E+02**	**7E+00**
Total CNS HI Across Media =	7E-02	4E-01	**2E+00**	3E-01	**2E+00**	3E-01	**2E+00**	7E-01
Total Developmental HI Across Media =	NA	4E-04	6E-03	NA	6E-03	NA	7E-03	4E-04
Total Fetotoxicity HI Across Media =	4E-02	2E-01	9E-02	5E-02	1E-01	9E-02	3E-01	2E-01
Total Gastrointestinal HI Across Media =	8E-02	4E-02	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total General HI Across Media =	1E-05	1E-05	NA	NA	1E-05	1E-05	1E-05	1E-05
Total Heart HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Immune HI Across Media =	3E-01	3E-01	6E-03	NA	3E-01	3E-01	3E-01	3E-01
Total Kidney HI Across Media =	3E-01	3E-01	**2E+00**	2E-01	**2E+00**	5E-01	**2E+00**	5E-01
Total Liver HI Across Media =	1E-01	5E-01	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Lungs HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Reproductive HI Across Media =	1E-02	7E-03	6E-03	NA	2E-02	1E-02	1E-02	7E-03
Total Respiratory HI Across Media =	3E-02	2E-01	1E+00	2E-03	**2E+00**	3E-02	**2E+00**	2E-01
Total Sensitizer HI Across Media =	NA	NA	NA	3E-02	NA	3E-02	NA	3E-02
Total Skin HI Across Media =	4E-01	1E+00	**1E+02**	1E-01	**1E+02**	5E-01	**1E+02**	1E+00
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	8E-03	3E-01	8E-04	4E-04	9E-03	9E-03	3E-01	3E-01

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	2.8E-03	NA	3.1E-05	2.8E-03
			Antimony	NA	NA	NA	NA	Circulatory	5.4E-03	NA	4.1E-04	5.8E-03
			Arsenic	2.5E-05	NA	8.6E-07	2.6E-05	Skin, Circulatory	4.4E-01	NA	1.5E-02	4.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.5E-01	NA	4.0E-02	2.9E-01
			Cadmium	NA	NA	NA	NA	Kidney	9.4E-03	NA	2.1E-04	9.6E-03
			Chromium	NA	NA	NA	NA	N/A	4.5E-02	NA	2.1E-02	6.6E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.6E-03	NA	7.5E-05	6.7E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.0E-02	NA	9.1E-04	8.1E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.7E-03	NA	4.8E-04	2.2E-03
			Mercury	NA	NA	NA	NA	Immune	1.4E-03	NA	2.3E-04	1.6E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.7E-03	NA	4.9E-04	2.2E-03
			Silver	NA	NA	NA	NA	Skin	1.4E-03	NA	3.9E-04	1.8E-03
			Zinc	NA	NA	NA	NA	Circulatory	3.6E-03	NA	4.1E-05	3.6E-03
			Aldrin	4.2E-07	NA	4.8E-08	4.7E-07	Liver	6.4E-03	NA	7.3E-04	7.1E-03
			Chlordane - alpha	8.2E-08	NA	3.8E-09	8.6E-08	Liver	3.7E-03	NA	1.7E-04	3.8E-03
			Chlordane - gamma (technical mixture)	9.1E-08	NA	4.2E-09	9.5E-08	Liver	4.0E-03	NA	1.8E-04	4.2E-03
			DDE-4,4'	1.5E-07	NA	5.2E-09	1.6E-07	Reproductive, Fetotoxicity	1.2E-02	NA	3.9E-04	1.2E-02
			DDT-4,4'	3.2E-08	NA	1.1E-09	3.3E-08	Liver	1.4E-03	NA	4.9E-05	1.5E-03
			Dieldrin	1.2E-06	NA	1.4E-07	1.4E-06	Liver	1.2E-02	NA	1.4E-03	1.3E-02
			Heptachlor	2.5E-08	NA	2.9E-09	2.8E-08	Liver	8.7E-05	NA	9.9E-06	9.7E-05
			Pcb-Aroclor 1248	2.7E-08	NA	4.3E-09	3.1E-08	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	1.3E-06	NA	2.0E-07	1.5E-06	Immune	2.4E-01	NA	3.9E-02	2.8E-01
			Pcb-Aroclor 1260	2.6E-07	NA	4.2E-08	3.0E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.3E-05	NA	1.5E-06	1.5E-05
			Benzo(a)anthracene	2.8E-06	NA	4.2E-07	3.3E-06	Kidney	1.0E-03	NA	1.5E-04	1.2E-03
			Benzo(a)pyrene	2.7E-05	NA	4.0E-06	3.1E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	3.0E-06	NA	4.5E-07	3.5E-06	Kidney	1.1E-03	NA	1.6E-04	1.2E-03
			Benzo(k)fluoranthene	1.5E-07	NA	2.2E-08	1.7E-07	Kidney	5.3E-04	NA	7.8E-05	6.1E-04
			Chrysene	2.8E-08	NA	4.1E-09	3.2E-08	Kidney	9.8E-04	NA	1.5E-04	1.1E-03
			Dibenzo(a,h)anthracene	1.8E-06	NA	2.7E-07	2.1E-06	Kidney	6.5E-05	NA	9.6E-06	7.5E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.7E-03	NA	2.8E-04	2.0E-03
			Indeno(1,2,3-cd)pyrene	7.2E-07	NA	1.1E-07	8.3E-07	Body Weight	1.5E-04	NA	2.3E-05	1.8E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	1.7E-04	NA	2.5E-05	1.9E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	1.2E-08	NA	1.4E-09	1.4E-08	Liver	3.4E-04	NA	2.1E-04	5.5E-04
			Benzene	1.3E-08	NA	0.0E+00	1.3E-08	Circulatory	4.4E-04	NA	0.0E+00	4.4E-04
			Chloroform	NA	NA	NA	NA	Liver	6.4E-05	NA	0.0E+00	6.4E-05
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	5.1E-04	NA	0.0E+00	5.1E-04
			Tetrachloroethylene	3.8E-07	NA	0.0E+00	3.8E-07	Liver	5.5E-04	NA	0.0E+00	5.5E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	1.7E-04	NA	0.0E+00	1.7E-04
			Trichloroethylene	7.6E-08	NA	0.0E+00	7.6E-08	Liver, Kidney, Fetotoxicity	4.9E-03	NA	0.0E+00	4.9E-03
			Vinyl chloride	2.8E-08	NA	0.0E+00	2.8E-08	Liver	4.9E-05	NA	0.0E+00	4.9E-05

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Xylenes, total	NA	NA	NA	NA	Body Weight	6.7E-05	NA	0.0E+00	6.7E-05
		Exposure Point Total		6.5E-05	NA	6.6E-06	7.1E-05		1.1E+00	NA	1.2E-01	1.3E+00
	Exposure Medium Total			6.5E-05	NA	6.6E-06	7.1E-05		1.1E+00	NA	1.2E-01	1.3E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	7.5E-04	NA	7.5E-04
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil	Arsenic	NA	9.9E-08	NA	9.9E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.8E-02	NA	4.8E-02
			Cadmium	NA	3.0E-09	NA	3.0E-09	Kidney	NA	6.4E-05	NA	6.4E-05
			Chromium	NA	2.9E-07	NA	2.9E-07	Respiratory	NA	2.3E-02	NA	2.3E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	6.4E-03	NA	6.4E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.9E-06	NA	1.9E-06
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	9.3E-04	NA	9.3E-04
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.6E-10	NA	1.6E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	3.2E-11	NA	3.2E-11	Liver	NA	3.6E-06	NA	3.6E-06
			Chlordane - gamma (technical mixture)	NA	3.6E-11	NA	3.6E-11	Liver	NA	4.0E-06	NA	4.0E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	1.2E-11	NA	1.2E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	4.8E-10	NA	4.8E-10	N/A	NA	NA	NA	NA
			Heptachlor	NA	9.9E-12	NA	9.9E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	1.9E-12	NA	1.9E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	8.6E-11	NA	8.6E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.8E-11	NA	1.8E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	Emissions from	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Martin Aaron property	Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.4E-02	NA	3.4E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	8.5E-07	NA	8.5E-07	Circulatory	NA	2.8E-02	NA	2.8E-02
			Chloroform	NA	8.6E-07	NA	8.6E-07	Liver, Kidney, CNS	NA	5.8E-03	NA	5.8E-03

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TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	1.8E-06	NA	1.8E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	3.2E-02	NA	3.2E-02
			Trichloroethylene	NA	8.9E-06	NA	8.9E-06	CNS, Liver, Endocrine	NA	1.7E-02	NA	1.7E-02
			Vinyl chloride	NA	1.1E-07	NA	1.1E-07	Liver	NA	1.9E-03	NA	1.9E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	4.1E-02	NA	4.1E-02
		Exposure Point Total		NA	1.3E-05	NA	1.3E-05		NA	2.4E-01	NA	2.4E-01
	Exposure Medium Total			NA	1.3E-05	NA	1.3E-05		NA	2.4E-01	NA	2.4E-01
Medium Total				6.5E-05	1.3E-05	6.6E-06	8.4E-05		1.1E+00	2.4E-01	1.2E-01	1.5E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.8E-03	NA	3.2E-05	2.8E-03
			Antimony	NA	NA	NA	NA	Circulatory	1.2E-02	NA	8.8E-04	1.2E-02
			Arsenic	6.5E-05	NA	2.2E-06	6.7E-05	Skin, Circulatory	1.1E+00	NA	3.8E-02	1.2E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.4E-01	NA	2.3E-02	1.6E-01
			Cadmium	NA	NA	NA	NA	Kidney	8.7E-03	NA	2.0E-04	8.9E-03
			Chromium	NA	NA	NA	NA	N/A	4.1E-01	NA	1.9E-01	6.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.9E-03	NA	6.7E-05	6.0E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.1E-02	NA	4.6E-04	4.1E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.1E-03	NA	3.0E-04	1.4E-03
			Mercury	NA	NA	NA	NA	Immune	4.3E-02	NA	6.9E-03	5.0E-02
			Nickel	NA	NA	NA	NA	Body Weight	1.6E-03	NA	4.5E-04	2.0E-03
			Silver	NA	NA	NA	NA	Skin	5.5E-04	NA	1.6E-04	7.0E-04
			Thallium	NA	NA	NA	NA	Circulatory	7.4E-03	NA	8.4E-05	7.4E-03
			Vanadium	NA	NA	NA	NA	Kidney	1.1E-02	NA	4.8E-03	1.6E-02
			Zinc	NA	NA	NA	NA	Circulatory	2.9E-03	NA	3.4E-05	3.0E-03
			Aldrin	1.7E-07	NA	2.0E-08	1.9E-07	Liver	2.6E-03	NA	3.0E-04	2.9E-03
Subsurface Soil	Subsurface Soil	Martin Aaron property	Chlordane - alpha	3.3E-08	NA	1.5E-09	3.4E-08	Liver	1.5E-03	NA	6.6E-05	1.5E-03
(cont.)	(cont.)	Subsurface Soil (cont.)	Chlordane - gamma (technical mixture)	3.9E-08	NA	1.8E-09	4.1E-08	Liver	1.7E-03	NA	7.9E-05	1.8E-03
			DDE-4,4'	9.7E-08	NA	3.3E-09	1.0E-07	Reproductive, Fetotoxicity	7.4E-03	NA	2.5E-04	7.7E-03
			DDT-4,4'	7.8E-09	NA	2.7E-10	8.1E-09	Liver	3.6E-04	NA	1.2E-05	3.7E-04
			Dieldrin	1.7E-07	NA	1.9E-08	1.9E-07	Liver	1.6E-03	NA	1.9E-04	1.8E-03
			Heptachlor	1.0E-08	NA	1.1E-09	1.1E-08	Liver	3.5E-05	NA	4.0E-06	3.9E-05
			Pcb-Aroclor 1248	1.1E-08	NA	1.7E-09	1.3E-08	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	1.3E-06	NA	2.0E-07	1.5E-06	Immune	2.5E-01	NA	3.9E-02	2.9E-01
			Pcb-Aroclor 1260	2.7E-08	NA	4.4E-09	3.2E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.3E-05	NA	1.5E-06	1.5E-05
			Benzo(a)anthracene	8.4E-07	NA	1.2E-07	9.6E-07	Kidney	3.0E-04	NA	4.4E-05	3.4E-04
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.9E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	9.3E-07	NA	1.4E-07	1.1E-06	Kidney	3.3E-04	NA	4.9E-05	3.8E-04

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TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	3.4E-08	NA	5.1E-09	3.9E-08	Kidney	1.2E-04	NA	1.8E-05	1.4E-04
			Chrysene	7.9E-09	NA	1.2E-09	9.1E-09	Kidney	2.8E-04	NA	4.2E-05	3.2E-04
			Dibenzo(a,h)anthracene	1.7E-06	NA	2.6E-07	2.0E-06	Kidney	6.2E-05	NA	9.2E-06	7.1E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	4.3E-04	NA	7.2E-05	5.0E-04
			Indeno(1,2,3-cd)pyrene	4.2E-07	NA	6.2E-08	4.8E-07	Body Weight	8.9E-05	NA	1.3E-05	1.0E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	7.4E-04	NA	1.1E-04	8.5E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	2.1E-08	NA	2.4E-09	2.4E-08	Liver	5.9E-04	NA	3.5E-04	9.4E-04
			Benzene	1.9E-08	NA	0.0E+00	1.9E-08	Circulatory	6.7E-04	NA	0.0E+00	6.7E-04
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	1.7E-04	NA	0.0E+00	1.7E-04
			Chloroform	NA	NA	NA	NA	Liver	1.0E-04	NA	0.0E+00	1.0E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.6E-04	NA	0.0E+00	2.6E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	2.9E-05	NA	0.0E+00	2.9E-05
			Tetrachloroethylene	7.3E-07	NA	0.0E+00	7.3E-07	Liver	1.0E-03	NA	0.0E+00	1.0E-03
			Toluene	NA	NA	NA	NA	Liver, Kidney	7.0E-05	NA	0.0E+00	7.0E-05
			Trichloroethylene	2.7E-06	NA	0.0E+00	2.7E-06	Liver, Kidney, Fetotoxicity	1.7E-01	NA	0.0E+00	1.7E-01
			Vinyl chloride	4.2E-08	NA	0.0E+00	4.2E-08	Liver	7.3E-05	NA	0.0E+00	7.3E-05
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.0E-04	NA	0.0E+00	1.0E-04
		Exposure Point Total		8.2E-05	NA	4.2E-06	8.6E-05		2.3E+00	NA	3.0E-01	2.6E+00
	Exposure Medium Total			8.2E-05	NA	4.2E-06	8.6E-05		2.3E+00	NA	3.0E-01	2.6E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	7.6E-04	NA	7.6E-04
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Subsurface Soil	Arsenic	NA	2.5E-07	NA	2.5E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.8E-02	NA	2.8E-02
Subsurface Soil	Ambient Air	Emissions from	Cadmium	NA	2.8E-09	NA	2.8E-09	Kidney	NA	6.0E-05	NA	6.0E-05
(cont.)	(cont.)	Martin Aaron property	Chromium	NA	2.6E-06	NA	2.6E-06	Respiratory	NA	2.1E-01	NA	2.1E-01
		Subsurface Soil (cont.)	Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	4.1E-03	NA	4.1E-03
			Mercury	NA	NA	NA	NA	CNS	NA	5.8E-05	NA	5.8E-05
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	3.7E-04	NA	3.7E-04
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	6.8E-11	NA	6.8E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.3E-11	NA	1.3E-11	Liver	NA	1.4E-06	NA	1.4E-06
			Chlordane - gamma (technical mixture)	NA	1.5E-11	NA	1.5E-11	Liver	NA	1.7E-06	NA	1.7E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	3.1E-12	NA	3.1E-12	N/A	NA	NA	NA	NA

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Dieldrin	NA	6.6E-11	NA	6.6E-11	N/A	NA	NA	NA	NA
			Heptachlor	NA	4.0E-12	NA	4.0E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	7.4E-13	NA	7.4E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	8.7E-11	NA	8.7E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.9E-12	NA	1.9E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.5E-01	NA	1.5E-01
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	1.3E-06	NA	1.3E-06	Circulatory	NA	4.3E-02	NA	4.3E-02
			Bromomethane	NA	NA	NA	NA	Respiratory	NA	3.5E-02	NA	3.5E-02
			Chloroform	NA	1.4E-06	NA	1.4E-06	Liver, Kidney, CNS	NA	9.3E-03	NA	9.3E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	9.4E-04	NA	9.4E-04
			Tetrachloroethylene	NA	3.4E-06	NA	3.4E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	1.3E-02	NA	1.3E-02
			Trichloroethylene	NA	3.1E-04	NA	3.1E-04	CNS, Liver, Endocrine	NA	6.1E-01	NA	6.1E-01
			Vinyl chloride	NA	1.6E-07	NA	1.6E-07	Liver	NA	2.8E-03	NA	2.8E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	6.2E-02	NA	6.2E-02
		Exposure Point Total		NA	3.2E-04	NA	3.2E-04		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	3.2E-04	NA	3.2E-04		NA	1.2E+00	NA	1.2E+00
Medium Total				8.2E-05	3.2E-04	4.2E-06	4.1E-04		2.3E+00	1.2E+00	3.0E-01	3.7E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
			Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	2.5E-02	NA	4.6E-03	2.9E-02
			Cadmium	NA	NA	NA	NA	Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium	NA	NA	NA	NA	N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-02	NA	2.1E-05	1.7E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.8E-01	NA	5.8E-03	1.9E-01

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TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Mercury	NA	NA	NA	NA	Immune	8.9E-03	NA	1.6E-04	9.0E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.9E-02	NA	1.2E-04	1.9E-02
			Selenium	NA	NA	NA	NA	Skin	1.8E-02	NA	2.3E-05	1.8E-02
			Thallium	NA	NA	NA	NA	Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium	NA	NA	NA	NA	Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Zinc	NA	NA	NA	NA	Circulatory	5.0E-02	NA	3.9E-05	5.0E-02
			Chlordane - alpha	1.3E-08	NA	1.6E-08	2.9E-08	Liver	5.7E-04	NA	7.1E-04	1.3E-03
			Dieldrin	5.7E-07	NA	2.4E-07	8.1E-07	Liver	5.6E-03	NA	2.3E-03	7.8E-03
			Heptachlor Epoxide	1.5E-07	NA	4.2E-08	1.9E-07	Liver	9.7E-03	NA	2.7E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.3E-02	NA	7.4E-04	1.4E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Nitrosodiphenylamine-n	8.8E-08	NA	1.7E-08	1.1E-07	Body Weight, Developmental, Reproductive	7.0E-03	NA	1.4E-03	8.3E-03
			Phenol	NA	NA	NA	NA	Body Weight	4.1E-02	NA	1.2E-03	4.3E-02
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Chloroethane	6.3E-09	NA	2.1E-10	6.5E-09	Fetotoxicity	4.2E-05	NA	1.4E-06	4.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	9.4E-03	NA	5.2E-03	1.5E-02
			Dichlorobenzene-1,4	3.6E-08	NA	1.4E-08	5.1E-08	Liver, Developmental	3.9E-04	NA	1.6E-04	5.5E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	2.5E-03	NA	1.2E-04	2.6E-03
			Dichloroethane-1,2	1.4E-07	NA	4.2E-09	1.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	6.1E-04	NA	1.8E-05	6.3E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	3.2E-03	NA	1.7E-04	3.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Dichloropropane-1,2	9.7E-08	NA	5.8E-09	1.0E-07	Kidney	5.5E-04	NA	3.3E-05	5.9E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.5E-03	NA	5.4E-04	2.0E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	5.2E-03	NA	9.8E-05	5.3E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	7.2E-07	NA	2.5E-07	9.7E-07	Liver	1.0E-03	NA	3.7E-04	1.4E-03
			Trichloroethane-1,1,2	4.0E-08	NA	2.3E-09	4.3E-08	Circulatory	1.4E-03	NA	7.7E-05	1.5E-03
			Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05	Liver	6.0E-02	NA	1.9E-03	6.2E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.2E-03	NA	4.7E-04	1.7E-03
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
			Benzene	NA	3.7E-07	NA	3.7E-07	Circulatory	NA	1.2E-02	NA	1.2E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.4E-06	NA	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	8.1E-09	NA	8.1E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.2E-04	NA	4.2E-04

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TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethane-1,2	NA	3.4E-08	NA	3.4E-08	Gastrointestinal, Liver, Kidney	NA	2.1E-03	NA	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.3E-03	NA	2.3E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.3E-04	NA	1.3E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-04	NA	1.2E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	8.4E-05	NA	8.4E-05
			Tetrachloroethylene	NA	6.7E-09	NA	6.7E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	9.6E-09	NA	9.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	4.6E-07	NA	4.6E-07	CNS, Liver, Endocrine	NA	8.9E-04	NA	8.9E-04
			Vinyl chloride	NA	8.6E-08	NA	8.6E-08	Liver	NA	1.5E-03	NA	1.5E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	2.0E-03	NA	2.0E-03
Groundwater	Air	Chemical Total		NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
Medium Total				9.0E-03	9.7E-07	1.4E-05	9.0E-03		1.7E+02	1.3E+00	4.9E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.7E-02	NA	6.1E-05	4.7E-02
			Antimony	NA	NA	NA	NA	Circulatory	9.3E-02	NA	8.0E-04	9.4E-02
			Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.4E-02	NA	9.9E-04	5.5E-02
			Cadmium	NA	NA	NA	NA	Kidney	6.9E-02	NA	3.6E-03	7.3E-02
			Chromium	NA	NA	NA	NA	N/A	4.5E-02	NA	4.7E-03	5.0E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	4.8E-02	NA	2.5E-05	4.8E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	7.8E-02	NA	1.0E-04	7.8E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Benzene	3.0E-08	NA	2.7E-09	3.3E-08	Circulatory	1.1E-03	NA	9.6E-05	1.2E-03
			Dichloroethane-1,2	1.3E-07	NA	3.8E-09	1.3E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	5.6E-04	NA	1.6E-05	5.7E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	4.1E-02	NA	2.2E-03	4.3E-02
			Dichloropropane-1,2	8.3E-08	NA	4.9E-09	8.8E-08	Kidney	4.7E-04	NA	2.8E-05	5.0E-04
			Tetrachloroethylene	8.9E-07	NA	3.1E-07	1.2E-06	Liver	1.3E-03	NA	4.5E-04	1.7E-03
			Trichloroethylene	9.9E-07	NA	1.0E-07	1.1E-06	Liver, Kidney, Fetotoxicity	6.4E-02	NA	6.6E-03	7.1E-02
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05	Liver	3.8E-02	NA	1.2E-03	4.0E-02
		Chemical Total		3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Exposure Medium Total			3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Air	Emissions from	Benzene	NA	3.6E-09	NA	3.6E-09	Circulatory	NA	1.2E-04	NA	1.2E-04
		Middle PRM Aquifer	Dichloroethane-1,2	NA	3.1E-08	NA	3.1E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03

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TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-03	NA	2.0E-03
			Tetrachloroethylene	NA	8.3E-09	NA	8.3E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.4E-07	NA	2.4E-07	CNS, Liver, Endocrine	NA	4.6E-04	NA	4.6E-04
			Vinyl chloride	NA	5.5E-08	NA	5.5E-08	Liver	NA	9.7E-04	NA	9.7E-04
		Chemical Total		NA	3.4E-07	NA	3.4E-07		NA	5.4E-03	NA	5.4E-03
	Exposure Medium Total			NA	3.4E-07	NA	3.4E-05		NA	5.4E-03	NA	9.8E+00
Medium Total				3.3E-05	3.4E-07	1.1E-06	3.4E-05		9.7E+00	5.4E-03	4.2E-02	9.8E+00

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Table 9.3.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	6.5E-05	1.3E-05	6.6E-06	8.4E-05	**1.1E+00**	2.4E-01	1.2E-01	**1.5E+00**
Subsurface Soil	8.2E-05	**3.2E-04**	4.2E-06	**4.1E-04**	**2.3E+00**	**1.2E+00**	3.0E-01	**3.7E+00**
Upper PRM Aquifer	**9.0E-03**	9.7E-07	1.4E-05	**9.0E-03**	**1.7E+02**	**1.3E+00**	4.9E-01	**1.7E+02**
Middle PRM Aquifer	3.3E-05	3.4E-07	1.1E-06	3.4E-05	**9.7E+00**	5.4E-03	4.2E-02	**9.8E+00**
Surface Soil + Upper PRM Aquifer	**9.1E-03**	1.4E-05	2.1E-05	**9.1E-03**	**1.7E+02**	**1.6E+00**	6.1E-01	**1.7E+02**
Surface Soil + Middle PRM Aquifer	9.8E-05	1.3E-05	7.7E-06	1.2E-04	**1.1E+01**	2.5E-01	1.6E-01	**1.1E+01**
Subsurface Soil + Upper PRM Aquifer	**9.1E-03**	**3.2E-04**	1.8E-05	**9.4E-03**	**1.7E+02**	**2.5E+00**	7.9E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	1.1E-04	**3.2E-04**	5.3E-06	**4.4E-04**	**1.2E+01**	**1.2E+00**	3.5E-01	**1.3E+01**

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Table 9.3.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	3E-03	3E-03	8E-01	NA	8E-01	3E-03	8E-01	3E-03
Total Circulatory HI Across Media =	9E-01	1E+00	**2E+02**	**9E+00**	**2E+02**	**1E+01**	**2E+02**	**1E+01**
Total CNS HI Across Media =	1E-01	9E-01	**2E+00**	4E-01	**2E+00**	5E-01	**3E+00**	1E+00
Total Developmental HI Across Media =	NA	9E-04	9E-03	NA	9E-03	NA	1E-02	9E-04
Total Fetotoxicity HI Across Media =	7E-02	2E-01	1E-01	7E-02	2E-01	1E-01	3E-01	3E-01
Total Gastrointestinal HI Across Media =	9E-02	5E-02	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total General HI Across Media =	1E-05	1E-05	NA	NA	1E-05	1E-05	1E-05	1E-05
Total Heart HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Immune HI Across Media =	3E-01	3E-01	9E-03	NA	3E-01	3E-01	3E-01	3E-01
Total Kidney HI Across Media =	3E-01	4E-01	**3E+00**	3E-01	**3E+00**	6E-01	**3E+00**	7E-01
Total Liver HI Across Media =	1E-01	8E-01	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**6E+00**	**8E+00**
Total Lungs HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Reproductive HI Across Media =	1E-02	8E-03	8E-03	NA	2E-02	1E-02	2E-02	8E-03
Total Respiratory HI Across Media =	6E-02	4E-01	**2E+00**	2E-03	**2E+00**	6E-02	**2E+00**	4E-01
Total Sensitizer HI Across Media =	NA	NA	NA	5E-02	NA	5E-02	NA	5E-02
Total Skin HI Across Media =	5E-01	1E+00	**2E+02**	1E-01	**2E+02**	6E-01	**2E+02**	1E+00
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	2E-02	6E-01	9E-04	5E-04	2E-02	2E-02	6E-01	6E-01

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	2.6E-02	NA	2.9E-04	2.6E-02
			Antimony	NA	NA	NA	NA	Body Weight	1.0E-01	NA	7.5E-03	1.1E-01
			Arsenic	1.6E-04	NA	5.3E-06	1.6E-04	Skin, Circulatory	2.4E-01	NA	8.2E-03	2.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.3E+00	NA	3.7E-01	2.7E+00
			Cadmium	NA	NA	NA	NA	Kidney	8.7E-02	NA	2.0E-03	8.9E-02
			Chromium	NA	NA	NA	NA	N/A	6.3E-02	NA	2.8E-02	9.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	6.1E-02	NA	6.9E-04	6.2E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	7.5E-01	NA	8.4E-03	7.5E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.6E-02	NA	4.4E-03	2.0E-02
			Mercury	NA	NA	NA	NA	Immune	1.3E-02	NA	2.1E-03	1.5E-02
			Nickel	NA	NA	NA	NA	Body Weight	1.6E-02	NA	4.5E-03	2.1E-02
			Silver	NA	NA	NA	NA	Skin	1.3E-02	NA	3.6E-03	1.6E-02
			Zinc	NA	NA	NA	NA	Circulatory	3.3E-02	NA	3.7E-04	3.4E-02
			Aldrin	2.6E-06	NA	2.9E-07	2.9E-06	Liver	5.9E-02	NA	6.7E-03	6.6E-02
			Chlordane - alpha	5.1E-07	NA	2.3E-08	5.4E-07	Liver	2.9E-01	NA	1.3E-02	3.0E-01
			Chlordane - gamma (technical mixture)	5.7E-07	NA	2.5E-08	5.9E-07	Liver	3.1E-01	NA	1.4E-02	3.3E-01
			DDE-4,4'	9.4E-07	NA	3.2E-08	9.7E-07	Reproductive, Fetotoxicity	1.1E-01	NA	3.6E-03	1.1E-01
			DDT-4,4'	2.0E-07	NA	6.6E-09	2.0E-07	Liver	1.3E-02	NA	4.5E-04	1.4E-02
			Dieldrin	7.6E-06	NA	8.5E-07	8.5E-06	Liver	1.1E-01	NA	1.2E-02	1.2E-01
			Heptachlor	1.6E-07	NA	1.8E-08	1.7E-07	Liver	8.1E-04	NA	9.1E-05	9.0E-04
			Pcb-Aroclor 1248	1.7E-07	NA	2.6E-08	1.9E-07	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	7.8E-06	NA	1.2E-06	9.1E-06	Immune	9.1E-01	NA	1.4E-01	1.1E+00
			Pcb-Aroclor 1260	1.6E-06	NA	2.6E-07	1.9E-06	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.2E-05	NA	1.4E-06	1.4E-05
			Benzo(a)anthracene	1.8E-05	NA	2.6E-06	2.0E-05	Kidney	9.4E-04	NA	1.4E-04	1.1E-03
			Benzo(a)pyrene	1.7E-04	NA	2.4E-05	1.9E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.9E-05	NA	2.7E-06	2.1E-05	Kidney	1.0E-03	NA	1.5E-04	1.1E-03
			Benzo(k)fluoranthene	9.3E-07	NA	1.4E-07	1.1E-06	Kidney	4.9E-04	NA	7.2E-05	5.7E-04
			Chrysene	1.7E-07	NA	2.5E-08	2.0E-07	Kidney	9.2E-04	NA	1.3E-04	1.1E-03
			Dibenzo(a,h)anthracene	1.1E-05	NA	1.7E-06	1.3E-05	Kidney	6.1E-05	NA	8.8E-06	7.0E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	1.6E-03	NA	2.6E-04	1.8E-03
			Indeno(1,2,3-cd)pyrene	4.5E-06	NA	6.5E-07	5.1E-06	Body Weight	1.2E-04	NA	1.7E-05	1.4E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	1.5E-03	NA	2.3E-04	1.8E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	7.7E-08	NA	8.6E-09	8.6E-08	Liver	3.2E-03	NA	1.9E-03	5.1E-03
			Benzene	7.8E-08	NA	0.0E+00	7.8E-08	Circulatory, Immune	5.5E-03	NA	0.0E+00	5.5E-03
			Chloroform	NA	NA	NA	NA	Liver	6.0E-04	NA	0.0E+00	6.0E-04
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	4.8E-04	NA	0.0E+00	4.8E-04
			Tetrachloroethylene	2.4E-06	NA	0.0E+00	2.4E-06	Liver	5.2E-04	NA	0.0E+00	5.2E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	1.6E-04	NA	0.0E+00	1.6E-04
			Trichloroethylene	4.7E-07	NA	0.0E+00	4.7E-07	Liver, Kidney, Fetotoxicity	4.6E-02	NA	0.0E+00	4.6E-02
			Vinyl chloride	8.8E-08	NA	0.0E+00	8.8E-08	Liver	4.6E-04	NA	0.0E+00	4.6E-04

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TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Xylenes, total	NA	NA	NA	NA	Body Weight	6.3E-04	NA	0.0E+00	6.3E-04
		Exposure Point Total		4.0E-04	NA	4.0E-05	4.4E-04		5.6E+00	NA	6.4E-01	6.2E+00
	Exposure Medium Total			4.0E-04	NA	4.0E-05	4.4E-04		5.6E+00	NA	6.4E-01	6.2E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	1.8E-03	NA	1.8E-03
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	1.7E-05	NA	1.7E-05
		Surface Soil	Arsenic	NA	1.6E-07	NA	1.6E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-02	NA	1.1E-02
			Cadmium	NA	4.7E-09	NA	4.7E-09	Kidney	NA	3.4E-05	NA	3.4E-05
			Chromium	NA	4.5E-07	NA	4.5E-07	Respiratory	NA	5.5E-02	NA	5.5E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.5E-02	NA	1.5E-02
			Mercury	NA	NA	NA	NA	CNS	NA	4.5E-06	NA	4.5E-06
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	2.2E-03	NA	2.2E-03
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	2.6E-10	NA	2.6E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	5.1E-11	NA	5.1E-11	Liver	NA	8.5E-06	NA	8.5E-06
			Chlordane - gamma (technical mixture)	NA	5.6E-11	NA	5.6E-11	Liver	NA	9.3E-06	NA	9.3E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	1.9E-11	NA	1.9E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	7.6E-10	NA	7.6E-10	N/A	NA	NA	NA	NA
			Heptachlor	NA	1.6E-11	NA	1.6E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	2.9E-12	NA	2.9E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	1.4E-10	NA	1.4E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	2.8E-11	NA	2.8E-11	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	Emissions from	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Martin Aaron property	Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	8.1E-02	NA	8.1E-02
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	1.3E-06	NA	1.3E-06	Circulatory	NA	3.4E-02	NA	3.4E-02
			Chloroform	NA	1.4E-06	NA	1.4E-06	Liver, Kidney, CNS	NA	1.4E-02	NA	1.4E-02

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TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	2.8E-06	NA	2.8E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	7.5E-02	NA	7.5E-02
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05	CNS, Liver, Endocrine	NA	4.1E-02	NA	4.1E-02
			Vinyl chloride	NA	3.4E-07	NA	3.4E-07	Liver	NA	4.5E-03	NA	4.5E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	9.7E-02	NA	9.7E-02
		Exposure Point Total		NA	2.1E-05	NA	2.1E-05		NA	4.3E-01	NA	4.3E-01
	Exposure Medium Total			NA	2.1E-05	NA	2.1E-05		NA	4.3E-01	NA	4.3E-01
Medium Total				4.0E-04	2.1E-05	4.0E-05	4.6E-04		5.6E+00	4.3E-01	6.4E-01	6.7E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.6E-02	NA	2.9E-04	2.6E-02
			Antimony	NA	NA	NA	NA	Body Weight	2.2E-01	NA	1.6E-02	2.3E-01
			Arsenic	4.0E-04	NA	1.4E-05	4.2E-04	Skin, Circulatory	6.3E-01	NA	2.1E-02	6.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.3E+00	NA	2.1E-01	1.5E+00
			Cadmium	NA	NA	NA	NA	Kidney	8.1E-02	NA	1.8E-03	8.3E-02
			Chromium	NA	NA	NA	NA	N/A	5.8E-01	NA	2.6E-01	8.4E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.5E-02	NA	6.2E-04	5.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.8E-01	NA	4.3E-03	3.8E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.9E-03	NA	2.8E-03	1.3E-02
			Mercury	NA	NA	NA	NA	Immune	4.0E-01	NA	6.4E-02	4.6E-01
			Nickel	NA	NA	NA	NA	Body Weight	1.5E-02	NA	4.2E-03	1.9E-02
			Silver	NA	NA	NA	NA	Skin	5.1E-03	NA	1.4E-03	6.5E-03
			Thallium	NA	NA	NA	NA	Liver, Circulatory	6.9E-03	NA	7.7E-05	6.9E-03
			Vanadium	NA	NA	NA	NA	Kidney	1.5E-02	NA	6.3E-03	2.1E-02
			Zinc	NA	NA	NA	NA	Circulatory	2.7E-02	NA	3.1E-04	2.8E-02
			Aldrin	1.1E-06	NA	1.2E-07	1.2E-06	Liver	2.5E-02	NA	2.7E-03	2.7E-02
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Martin Aaron property Subsurface Soil (cont.)	Chlordane - alpha	2.0E-07	NA	9.1E-09	2.1E-07	Liver	1.1E-01	NA	5.1E-03	1.2E-01
			Chlordane - gamma (technical mixture)	2.4E-07	NA	1.1E-08	2.5E-07	Liver	1.4E-01	NA	6.1E-03	1.4E-01
			DDE-4,4'	6.1E-07	NA	2.0E-08	6.3E-07	Reproductive, Fetotoxicity	6.9E-02	NA	2.3E-03	7.2E-02
			DDT-4,4'	4.9E-08	NA	1.6E-09	5.0E-08	Liver	3.3E-03	NA	1.1E-04	3.5E-03
			Dieldrin	1.0E-06	NA	1.2E-07	1.2E-06	Liver	1.5E-02	NA	1.7E-03	1.7E-02
			Heptachlor	6.2E-08	NA	7.0E-09	6.9E-08	Liver	3.2E-04	NA	3.6E-05	3.6E-04
			Pcb-Aroclor 1248	6.8E-08	NA	1.1E-08	7.8E-08	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	7.9E-06	NA	1.2E-06	9.1E-06	Immune	9.2E-01	NA	1.4E-01	1.1E+00
			Pcb-Aroclor 1260	1.7E-07	NA	2.7E-08	2.0E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.2E-05	NA	1.4E-06	1.4E-05
			Benzo(a)anthracene	5.2E-06	NA	7.6E-07	6.0E-06	Kidney	2.8E-04	NA	4.1E-05	3.2E-04
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.8E-06	NA	8.4E-07	6.6E-06	Kidney	3.1E-04	NA	4.5E-05	3.5E-04

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TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	2.1E-07	NA	3.1E-08	2.5E-07	Kidney	1.1E-04	NA	1.7E-05	1.3E-04
			Chrysene	4.9E-08	NA	7.2E-09	5.6E-08	Kidney	2.6E-04	NA	3.8E-05	3.0E-04
			Dibenzo(a,h)anthracene	1.1E-05	NA	1.6E-06	1.2E-05	Kidney	5.8E-05	NA	8.4E-06	6.6E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	4.0E-04	NA	6.6E-05	4.7E-04
			Indeno(1,2,3-cd)pyrene	2.6E-06	NA	3.8E-07	3.0E-06	Body Weight	6.9E-05	NA	1.0E-05	8.0E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	6.9E-03	NA	1.0E-03	7.9E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	1.3E-07	NA	1.5E-08	1.5E-07	Liver	5.5E-03	NA	3.2E-03	8.7E-03
			Benzene	1.2E-07	NA	0.0E+00	1.2E-07	Circulatory, Immune	8.4E-03	NA	0.0E+00	8.4E-03
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	4.4E-04	NA	0.0E+00	4.4E-04
			Chloroform	NA	NA	NA	NA	Liver	9.5E-04	NA	0.0E+00	9.5E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.4E-04	NA	0.0E+00	2.4E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	2.7E-04	NA	0.0E+00	2.7E-04
			Tetrachloroethylene	4.5E-06	NA	0.0E+00	4.5E-06	Liver	9.8E-04	NA	0.0E+00	9.8E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	6.5E-05	NA	0.0E+00	6.5E-05
			Trichloroethylene	1.7E-05	NA	0.0E+00	1.7E-05	Liver, Kidney, Fetotoxicity	1.6E+00	NA	0.0E+00	1.6E+00
			Vinyl chloride	1.3E-07	NA	0.0E+00	1.3E-07	Liver	6.8E-04	NA	0.0E+00	6.8E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	9.5E-04	NA	0.0E+00	9.5E-04
		Exposure Point Total		5.1E-04	NA	2.6E-05	5.3E-04		6.7E+00	NA	7.6E-01	7.4E+00
	Exposure Medium Total			5.1E-04	NA	2.6E-05	5.3E-04		6.7E+00	NA	7.6E-01	7.4E+00
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	1.8E-03	NA	1.8E-03
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	3.7E-05	NA	3.7E-05
		Subsurface Soil	Arsenic	NA	4.0E-07	NA	4.0E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	6.5E-03	NA	6.5E-03
Subsurface Soil	Ambient Air	Emissions from	Cadmium	NA	4.3E-09	NA	4.3E-09	Kidney	NA	3.1E-05	NA	3.1E-05
(cont.)	(cont.)	Martin Aaron property	Chromium	NA	4.1E-06	NA	4.1E-06	Respiratory	NA	5.0E-01	NA	5.0E-01
		Subsurface Soil (cont.)	Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	9.6E-03	NA	9.6E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.4E-04	NA	1.4E-04
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	8.8E-04	NA	8.8E-04
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.1E-10	NA	1.1E-10	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	2.0E-11	NA	2.0E-11	Liver	NA	3.3E-06	NA	3.3E-06
			Chlordane - gamma (technical mixture)	NA	2.4E-11	NA	2.4E-11	Liver	NA	4.0E-06	NA	4.0E-06
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	4.8E-12	NA	4.8E-12	N/A	NA	NA	NA	NA

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TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Dieldrin	NA	1.0E-10	NA	1.0E-10	N/A	NA	NA	NA	NA
			Heptachlor	NA	6.2E-12	NA	6.2E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	1.2E-12	NA	1.2E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	1.4E-10	NA	1.4E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	2.9E-12	NA	2.9E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.6E-01	NA	3.6E-01
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.0E-06	NA	2.0E-06	Circulatory	NA	5.1E-02	NA	5.1E-02
			Bromomethane	NA	NA	NA	NA	Respiratory	NA	8.3E-02	NA	8.3E-02
			Chloroform	NA	2.2E-06	NA	2.2E-06	Liver, Kidney, CNS	NA	2.2E-02	NA	2.2E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	2.2E-03	NA	2.2E-03
			Tetrachloroethylene	NA	5.3E-06	NA	5.3E-06	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	3.1E-02	NA	3.1E-02
			Trichloroethylene	NA	4.9E-04	NA	4.9E-04	CNS, Liver, Endocrine	NA	1.4E+00	NA	1.4E+00
			Vinyl chloride	NA	5.0E-07	NA	5.0E-07	Liver	NA	6.7E-03	NA	6.7E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.5E-01	NA	1.5E-01
		Exposure Point Total		NA	5.1E-04	NA	5.1E-04		NA	2.7E+00	NA	2.7E+00
	Exposure Medium Total			NA	5.1E-04	NA	5.1E-04		NA	2.7E+00	NA	2.7E+00
Medium Total				5.1E-04	5.1E-04	2.6E-05	1.0E-03		6.7E+00	2.7E+00	7.6E-01	1.0E+01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
			Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	3.3E-02	NA	4.4E-03	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Chromium	NA	NA	NA	NA	N/A	9.5E-02	NA	7.0E-03	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.6E-02	NA	5.1E-05	5.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.0E-01	NA	1.4E-02	6.2E-01

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TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Mercury	NA	NA	NA	NA	Immune	3.0E-02	NA	3.9E-04	3.0E-02
			Nickel	NA	NA	NA	NA	Body Weight	6.3E-02	NA	2.9E-04	6.3E-02
			Selenium	NA	NA	NA	NA	Skin	6.0E-02	NA	5.5E-05	6.0E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium	NA	NA	NA	NA	Kidney	3.6E-01	NA	1.3E-02	3.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	1.7E-01	NA	9.2E-05	1.7E-01
			Chlordane - alpha	2.9E-08	NA	2.2E-08	5.0E-08	Liver	1.6E-02	NA	1.2E-02	2.8E-02
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06	Liver	1.9E-02	NA	4.6E-03	2.3E-02
			Heptachlor Epoxide	3.3E-07	NA	5.6E-08	3.9E-07	Liver	3.2E-02	NA	5.6E-03	3.8E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	4.3E-03	NA	1.5E-04	4.5E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00
			Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Nitrosodiphenylamine-n	2.0E-07	NA	2.3E-08	2.2E-07	Body Weight, Developmental, Reproductive	2.3E-02	NA	2.8E-03	2.6E-02
			Phenol	NA	NA	NA	NA	Body Weight	6.9E-02	NA	1.2E-03	7.0E-02
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Chloroethane	1.4E-08	NA	2.9E-10	1.4E-08	Fetotoxicity	1.4E-04	NA	2.9E-06	1.4E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	3.1E-02	NA	1.0E-02	4.2E-02
			Dichlorobenzene-1,4	8.1E-08	NA	2.0E-08	1.0E-07	Liver, Developmental	1.3E-03	NA	3.2E-04	1.6E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	8.4E-04	NA	2.4E-05	8.6E-04
			Dichloroethane-1,2	3.2E-07	NA	5.6E-09	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.0E-03	NA	3.6E-05	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.1E-03	NA	3.4E-04	1.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	5.1E-02	NA	1.6E-03	5.3E-02
			Dichloropropane-1,2	2.2E-07	NA	7.8E-09	2.2E-07	Kidney	1.8E-03	NA	6.7E-05	1.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	5.0E-03	NA	1.1E-03	6.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.7E-03	NA	2.0E-05	1.7E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06	Liver	3.4E-04	NA	7.4E-05	4.2E-04
			Trichloroethane-1,1,2	9.0E-08	NA	3.0E-09	9.3E-08	Circulatory	4.6E-04	NA	1.6E-05	4.7E-04
			Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	4.0E-03	NA	9.4E-04	5.0E-03
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+01	NA	1.2E+01
			Benzene	NA	2.2E-06	NA	2.2E-06	Circulatory	NA	5.5E-02	NA	5.5E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-05	NA	1.3E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.8E-08	NA	4.8E-08	Liver	NA	1.1E-04	NA	1.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	3.8E-04	NA	3.8E-04

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TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethane-1,2	NA	2.1E-07	NA	2.1E-07	Gastrointestinal, Liver, Kidney	NA	1.9E-02	NA	1.9E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	6.5E-03	NA	6.5E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.1E-03	NA	1.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.0E-03	NA	1.0E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.6E-04	NA	7.6E-04
			Tetrachloroethylene	NA	4.0E-08	NA	4.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.7E-08	NA	5.7E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06	CNS, Liver, Endocrine	NA	8.1E-03	NA	8.1E-03
			Vinyl chloride	NA	5.2E-07	NA	5.2E-07	Liver	NA	1.4E-02	NA	1.4E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.8E-02	NA	1.8E-02
Groundwater	Air	Chemical Total		NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.8E-06	2.2E-05	2.0E-02		6.1E+01	1.2E+01	5.0E-01	7.3E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05	Skin, Circulatory	3.0E-02	NA	2.8E-05	3.0E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Chromium	NA	NA	NA	NA	N/A	2.3E-02	NA	1.7E-03	2.4E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.3E+01	NA	2.1E-02	2.3E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.1E+00	NA	2.4E-02	1.1E+00
			Thallium	NA	NA	NA	NA	Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Benzene	6.6E-08	NA	3.7E-09	7.0E-08	Circulatory, Immune	4.7E-03	NA	2.6E-04	5.0E-03
			Dichloroethane-1,2	2.9E-07	NA	5.1E-09	3.0E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.9E-03	NA	3.3E-05	1.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.4E-02	NA	4.4E-04	1.4E-02
			Dichloropropane-1,2	1.8E-07	NA	6.7E-09	1.9E-07	Kidney	1.6E-03	NA	5.7E-05	1.6E-03
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06	Liver	4.3E-04	NA	9.2E-05	5.2E-04
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	2.2E-08	NA	2.2E-08	Circulatory	NA	5.4E-04	NA	5.4E-04
			Dichloroethane-1,2	NA	1.9E-07	NA	1.9E-07	Gastrointestinal, Liver, Kidney	NA	1.7E-02	NA	1.7E-02

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	5.5E-03	NA	5.5E-03
			Tetrachloroethylene	NA	5.0E-08	NA	5.0E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	4.2E-03	NA	4.2E-03
			Vinyl chloride	NA	3.3E-07	NA	3.3E-07	Liver	NA	8.8E-03	NA	8.8E-03
		Chemical Total		NA	*2.0E-06*	NA	*2.0E-06*		NA	*3.6E-02*	NA	*3.6E-02*
	Exposure Medium Total			NA	2.0E-06	NA	7.5E-05		NA	3.6E-02	NA	2.7E+01
Medium Total				7.3E-05	2.0E-06	1.5E-06	7.7E-05		2.6E+01	3.6E-02	7.3E-02	2.7E+01

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Table 9.4.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**4.0E-04**	2.1E-05	4.0E-05	**4.6E-04**	**5.6E+00**	4.3E-01	6.4E-01	**6.7E+00**
Subsurface Soil	**5.1E-04**	**5.1E-04**	2.6E-05	**1.0E-03**	**6.7E+00**	**2.7E+00**	7.6E-01	**1.0E+01**
Upper PRM Aquifer	**2.0E-02**	5.8E-06	2.2E-05	**2.0E-02**	**6.1E+01**	**1.2E+01**	5.0E-01	**7.3E+01**
Middle PRM Aquifer	7.3E-05	2.0E-06	1.5E-06	7.7E-05	**2.6E+01**	3.6E-02	7.3E-02	**2.7E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	2.6E-05	6.2E-05	**2.0E-02**	**6.6E+01**	**1.2E+01**	**1.1E+00**	**8.0E+01**
Surface Soil + Middle PRM Aquifer	**4.8E-04**	2.3E-05	4.2E-05	**5.4E-04**	**3.2E+01**	4.7E-01	7.1E-01	**3.3E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	**5.1E-04**	4.8E-05	**2.1E-02**	**6.7E+01**	**1.4E+01**	**1.3E+00**	**8.3E+01**
Subsurface Soil + Middle PRM Aquifer	**5.8E-04**	**5.1E-04**	2.7E-05	**1.1E-03**	**3.3E+01**	**2.7E+00**	8.3E-01	**3.7E+01**

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Table 9.4.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	1E-01	3E-01	**4E+00**	6E-01	**4E+00**	8E-01	**4E+00**	9E-01
Total Circulatory HI Across Media =	**4E+00**	**3E+00**	**5E+01**	**2E+01**	**6E+01**	**3E+01**	**6E+01**	**3E+01**
Total CNS HI Across Media =	4E-01	**2E+00**	**1E+01**	1E+00	**1E+01**	**2E+00**	**2E+01**	**3E+00**
Total Developmental HI Across Media =	NA	2E-03	3E-02	NA	3E-02	NA	3E-02	2E-03
Total Fetotoxicity HI Across Media =	2E-01	**2E+00**	4E-01	2E-01	6E-01	4E-01	**2E+00**	**2E+00**
Total Gastrointestinal HI Across Media =	8E-01	4E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total General HI Across Media =	1E-05	1E-05	NA	NA	1E-05	1E-05	1E-05	1E-05
Total Heart HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Immune HI Across Media =	1E+00	**2E+00**	5E-01	5E-03	**2E+00**	1E+00	**2E+00**	**2E+00**
Total Kidney HI Across Media =	**3E+00**	**3E+00**	**7E+00**	8E-01	**1E+01**	**4E+00**	**1E+01**	**4E+00**
Total Liver HI Across Media =	**2E+00**	**4E+00**	**2E+01**	**2E+01**	**2E+01**	**3E+01**	**2E+01**	**3E+01**
Total Lungs HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Reproductive HI Across Media =	1E-01	7E-02	3E-02	NA	1E-01	1E-01	1E-01	7E-02
Total Respiratory HI Across Media =	1E-01	9E-01	**1E+01**	6E-03	**1E+01**	1E-01	**1E+01**	9E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	3E-01	7E-01	**3E+01**	3E-02	**3E+01**	3E-01	**3E+01**	7E-01
Total Thyroid HI Across Media =	NA	NA	4E-02	NA	4E-02	NA	4E-02	NA
Total Endocrine HI Across Media =	4E-02	1E+00	8E-03	4E-03	5E-02	5E-02	1E+00	1E+00

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	3.3E-03	NA	6.5E-05	3.3E-03
			Antimony	NA	NA	NA	NA	Body Weight	1.3E-02	NA	1.7E-03	1.4E-02
			Arsenic	3.3E-06	NA	2.0E-07	3.5E-06	Skin, Circulatory	3.1E-02	NA	1.9E-03	3.3E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.9E-01	NA	8.4E-02	3.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.1E-02	NA	4.4E-04	1.2E-02
			Chromium	NA	NA	NA	NA	N/A	8.1E-03	NA	6.4E-03	1.4E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	7.8E-03	NA	1.6E-04	7.9E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	9.5E-02	NA	1.9E-03	9.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.0E-03	NA	1.0E-03	3.0E-03
			Mercury	NA	NA	NA	NA	Immune	1.6E-03	NA	4.7E-04	2.1E-03
			Nickel	NA	NA	NA	NA	Body Weight	2.1E-03	NA	1.0E-03	3.1E-03
			Silver	NA	NA	NA	NA	Skin	1.6E-03	NA	8.1E-04	2.4E-03
			Zinc	NA	NA	NA	NA	Circulatory	4.2E-03	NA	8.5E-05	4.3E-03
			Aldrin	5.5E-08	NA	1.1E-08	6.6E-08	Liver	7.5E-03	NA	1.5E-03	9.1E-03
			Chlordane - alpha	1.1E-08	NA	8.7E-10	1.2E-08	Liver	3.6E-02	NA	2.9E-03	3.9E-02
			Chlordane - gamma (technical mixture)	1.2E-08	NA	9.6E-10	1.3E-08	Liver	4.0E-02	NA	3.2E-03	4.3E-02
			DDE-4,4'	2.0E-08	NA	1.2E-09	2.1E-08	Reproductive, Fetotoxicity	1.4E-02	NA	8.2E-04	1.4E-02
			DDT-4,4'	4.2E-09	NA	2.5E-10	4.4E-09	Liver	1.7E-03	NA	1.0E-04	1.8E-03
			Dieldrin	1.6E-07	NA	3.2E-08	1.9E-07	Liver	1.4E-02	NA	2.8E-03	1.7E-02
			Heptachlor	3.3E-09	NA	6.6E-10	4.0E-09	Liver	1.0E-04	NA	2.1E-05	1.2E-04
			Pcb-Aroclor 1248	3.6E-09	NA	1.0E-09	4.6E-09	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	1.7E-07	NA	4.6E-08	2.1E-07	Immune	1.2E-01	NA	3.2E-02	1.5E-01
			Pcb-Aroclor 1260	3.4E-08	NA	9.6E-09	4.4E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.6E-06	NA	3.1E-07	1.9E-06
			Benzo(a)anthracene	3.7E-07	NA	9.7E-08	4.7E-07	Kidney	1.2E-04	NA	3.1E-05	1.5E-04
			Benzo(a)pyrene	3.5E-06	NA	9.2E-07	4.4E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.0E-07	NA	1.0E-07	5.0E-07	Kidney	1.3E-04	NA	3.3E-05	1.6E-04
			Benzo(k)fluoranthene	2.0E-08	NA	5.1E-09	2.5E-08	Kidney	6.3E-05	NA	1.6E-05	7.9E-05
			Chrysene	3.6E-09	NA	9.5E-10	4.6E-09	Kidney	1.2E-04	NA	3.0E-05	1.5E-04
			Dibenzo(a,h)anthracene	2.4E-07	NA	6.3E-08	3.0E-07	Kidney	7.7E-06	NA	2.0E-06	9.7E-06
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	2.0E-04	NA	5.9E-05	2.6E-04
			Indeno(1,2,3-cd)pyrene	9.5E-08	NA	2.5E-08	1.2E-07	Body Weight	1.5E-05	NA	3.9E-06	1.9E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	2.0E-04	NA	5.1E-05	2.5E-04
			Phthalate, bis(2-ethylhexyl) (DEHP)	1.6E-09	NA	3.3E-10	2.0E-09	Liver	4.1E-04	NA	4.3E-04	8.4E-04
			Benzene	1.6E-09	NA	0.0E+00	1.6E-09	Circulatory, Immune	7.0E-04	NA	0.0E+00	7.0E-04
			Chloroform	NA	NA	NA	NA	Liver	7.6E-05	NA	0.0E+00	7.6E-05
Surface Soil (cont.)	Surface Soil (cont.)	Martin Aaron property Surface Soil (cont.)	Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	6.0E-05	NA	0.0E+00	6.0E-05
			Tetrachloroethylene	5.1E-08	NA	0.0E+00	5.1E-08	Liver	6.6E-05	NA	0.0E+00	6.6E-05
			Toluene	NA	NA	NA	NA	Liver, Kidney	2.0E-05	NA	0.0E+00	2.0E-05
			Trichloroethylene	1.0E-08	NA	0.0E+00	1.0E-08	Liver, Kidney, Fetotoxicity	5.9E-03	NA	0.0E+00	5.9E-03
			Vinyl chloride	3.7E-09	NA	0.0E+00	3.7E-09	Liver	5.8E-05	NA	0.0E+00	5.8E-05

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TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Xylenes, total	NA	NA	NA	NA	Body Weight	8.0E-05	NA	0.0E+00	8.0E-05
		Exposure Point Total		8.5E-06	NA	1.5E-06	1.0E-05		7.1E-01	NA	1.4E-01	8.6E-01
	Exposure Medium Total			8.5E-06	NA	1.5E-06	1.0E-05		7.1E-01	NA	1.4E-01	8.6E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	5.7E-05	NA	5.7E-05
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	5.6E-07	NA	5.6E-07
		Surface Soil	Arsenic	NA	8.3E-10	NA	8.3E-10	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.7E-04	NA	3.7E-04
			Cadmium	NA	2.5E-11	NA	2.5E-11	Kidney	NA	1.1E-06	NA	1.1E-06
			Chromium	NA	2.4E-09	NA	2.4E-09	Respiratory	NA	1.8E-03	NA	1.8E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	4.9E-04	NA	4.9E-04
			Mercury	NA	NA	NA	NA	CNS	NA	1.4E-07	NA	1.4E-07
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	7.1E-05	NA	7.1E-05
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.4E-12	NA	1.4E-12	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	2.7E-13	NA	2.7E-13	Liver	NA	2.7E-07	NA	2.7E-07
			Chlordane - gamma (technical mixture)	NA	3.0E-13	NA	3.0E-13	Liver	NA	3.0E-07	NA	3.0E-07
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	1.0E-13	NA	1.0E-13	N/A	NA	NA	NA	NA
			Dieldrin	NA	4.0E-12	NA	4.0E-12	N/A	NA	NA	NA	NA
			Heptachlor	NA	8.4E-14	NA	8.4E-14	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	1.6E-14	NA	1.6E-14	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	7.2E-13	NA	7.2E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.5E-13	NA	1.5E-13	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	Emissions from	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Martin Aaron property	Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Surface Soil (cont.)	Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.1E-03	NA	1.1E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	3.3E-08	NA	3.3E-08	Circulatory	NA	5.0E-03	NA	5.0E-03
			Chloroform	NA	2.6E-08	NA	2.6E-08	Liver, Kidney, CNS	NA	1.6E-03	NA	1.6E-03

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TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	7.8E-08	NA	7.8E-08	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	8.8E-03	NA	8.8E-03
			Trichloroethylene	NA	3.4E-07	NA	3.4E-07	CNS, Liver, Endocrine	NA	5.9E-03	NA	5.9E-03
			Vinyl chloride	NA	1.5E-08	NA	1.5E-08	Liver	NA	2.4E-03	NA	2.4E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.2E-02	NA	1.2E-02
		Exposure Point Total		NA	5.0E-07	NA	5.0E-07		NA	3.9E-02	NA	3.9E-02
	Exposure Medium Total			NA	5.0E-07	NA	5.0E-07		NA	3.9E-02	NA	3.9E-02
Medium Total				8.5E-06	5.0E-07	1.5E-06	1.1E-05		7.1E-01	3.9E-02	1.4E-01	9.0E-01
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	3.3E-03	NA	6.6E-05	3.4E-03
			Antimony	NA	NA	NA	NA	Body Weight	2.8E-02	NA	5.5E-04	2.8E-02
			Arsenic	8.5E-06	NA	5.1E-07	9.0E-06	Skin, Circulatory	8.0E-02	NA	4.8E-03	8.4E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.7E-01	NA	3.3E-03	1.7E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.0E-02	NA	2.1E-05	1.0E-02
			Chromium	NA	NA	NA	NA	N/A	7.3E-02	NA	1.5E-03	7.5E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	7.0E-03	NA	1.4E-04	7.1E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.8E-02	NA	9.7E-04	4.9E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.3E-03	NA	2.5E-05	1.3E-03
			Mercury	NA	NA	NA	NA	Immune	5.0E-02	NA	1.0E-03	5.2E-02
			Nickel	NA	NA	NA	NA	Body Weight	1.9E-03	NA	3.8E-05	1.9E-03
			Silver	NA	NA	NA	NA	Skin	6.5E-04	NA	1.3E-05	6.6E-04
			Thallium	NA	NA	NA	NA	Liver, Circulatory	8.7E-04	NA	1.7E-05	8.9E-04
			Vanadium	NA	NA	NA	NA	Kidney	1.8E-03	NA	3.7E-05	1.9E-03
			Zinc	NA	NA	NA	NA	Circulatory	3.5E-03	NA	7.0E-05	3.6E-03
			Aldrin	2.3E-08	NA	4.5E-09	2.7E-08	Liver	3.1E-03	NA	6.2E-04	3.7E-03
Subsurface Soil	Subsurface Soil	Martin Aaron property	Chlordane - alpha	4.3E-09	NA	3.4E-10	4.6E-09	Liver	1.4E-02	NA	1.1E-03	1.5E-02
(cont.)	(cont.)	Subsurface Soil (cont.)	Chlordane - gamma (technical mixture)	5.1E-09	NA	4.1E-10	5.6E-09	Liver	1.7E-02	NA	1.4E-03	1.9E-02
			DDE-4,4'	1.3E-08	NA	7.7E-10	1.4E-08	Reproductive, Fetotoxicity	8.8E-03	NA	5.3E-04	9.3E-03
			DDT-4,4'	1.0E-09	NA	6.2E-11	1.1E-09	Liver	4.2E-04	NA	2.5E-05	4.5E-04
			Dieldrin	2.2E-08	NA	4.4E-09	2.7E-08	Liver	1.9E-03	NA	3.9E-04	2.3E-03
			Heptachlor	1.3E-09	NA	2.6E-10	1.6E-09	Liver	4.1E-05	NA	8.2E-06	4.9E-05
			Pcb-Aroclor 1248	1.4E-09	NA	4.0E-10	1.8E-09	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	1.7E-07	NA	4.7E-08	2.1E-07	Immune	1.2E-01	NA	3.3E-02	1.5E-01
			Pcb-Aroclor 1260	3.6E-09	NA	1.0E-09	4.6E-09	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	1.6E-06	NA	3.1E-07	1.9E-06
			Benzo(a)anthracene	1.1E-07	NA	2.9E-08	1.4E-07	Kidney	3.5E-05	NA	9.2E-06	4.5E-05
			Benzo(a)pyrene	1.0E-06	NA	2.7E-07	1.3E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.2E-07	NA	3.2E-08	1.5E-07	Kidney	3.9E-05	NA	1.0E-05	4.9E-05

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TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Benzo(k)fluoranthene	4.5E-09	NA	1.2E-09	5.7E-09	Kidney	1.4E-05	NA	3.8E-06	1.8E-05
			Chrysene	1.0E-09	NA	2.7E-10	1.3E-09	Kidney	3.3E-05	NA	8.6E-06	4.2E-05
			Dibenzo(a,h)anthracene	2.3E-07	NA	6.0E-08	2.9E-07	Kidney	7.3E-06	NA	1.9E-06	9.2E-06
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	5.1E-05	NA	1.3E-05	6.4E-05
			Indeno(1,2,3-cd)pyrene	5.5E-08	NA	1.4E-08	7.0E-08	Body Weight	8.8E-06	NA	2.3E-06	1.1E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	8.8E-04	NA	2.3E-04	1.1E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	2.8E-09	NA	5.6E-10	3.4E-09	Liver	7.0E-04	NA	1.4E-04	8.4E-04
			Benzene	2.5E-09	NA	0.0E+00	2.5E-09	Circulatory, Immune	1.1E-03	NA	0.0E+00	1.1E-03
			Bromomethane	NA	NA	NA	NA	Gastrointestinal	5.6E-05	NA	0.0E+00	5.6E-05
			Chloroform	NA	NA	NA	NA	Liver	1.2E-04	NA	0.0E+00	1.2E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	3.1E-05	NA	0.0E+00	3.1E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	3.5E-05	NA	0.0E+00	3.5E-05
			Tetrachloroethylene	9.5E-08	NA	0.0E+00	9.5E-08	Liver	1.2E-04	NA	0.0E+00	1.2E-04
			Toluene	NA	NA	NA	NA	Liver, Kidney	8.2E-06	NA	0.0E+00	8.2E-06
			Trichloroethylene	3.5E-07	NA	0.0E+00	3.5E-07	Liver, Kidney, Fetotoxicity	2.0E-01	NA	0.0E+00	2.0E-01
			Vinyl chloride	5.6E-09	NA	0.0E+00	5.6E-09	Liver	8.7E-05	NA	0.0E+00	8.7E-05
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.2E-04	NA	0.0E+00	1.2E-04
		Exposure Point Total		1.1E-05	NA	9.7E-07	1.2E-05		8.5E-01	NA	5.0E-02	9.0E-01
	Exposure Medium Total			1.1E-05	NA	9.7E-07	1.2E-05		8.5E-01	NA	5.0E-02	9.0E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	5.8E-05	NA	5.8E-05
		Martin Aaron property	Antimony	NA	NA	NA	NA	N/A	NA	1.2E-06	NA	1.2E-06
		Subsurface Soil	Arsenic	NA	2.1E-09	NA	2.1E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.1E-04	NA	2.1E-04
Subsurface Soil	Ambient Air	Emissions from	Cadmium	NA	2.3E-11	NA	2.3E-11	Kidney	NA	1.0E-06	NA	1.0E-06
(cont.)	(cont.)	Martin Aaron property	Chromium	NA	2.2E-08	NA	2.2E-08	Respiratory	NA	1.6E-02	NA	1.6E-02
		Subsurface Soil (cont.)	*Copper*	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.1E-04	NA	3.1E-04
			Mercury	NA	NA	NA	NA	CNS	NA	4.4E-06	NA	4.4E-06
			Nickel	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Silver	NA	NA	NA	NA	Skin	NA	2.8E-05	NA	2.8E-05
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	5.7E-13	NA	5.7E-13	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.1E-13	NA	1.1E-13	Liver	NA	1.1E-07	NA	1.1E-07
			Chlordane - gamma (technical mixture)	NA	1.3E-13	NA	1.3E-13	Liver	NA	1.3E-07	NA	1.3E-07
			DDE-4,4'	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			DDT-4,4'	NA	2.6E-14	NA	2.6E-14	N/A	NA	NA	NA	NA

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TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil (cont.)	Ambient Air (cont.)	Emissions from Martin Aaron property Subsurface Soil (cont.)	Dieldrin	NA	5.6E-13	NA	5.6E-13	N/A	NA	NA	NA	NA
			Heptachlor	NA	3.3E-14	NA	3.3E-14	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1248	NA	6.2E-15	NA	6.2E-15	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	7.3E-13	NA	7.3E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.6E-14	NA	1.6E-14	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	5.1E-03	NA	5.1E-03
			Phthalate, bis(2-ethylhexyl) (DEHP)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	5.1E-08	NA	5.1E-08	Circulatory	NA	7.6E-03	NA	7.6E-03
			Bromomethane	NA	NA	NA	NA	Respiratory	NA	2.4E-02	NA	2.4E-02
			Chloroform	NA	4.2E-08	NA	4.2E-08	Liver, Kidney, CNS	NA	2.6E-03	NA	2.6E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	2.6E-04	NA	2.6E-04
			Tetrachloroethylene	NA	1.5E-07	NA	1.5E-07	N/A	NA	NA	NA	NA
			Toluene	NA	NA	NA	NA	CNS	NA	3.7E-03	NA	3.7E-03
			Trichloroethylene	NA	1.2E-05	NA	1.2E-05	CNS, Liver, Endocrine	NA	2.1E-01	NA	2.1E-01
			Vinyl chloride	NA	2.3E-08	NA	2.3E-08	Liver	NA	3.6E-03	NA	3.6E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.8E-02	NA	1.8E-02
		Exposure Point Total		NA	1.2E-05	NA	1.2E-05		NA	2.9E-01	NA	2.9E-01
	Exposure Medium Total			NA	1.2E-05	NA	1.2E-05		NA	2.9E-01	NA	2.9E-01
Medium Total				1.1E-05	1.2E-05	9.7E-07	2.4E-05		8.5E-01	2.9E-01	5.0E-02	1.2E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	3.5E-04	3.5E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	6.1E-03	6.1E-03
			Arsenic	NA	NA	2.6E-06	2.6E-06	Skin, Circulatory	NA	NA	2.5E-02	2.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	6.7E-02	6.7E-02
			Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	3.8E-03	3.8E-03
			Cadmium	NA	NA	NA	NA	Kidney	NA	NA	9.0E-03	9.0E-03
			Chromium	NA	NA	NA	NA	N/A	NA	NA	6.0E-03	6.0E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	4.4E-05	4.4E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	1.3E-02	1.3E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	1.2E-02	1.2E-02

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TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	NA	NA	3.4E-04	3.4E-04
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	2.5E-04	2.5E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	4.8E-05	4.8E-05
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	2.0E-04	2.0E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	1.1E-02	1.1E-02
			Zinc	NA	NA	NA	NA	Circulatory	NA	NA	7.9E-05	7.9E-05
			Chlordane - alpha	NA	NA	5.8E-10	5.8E-10	Liver	NA	NA	1.9E-03	1.9E-03
			Dieldrin	NA	NA	8.5E-09	8.5E-09	Liver	NA	NA	7.5E-04	7.5E-04
			Heptachlor Epoxide	NA	NA	1.5E-09	1.5E-09	Liver	NA	NA	8.9E-04	8.9E-04
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	3.2E-05	3.2E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	8.8E-03	8.8E-03
			Ether, bis(2-chloroethyl)	NA	NA	1.9E-08	1.9E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	3.4E-02	3.4E-02
			Nitrosodiphenylamine-n	NA	NA	6.5E-10	6.5E-10	Body Weight, Developmental, Reproductive	NA	NA	4.6E-04	4.6E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	2.8E-04	2.8E-04
			Benzene	NA	NA	1.4E-08	1.4E-08	Circulatory, Immune	NA	NA	6.1E-03	6.1E-03
			Chloroethane	NA	NA	1.2E-11	1.2E-11	Fetotoxicity	NA	NA	7.5E-07	7.5E-07
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	1.8E-03	1.8E-03
			Dichlorobenzene-1,4	NA	NA	5.7E-10	5.7E-10	Liver, Developmental	NA	NA	5.5E-05	5.5E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	5.2E-06	5.2E-06
			Dichloroethane-1,2	NA	NA	2.1E-10	2.1E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	8.0E-06	8.0E-06
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	7.6E-05	7.6E-05
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	NA	NA	3.6E-04	3.6E-04
			Dichloropropane-1,2	NA	NA	2.7E-10	2.7E-10	Kidney	NA	NA	1.4E-05	1.4E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	2.1E-04	2.1E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	4.4E-06	4.4E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	NA	9.6E-09	9.6E-09	Liver	NA	NA	1.2E-05	1.2E-05
			Trichloroethane-1,1,2	NA	NA	9.8E-11	9.8E-11	Circulatory	NA	NA	3.0E-06	3.0E-06
			Trichloroethylene	NA	NA	8.3E-09	8.3E-09	Liver, Kidney, Fetotoxicity	NA	NA	4.8E-03	4.8E-03
			Vinyl chloride	NA	NA	6.3E-08	6.3E-08	Liver	NA	NA	9.9E-04	9.9E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	1.8E-04	1.8E-04
		Exposure Point Total		NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
	Exposure Medium Total			NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
			Benzene	NA	6.0E-07	NA	6.0E-07	Circulatory	NA	9.0E-02	NA	9.0E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.4E-05	NA	2.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.1E-08	NA	1.1E-08	Liver	NA	1.6E-04	NA	1.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.5E-04	NA	6.5E-04

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TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethane-1,2	NA	5.6E-08	NA	5.6E-08	Gastrointestinal, Liver, Kidney	NA	3.0E-02	NA	3.0E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	9.8E-03	NA	9.8E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.6E-03	NA	1.6E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-03	NA	1.2E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.2E-03	NA	1.2E-03
			Tetrachloroethylene	NA	9.8E-09	NA	9.8E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.4E-08	NA	1.4E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	7.2E-07	NA	7.2E-07	CNS, Liver, Endocrine	NA	1.3E-02	NA	1.3E-02
			Vinyl chloride	NA	3.6E-08	NA	3.6E-08	Liver	NA	5.7E-03	NA	5.7E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.0E-02	NA	3.0E-02
Groundwater	Air	Chemical Total		NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	1.4E-06	2.8E-06	4.2E-06		NA	1.5E+01	2.2E-01	1.6E+01

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TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

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Table 9.5.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	8.5E-06	5.0E-07	1.5E-06	1.1E-05	7.1E-01	3.9E-02	1.4E-01	9.0E-01
Subsurface Soil	1.1E-05	1.2E-05	9.7E-07	2.4E-05	8.5E-01	2.9E-01	5.0E-02	**1.2E+00**
Upper PRM Aquifer	NA	1.4E-06	2.8E-06	4.2E-06	NA	**1.5E+01**	2.2E-01	**1.6E+01**
Surface Soil + Upper PRM Aquifer	8.5E-06	1.9E-06	4.3E-06	1.5E-05	7.1E-01	**1.5E+01**	3.6E-01	**1.6E+01**
Subsurface Soil + Upper PRM Aquifer	1.1E-05	1.4E-05	3.7E-06	2.8E-05	8.5E-01	**1.6E+01**	2.7E-01	**1.7E+01**

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Table 9.5.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Martin Aaron property			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Body Weight HI Across Media =	2E-02	3E-02	5E-02	7E-02	8E-02
Total Circulatory HI Across Media =	5E-01	3E-01	2E-01	7E-01	5E-01
Total CNS HI Across Media =	4E-02	2E-01	**2E+01**	**2E+01**	**2E+01**
Total Developmental HI Across Media =	NA	3E-04	2E-03	2E-03	2E-03
Total Fetotoxicity HI Across Media =	2E-02	2E-01	6E-03	3E-02	2E-01
Total Gastrointestinal HI Across Media =	1E-01	6E-02	5E-02	2E-01	1E-01
Total General HI Across Media =	2E-06	2E-06	NA	2E-06	2E-06
Total Heart HI Across Media =	NA	NA	8E-06	8E-06	8E-06
Total Immune HI Across Media =	2E-01	2E-01	6E-03	2E-01	2E-01
Total Kidney HI Across Media =	4E-01	4E-01	1E-01	5E-01	5E-01
Total Liver HI Across Media =	2E-01	5E-01	7E-02	3E-01	6E-01
Total Lungs HI Across Media =	NA	NA	8E-06	8E-06	8E-06
Total Reproductive HI Across Media =	1E-02	9E-03	5E-04	1E-02	1E-02
Total Respiratory HI Across Media =	3E-03	5E-02	**2E+01**	**2E+01**	**2E+01**
Total Sensitizer HI Across Media =	NA	NA	NA	NA	NA
Total Skin HI Across Media =	4E-02	9E-02	2E-02	6E-02	1E-01
Total Thyroid HI Across Media =	NA	NA	2E-03	2E-03	2E-03
Total Endocrine HI Across Media =	6E-03	2E-01	1E-02	2E-02	2E-01

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	4.2E-03	NA	4.8E-05	4.2E-03
			Antimony	NA	NA	NA	NA	Circulatory	4.7E-03	NA	3.6E-04	5.1E-03
			Arsenic	1.1E-04	NA	3.7E-06	1.1E-04	Skin, Circulatory	1.9E+00	NA	6.5E-02	2.0E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E-01	NA	2.0E-02	1.4E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.1E-02	NA	2.6E-04	1.2E-02
			Chromium	NA	NA	NA	NA	N/A	2.8E-03	NA	1.3E-03	4.1E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	9.3E-02	NA	1.1E-03	9.4E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.7E-04	NA	2.5E-04	1.1E-03
			Mercury	NA	NA	NA	NA	Immune	3.7E-03	NA	6.0E-04	4.3E-03
			Benzo(a)anthracene	7.7E-08	NA	1.1E-08	8.9E-08	Kidney	2.7E-05	NA	4.1E-06	3.2E-05
			Benzo(a)pyrene	6.9E-07	NA	1.0E-07	7.9E-07	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	8.2E-08	NA	1.2E-08	9.4E-08	Kidney	2.9E-05	NA	4.3E-06	3.3E-05
			Dibenzo(a,h)anthracene	1.5E-07	NA	2.3E-08	1.8E-07	Kidney	5.5E-06	NA	8.1E-07	6.3E-06
			Indeno(1,2,3-cd)pyrene	4.3E-08	NA	6.4E-09	4.9E-08	Body Weight	9.2E-06	NA	1.4E-06	1.1E-05
		Exposure Point Total		1.1E-04	NA	3.9E-06	1.1E-04		2.1E+00	NA	8.8E-02	2.2E+00
	Exposure Medium Total			1.1E-04	NA	3.9E-06	1.1E-04		2.1E+00	NA	8.8E-02	2.2E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	1.1E-03	NA	1.1E-03
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	4.3E-07	NA	4.3E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.4E-02	NA	2.4E-02
			Cadmium	NA	3.6E-09	NA	3.6E-09	Kidney	NA	7.8E-05	NA	7.8E-05
			Chromium	NA	1.8E-08	NA	1.8E-08	Respiratory	NA	1.4E-03	NA	1.4E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.3E-03	NA	3.3E-03
			Mercury	NA	NA	NA	NA	CNS	NA	5.0E-06	NA	5.0E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	4.5E-07	NA	4.5E-07		NA	3.0E-02	NA	3.0E-02
	Exposure Medium Total			NA	4.5E-07	NA	4.5E-07		NA	3.0E-02	NA	3.0E-02
Medium Total				1.1E-04	4.5E-07	3.9E-06	1.1E-04		2.1E+00	3.0E-02	8.8E-02	2.3E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
			Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02

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TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	2.5E-02	NA	4.6E-03	2.9E-02
			Cadmium	NA	NA	NA	NA	Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium	NA	NA	NA	NA	N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-02	NA	2.1E-05	1.7E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.8E-01	NA	5.8E-03	1.9E-01
			Mercury	NA	NA	NA	NA	Immune	8.9E-03	NA	1.6E-04	9.0E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.9E-02	NA	1.2E-04	1.9E-02
			Selenium	NA	NA	NA	NA	Skin	1.8E-02	NA	2.3E-05	1.8E-02
			Thallium	NA	NA	NA	NA	Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium	NA	NA	NA	NA	Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Zinc	NA	NA	NA	NA	Circulatory	5.0E-02	NA	3.9E-05	5.0E-02
			Chlordane - alpha	1.3E-08	NA	1.6E-08	2.9E-08	Liver	5.7E-04	NA	7.1E-04	1.3E-03
			Dieldrin	5.7E-07	NA	2.4E-07	8.1E-07	Liver	5.6E-03	NA	2.3E-03	7.8E-03
			Heptachlor Epoxide	1.5E-07	NA	4.2E-08	1.9E-07	*Liver*	9.7E-03	NA	2.7E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.3E-02	NA	7.4E-04	1.4E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Nitrosodiphenylamine-n	8.8E-08	NA	1.7E-08	1.1E-07	Body Weight, Developmental, Reproductive	7.0E-03	NA	1.4E-03	8.3E-03
			Phenol	NA	NA	NA	NA	Body Weight	4.1E-02	NA	1.2E-03	4.3E-02
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Chloroethane	6.3E-09	NA	2.1E-10	6.5E-09	Fetotoxicity	4.2E-05	NA	1.4E-06	4.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	9.4E-03	NA	5.2E-03	1.5E-02
			Dichlorobenzene-1,4	3.6E-08	NA	1.4E-08	5.1E-08	Liver, Developmental	3.9E-04	NA	1.6E-04	5.5E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	2.5E-03	NA	1.2E-04	2.6E-03
			Dichloroethane-1,2	1.4E-07	NA	4.2E-09	1.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	6.1E-04	NA	1.8E-05	6.3E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	3.2E-03	NA	1.7E-04	3.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Dichloropropane-1,2	9.7E-08	NA	5.8E-09	1.0E-07	Kidney	5.5E-04	NA	3.3E-05	5.9E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.5E-03	NA	5.4E-04	2.0E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	5.2E-03	NA	9.8E-05	5.3E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	7.2E-07	NA	2.5E-07	9.7E-07	Liver	1.0E-03	NA	3.7E-04	1.4E-03
			Trichloroethane-1,1,2	4.0E-08	NA	2.3E-09	4.3E-08	Circulatory	1.4E-03	NA	7.7E-05	1.5E-03
			Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05	Liver	6.0E-02	NA	1.9E-03	6.2E-02
			Xylenes, total	NA	NA	NA	NA	*Body Weight*	1.2E-03	NA	4.7E-04	1.7E-03
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02

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TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02
	Air	Emissions from	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
		Upper PRM Aquifer	Benzene	NA	3.7E-07	NA	3.7E-07	Circulatory	NA	1.2E-02	NA	1.2E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.4E-06	NA	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	8.1E-09	NA	8.1E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.2E-04	NA	4.2E-04
			Dichloroethane-1,2	NA	3.4E-08	NA	3.4E-08	Gastrointestinal, Liver, Kidney	NA	2.1E-03	NA	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.3E-03	NA	2.3E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.3E-04	NA	1.3E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-04	NA	1.2E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	8.4E-05	NA	8.4E-05
			Tetrachloroethylene	NA	6.7E-09	NA	6.7E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	9.6E-09	NA	9.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	4.6E-07	NA	4.6E-07	CNS, Liver, Endocrine	NA	8.9E-04	NA	8.9E-04
			Vinyl chloride	NA	8.6E-08	NA	8.6E-08	Liver	NA	1.5E-03	NA	1.5E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	2.0E-03	NA	2.0E-03
		Chemical Total		NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
Medium Total				9.0E-03	9.7E-07	1.4E-05	9.0E-03		1.7E+02	1.3E+00	4.9E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.7E-02	NA	6.1E-05	4.7E-02
			Antimony	NA	NA	NA	NA	Circulatory	9.3E-02	NA	8.0E-04	9.4E-02
			Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.4E-02	NA	9.9E-04	5.5E-02
			Cadmium	NA	NA	NA	NA	Kidney	6.9E-02	NA	3.6E-03	7.3E-02
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Chromium	NA	NA	NA	NA	N/A	4.5E-02	NA	4.7E-03	5.0E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	4.8E-02	NA	2.5E-05	4.8E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	7.8E-02	NA	1.0E-04	7.8E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Benzene	3.0E-08	NA	2.7E-09	3.3E-08	Circulatory	1.1E-03	NA	9.6E-05	1.2E-03
			Dichloroethane-1,2	1.3E-07	NA	3.8E-09	1.3E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	5.6E-04	NA	1.6E-05	5.7E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	4.1E-02	NA	2.2E-03	4.3E-02
			Dichloropropane-1,2	8.3E-08	NA	4.9E-09	8.8E-08	Kidney	4.7E-04	NA	2.8E-05	5.0E-04
			Tetrachloroethylene	8.9E-07	NA	3.1E-07	1.2E-06	Liver	1.3E-03	NA	4.5E-04	1.7E-03

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TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	9.9E-07	NA	1.0E-07	1.1E-06	Liver, Kidney, Fetotoxicity	6.4E-02	NA	6.6E-03	7.1E-02
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05	Liver	3.8E-02	NA	1.2E-03	4.0E-02
		Chemical Total		3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Exposure Medium Total			3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	3.6E-09	NA	3.6E-09	Circulatory	NA	1.2E-04	NA	1.2E-04
			Dichloroethane-1,2	NA	3.1E-08	NA	3.1E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-03	NA	2.0E-03
			Tetrachloroethylene	NA	8.3E-09	NA	8.3E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.4E-07	NA	2.4E-07	CNS, Liver, Endocrine	NA	4.6E-04	NA	4.6E-04
			Vinyl chloride	NA	5.5E-08	NA	5.5E-08	Liver	NA	9.7E-04	NA	9.7E-04
		Chemical Total		NA	3.4E-07	NA	3.4E-07		NA	5.4E-03	NA	5.4E-03
	Exposure Medium Total			NA	3.4E-07	NA	3.4E-05		NA	5.4E-03	NA	9.8E+00
Medium Total				3.3E-05	3.4E-07	1.1E-06	3.4E-05		9.7E+00	5.4E-03	4.2E-02	9.8E+00

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Table 9.6.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	3.2E-06	2.8E-08	2.0E-07	3.5E-06	2.2E-01	2.5E-02	2.2E-02	2.6E-01
Subsurface Soil	1.1E-04	4.5E-07	3.9E-06	1.1E-04	**2.1E+00**	3.0E-02	8.8E-02	**2.3E+00**
Upper PRM Aquifer	**9.0E-03**	9.7E-07	1.4E-05	**9.0E-03**	**1.7E+02**	**1.3E+00**	4.9E-01	**1.7E+02**
Middle PRM Aquifer	3.3E-05	3.4E-07	1.1E-06	3.4E-05	**9.7E+00**	5.4E-03	4.2E-02	**9.8E+00**
Surface Soil + Upper PRM Aquifer	**9.0E-03**	1.0E-06	1.4E-05	**9.0E-03**	**1.7E+02**	**1.3E+00**	5.1E-01	**1.7E+02**
Surface Soil + Middle PRM Aquifer	3.6E-05	3.6E-07	1.3E-06	3.8E-05	**9.9E+00**	3.0E-02	6.4E-02	**1.0E+01**
Subsurface Soil + Upper PRM Aquifer	**9.1E-03**	1.4E-06	1.8E-05	**9.1E-03**	**1.7E+02**	**1.3E+00**	5.7E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	1.4E-04	7.9E-07	5.0E-06	1.5E-04	**1.2E+01**	3.5E-02	1.3E-01	**1.2E+01**

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Table 9.6.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	1E-05	8E-01	NA	8E-01	NA	8E-01	1E-05
Total Circulatory HI Across Media =	2E-01	**2E+00**	**2E+02**	**9E+00**	**2E+02**	**9E+00**	**2E+02**	**1E+01**
Total CNS HI Across Media =	4E-03	1E-02	**2E+00**	4E-01	**2E+00**	4E-01	**2E+00**	4E-01
Total Developmental HI Across Media =	NA	NA	9E-03	NA	9E-03	NA	9E-03	NA
Total Fetotoxicity HI Across Media =	2E-02	2E-02	1E-01	7E-02	2E-01	9E-02	2E-01	9E-02
Total Gastrointestinal HI Across Media =	5E-02	9E-02	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Immune HI Across Media =	4E-03	4E-03	9E-03	NA	1E-02	4E-03	1E-02	4E-03
Total Kidney HI Across Media =	1E-01	2E-01	**3E+00**	3E-01	**3E+00**	4E-01	**3E+00**	4E-01
Total Liver HI Across Media =	5E-02	9E-02	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Lungs HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Reproductive HI Across Media =	NA	NA	8E-03	NA	8E-03	NA	8E-03	NA
Total Respiratory HI Across Media =	1E-03	1E-03	**2E+00**	2E-03	**2E+00**	3E-03	**2E+00**	3E-03
Total Sensitizer HI Across Media =	NA	NA	NA	5E-02	NA	5E-02	NA	5E-02
Total Skin HI Across Media =	4E-02	**2E+00**	**2E+02**	1E-01	**2E+02**	2E-01	**2E+02**	**2E+00**
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	NA	NA	9E-04	5E-04	9E-04	5E-04	9E-04	5E-04

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	8.8E-02	NA	6.5E-03	9.4E-02
			Arsenic	1.5E-05	NA	5.1E-07	1.6E-05	Skin, Circulatory	2.4E-02	NA	8.0E-04	2.4E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	9.8E-01	NA	1.6E-01	1.1E+00
			Cadmium	NA	NA	NA	NA	Kidney	7.8E-02	NA	1.8E-03	8.0E-02
			Chromium	NA	NA	NA	NA	N/A	3.5E-03	NA	1.6E-03	5.0E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.7E-01	NA	5.2E-03	4.7E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.7E-03	NA	1.9E-03	8.6E-03
			Mercury	NA	NA	NA	NA	Immune	3.4E-02	NA	5.5E-03	4.0E-02
			Benzo(a)anthracene	4.3E-07	NA	6.2E-08	4.9E-07	Kidney	2.3E-05	NA	3.3E-06	2.6E-05
			Benzo(a)pyrene	4.0E-06	NA	5.8E-07	4.6E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.0E-07	NA	5.8E-08	4.6E-07	Kidney	2.1E-05	NA	3.1E-06	2.4E-05
		Exposure Point Total		2.0E-05	NA	1.2E-06	2.1E-05		1.7E+00	NA	1.8E-01	1.9E+00
	Exposure Medium Total			2.0E-05	NA	1.2E-06	2.1E-05		1.7E+00	NA	1.8E-01	1.9E+00
	Ambient Air	Emissions from Junkyard Surface Soil	Antimony	NA	NA	NA	NA	N/A	NA	1.5E-05	NA	1.5E-05
			Arsenic	NA	1.5E-08	NA	1.5E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.8E-03	NA	4.8E-03
			Cadmium	NA	4.2E-09	NA	4.2E-09	Kidney	NA	3.0E-05	NA	3.0E-05
			Chromium	NA	2.5E-08	NA	2.5E-08	Respiratory	NA	3.0E-03	NA	3.0E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	6.5E-03	NA	6.5E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.2E-05	NA	1.2E-05
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	4.4E-08	NA	4.4E-08		NA	1.4E-02	NA	1.4E-02
	Exposure Medium Total			NA	4.4E-08	NA	4.4E-08		NA	1.4E-02	NA	1.4E-02
Medium Total				2.0E-05	4.4E-08	1.2E-06	2.1E-05		1.7E+00	1.4E-02	1.8E-01	1.9E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	3.9E-02	NA	4.4E-04	3.9E-02
			Antimony	NA	NA	NA	NA	Body Weight	8.8E-02	NA	6.5E-03	9.4E-02
			Arsenic	6.8E-04	NA	2.3E-05	7.0E-04	Skin, Circulatory	1.1E+00	NA	3.6E-02	1.1E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.1E+00	NA	1.8E-01	1.3E+00
			Cadmium	NA	NA	NA	NA	Kidney	1.1E-01	NA	2.4E-03	1.1E-01
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Chromium	NA	NA	NA	NA	N/A	3.9E-03	NA	1.8E-03	5.7E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.7E-01	NA	9.7E-03	8.8E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.1E-03	NA	2.3E-03	1.0E-02

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TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	3.4E-02	NA	5.5E-03	4.0E-02
			Benzo(a)anthracene	4.8E-07	NA	7.0E-08	5.5E-07	Kidney	2.6E-05	NA	3.7E-06	2.9E-05
			Benzo(a)pyrene	4.3E-06	NA	6.2E-07	4.9E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.1E-07	NA	7.4E-08	5.8E-07	Kidney	2.7E-05	NA	3.9E-06	3.1E-05
			Dibenzo(a,h)anthracene	9.6E-07	NA	1.4E-07	1.1E-06	Kidney	5.1E-06	NA	7.5E-07	5.9E-06
			Indeno(1,2,3-cd)pyrene	2.7E-07	NA	3.9E-08	3.1E-07	Body Weight	7.1E-06	NA	1.0E-06	8.2E-06
		Exposure Point Total		6.9E-04	NA	2.4E-05	7.1E-04		3.3E+00	NA	2.4E-01	3.6E+00
	Exposure Medium Total			6.9E-04	NA	2.4E-05	7.1E-04		3.3E+00	NA	2.4E-01	3.6E+00
Subsurface Soil	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	2.7E-03	NA	2.7E-03
		Junkyard Subsurface Soil	Antimony	NA	NA	NA	NA	N/A	NA	1.5E-05	NA	1.5E-05
			Arsenic	NA	6.8E-07	NA	6.8E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	5.6E-03	NA	5.6E-03
			Cadmium	NA	5.7E-09	NA	5.7E-09	Kidney	NA	4.1E-05	NA	4.1E-05
			Chromium	NA	2.8E-08	NA	2.8E-08	Respiratory	NA	3.4E-03	NA	3.4E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	7.8E-03	NA	7.8E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.2E-05	NA	1.2E-05
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	7.1E-07	NA	7.1E-07		NA	2.0E-02	NA	2.0E-02
	Exposure Medium Total			NA	7.1E-07	NA	7.1E-07		NA	2.0E-02	NA	2.0E-02
Medium Total				6.9E-04	7.1E-07	2.4E-05	7.1E-04		3.3E+00	2.0E-02	2.4E-01	3.6E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
			Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Beryllium	NA	NA	NA	NA	Gastrointestinal	3.3E-02	NA	4.4E-03	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Chromium	NA	NA	NA	NA	N/A	9.5E-02	NA	7.0E-03	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.6E-02	NA	5.1E-05	5.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.0E-01	NA	1.4E-02	6.2E-01
			Mercury	NA	NA	NA	NA	Immune	3.0E-02	NA	3.9E-04	3.0E-02

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TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Nickel	NA	NA	NA	NA	Body Weight	6.3E-02	NA	2.9E-04	6.3E-02
			Selenium	NA	NA	NA	NA	Skin	6.0E-02	NA	5.5E-05	6.0E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium	NA	NA	NA	NA	Kidney	3.6E-01	NA	1.3E-02	3.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	1.7E-01	NA	9.2E-05	1.7E-01
			Chlordane - alpha	2.9E-08	NA	2.2E-08	5.0E-08	Liver	1.6E-02	NA	1.2E-02	2.8E-02
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06	Liver	1.9E-02	NA	4.6E-03	2.3E-02
			Heptachlor Epoxide	3.3E-07	NA	5.6E-08	3.9E-07	Liver	3.2E-02	NA	5.6E-03	3.8E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	4.3E-03	NA	1.5E-04	4.5E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00
			Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Nitrosodiphenylamine-n	2.0E-07	NA	2.3E-08	2.2E-07	Body Weight, Developmental, Reproductive	2.3E-02	NA	2.8E-03	2.6E-02
			Phenol	NA	NA	NA	NA	Body Weight	6.9E-02	NA	1.2E-03	7.0E-02
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Chloroethane	1.4E-08	NA	2.9E-10	1.4E-08	Fetotoxicity	1.4E-04	NA	2.9E-06	1.4E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	3.1E-02	NA	1.0E-02	4.2E-02
			Dichlorobenzene-1,4	8.1E-08	NA	2.0E-08	1.0E-07	Liver, Developmental	1.3E-03	NA	3.2E-04	1.6E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	8.4E-04	NA	2.4E-05	8.6E-04
			Dichloroethane-1,2	3.2E-07	NA	5.6E-09	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.0E-03	NA	3.6E-05	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.1E-03	NA	3.4E-04	1.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	5.1E-02	NA	1.6E-03	5.3E-02
			Dichloropropane-1,2	2.2E-07	NA	7.8E-09	2.2E-07	Kidney	1.8E-03	NA	6.7E-05	1.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	5.0E-03	NA	1.1E-03	6.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.7E-03	NA	2.0E-05	1.7E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06	Liver	3.4E-04	NA	7.4E-05	4.2E-04
			Trichloroethane-1,1,2	9.0E-08	NA	3.0E-09	9.3E-08	Circulatory	4.6E-04	NA	1.6E-05	4.7E-04
			Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Xylenes, total	NA	NA	NA	NA	Body Weight	4.0E-03	NA	9.4E-04	5.0E-03
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+01	NA	1.2E+01
			Benzene	NA	2.2E-06	NA	2.2E-06	Circulatory	NA	5.5E-02	NA	5.5E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-05	NA	1.3E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.8E-08	NA	4.8E-08	Liver	NA	1.1E-04	NA	1.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	3.8E-04	NA	3.8E-04
			Dichloroethane-1,2	NA	2.1E-07	NA	2.1E-07	Gastrointestinal, Liver, Kidney	NA	1.9E-02	NA	1.9E-02

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TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	6.5E-03	NA	6.5E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.1E-03	NA	1.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.0E-03	NA	1.0E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.6E-04	NA	7.6E-04
			Tetrachloroethylene	NA	4.0E-08	NA	4.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.7E-08	NA	5.7E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06	CNS, Liver, Endocrine	NA	8.1E-03	NA	8.1E-03
			Vinyl chloride	NA	5.2E-07	NA	5.2E-07	Liver	NA	1.4E-02	NA	1.4E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.8E-02	NA	1.8E-02
		Chemical Total		NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.8E-06	2.2E-05	2.0E-02		6.1E+01	1.2E+01	5.0E-01	7.3E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05	Skin, Circulatory	3.0E-02	NA	2.8E-05	3.0E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Chromium	NA	NA	NA	NA	N/A	2.3E-02	NA	1.7E-03	2.4E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.3E+01	NA	2.1E-02	2.3E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Groundwater (cont.)	Groundwater (cont.)	Aluminum (cont.)	Manganese	NA	NA	NA	NA	CNS	1.1E+00	NA	2.4E-02	1.1E+00
			Thallium	NA	NA	NA	NA	Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Benzene	6.6E-08	NA	3.7E-09	7.0E-08	Circulatory, Immune	4.7E-03	NA	2.6E-04	5.0E-03
			Dichloroethane-1,2	2.9E-07	NA	5.1E-09	3.0E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.9E-03	NA	3.3E-05	1.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.4E-02	NA	4.4E-04	1.4E-02
			Dichloropropane-1,2	1.6E-07	NA	6.7E-09	1.9E-07	Kidney	1.6E-03	NA	5.7E-05	1.6E-03
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06	Liver	4.3E-04	NA	9.2E-05	5.2E-04
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	2.2E-08	NA	2.2E-08	Circulatory	NA	5.4E-04	NA	5.4E-04
			Dichloroethane-1,2	NA	1.9E-07	NA	1.9E-07	Gastrointestinal, Liver, Kidney	NA	1.7E-02	NA	1.7E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	5.5E-03	NA	5.5E-03
			Tetrachloroethylene	NA	5.0E-08	NA	5.0E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	4.2E-03	NA	4.2E-03
			Vinyl chloride	NA	3.3E-07	NA	3.3E-07	Liver	NA	8.8E-03	NA	8.8E-03
		Chemical Total		NA	2.0E-06	NA	2.0E-06		NA	3.6E-02	NA	3.6E-02
	Exposure Medium Total			NA	2.0E-06	NA	7.5E-05		NA	3.6E-02	NA	2.7E+01
Medium Total				7.3E-05	2.0E-06	1.5E-06	7.7E-05		2.6E+01	3.6E-02	7.3E-02	2.7E+01

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Table 9.7.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	2.0E-05	4.4E-08	1.2E-06	2.1E-05	**1.7E+00**	1.4E-02	1.8E-01	**1.9E+00**
Subsurface Soil	**6.9E-04**	7.1E-07	2.4E-05	**7.1E-04**	**3.3E+00**	2.0E-02	2.4E-01	**3.6E+00**
Upper PRM Aquifer	**2.0E-02**	5.8E-06	2.2E-05	**2.0E-02**	**6.1E+01**	**1.2E+01**	5.0E-01	**7.3E+01**
Middle PRM Aquifer	7.3E-05	2.0E-06	1.5E-06	7.7E-05	**2.6E+01**	3.6E-02	7.3E-02	**2.7E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	5.9E-06	2.3E-05	**2.0E-02**	**6.2E+01**	**1.2E+01**	6.8E-01	**7.5E+01**
Surface Soil + Middle PRM Aquifer	9.3E-05	2.1E-06	2.7E-06	9.8E-05	**2.8E+01**	5.0E-02	2.5E-01	**2.8E+01**
Subsurface Soil + Upper PRM Aquifer	**2.1E-02**	6.5E-06	4.6E-05	**2.1E-02**	**6.4E+01**	**1.2E+01**	7.5E-01	**7.7E+01**
Subsurface Soil + Middle PRM Aquifer	**7.6E-04**	2.7E-06	2.5E-05	**7.9E-04**	**3.0E+01**	5.6E-02	3.2E-01	**3.0E+01**

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Table 9.7.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	9E-02	9E-02	**4E+00**	6E-01	**4E+00**	7E-01	**4E+00**	7E-01
Total Circulatory HI Across Media =	**2E+00**	**3E+00**	**5E+01**	**2E+01**	**6E+01**	**3E+01**	**6E+01**	**3E+01**
Total CNS HI Across Media =	2E-02	6E-02	**1E+01**	1E+00	**1E+01**	1E+00	**1E+01**	1E+00
Total Developmental HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Fetotoxicity HI Across Media =	5E-03	6E-03	4E-01	2E-01	4E-01	2E-01	4E-01	2E-01
Total Gastrointestinal HI Across Media =	5E-01	9E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Immune HI Across Media =	4E-02	4E-02	5E-01	5E-03	6E-01	4E-02	6E-01	4E-02
Total Kidney HI Across Media =	1E+00	1E+00	**7E+00**	8E-01	**9E+00**	**2E+00**	**9E+00**	**2E+00**
Total Liver HI Across Media =	5E-01	9E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Lungs HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Reproductive HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Respiratory HI Across Media =	3E-03	3E-03	**1E+01**	6E-03	**1E+01**	9E-03	**1E+01**	9E-03
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	2E-02	1E+00	**3E+01**	3E-02	**3E+01**	5E-02	**3E+01**	1E+00
Total Thyroid HI Across Media =	NA	NA	4E-02	NA	4E-02	NA	4E-02	NA
Total Endocrine HI Across Media =	NA	NA	8E-03	4E-03	8E-03	4E-03	8E-03	4E-03

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TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony	NA	NA	NA	NA	Circulatory	4.4E-03	NA	2.3E-04	4.6E-03
			Arsenic	1.7E-06	NA	4.0E-08	1.7E-06	Skin, Circulatory	4.0E-02	NA	9.5E-04	4.1E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	9.8E-02	NA	1.1E-02	1.1E-01
			Cadmium	NA	NA	NA	NA	Kidney	7.8E-03	NA	1.3E-04	8.0E-03
			Chromium	NA	NA	NA	NA	N/A	2.3E-03	NA	7.4E-04	3.1E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.7E-02	NA	3.7E-04	4.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.7E-04	NA	1.3E-04	8.0E-04
			Mercury	NA	NA	NA	NA	Immune	3.4E-03	NA	3.9E-04	3.8E-03
			Benzo(a)anthracene	4.7E-08	NA	4.9E-09	5.2E-08	Kidney	2.3E-05	NA	2.4E-06	2.5E-05
			Benzo(a)pyrene	4.4E-07	NA	4.6E-08	4.9E-07	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.4E-08	NA	4.6E-09	4.9E-08	Kidney	2.1E-05	NA	2.2E-06	2.4E-05
		Exposure Point Total		2.2E-06	NA	9.6E-08	2.3E-06		2.0E-01	NA	1.4E-02	2.2E-01
	Exposure Medium Total			2.2E-06	NA	9.6E-08	2.3E-06		2.0E-01	NA	1.4E-02	2.2E-01
	Ambient Air	Emissions from Junkyard Surface Soil	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	3.3E-09	NA	3.3E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	9.6E-03	NA	9.6E-03
			Cadmium	NA	9.1E-10	NA	9.1E-10	Kidney	NA	2.7E-05	NA	2.7E-05
			Chromium	NA	5.4E-09	NA	5.4E-09	Respiratory	NA	6.0E-04	NA	6.0E-04
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.3E-03	NA	1.3E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.4E-06	NA	2.4E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	9.6E-09	NA	9.6E-09		NA	1.2E-02	NA	1.2E-02
	Exposure Medium Total			NA	9.6E-09	NA	9.6E-09		NA	1.2E-02	NA	1.2E-02
Medium Total				2.2E-06	9.6E-09	9.6E-08	2.3E-06		2.0E-01	1.2E-02	1.4E-02	2.3E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	3.9E-03	NA	3.1E-05	3.9E-03
			Antimony	NA	NA	NA	NA	Circulatory	4.4E-03	NA	2.3E-04	4.6E-03
			Arsenic	7.5E-05	NA	1.8E-06	7.7E-05	Skin, Circulatory	1.8E+00	NA	4.3E-02	1.8E+00
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.1E-01	NA	1.3E-02	1.3E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.1E-02	NA	1.7E-04	1.1E-02
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Chromium	NA	NA	NA	NA	N/A	2.6E-03	NA	8.4E-04	3.5E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	8.7E-02	NA	7.0E-04	8.8E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.1E-04	NA	1.6E-04	9.7E-04

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TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	3.4E-03	NA	3.9E-04	3.8E-03
			Benzo(a)anthracene	5.3E-08	NA	5.5E-09	5.9E-08	Kidney	2.6E-05	NA	2.7E-06	2.8E-05
			Benzo(a)pyrene	4.7E-07	NA	4.9E-08	5.2E-07	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.6E-08	NA	5.8E-09	6.2E-08	Kidney	2.7E-05	NA	2.8E-06	3.0E-05
			Dibenzo(a,h)anthracene	1.1E-07	NA	1.1E-08	1.2E-07	Kidney	5.1E-06	NA	5.3E-07	5.7E-06
			Indeno(1,2,3-cd)pyrene	2.9E-08	NA	3.1E-09	3.3E-08	Body Weight	8.6E-06	NA	8.9E-07	9.5E-06
		Exposure Point Total		7.6E-05	NA	1.9E-06	7.8E-05		2.0E+00	NA	5.8E-02	2.1E+00
	Exposure Medium Total			7.6E-05	NA	1.9E-06	7.8E-05		2.0E+00	NA	5.8E-02	2.1E+00
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	5.4E-04	NA	5.4E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	1.5E-07	NA	1.5E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-02	NA	1.1E-02
			Cadmium	NA	1.2E-09	NA	1.2E-09	Kidney	NA	3.7E-05	NA	3.7E-05
			Chromium	NA	6.1E-09	NA	6.1E-09	Respiratory	NA	6.7E-04	NA	6.7E-04
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.6E-03	NA	1.6E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.4E-06	NA	2.4E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	1.6E-07	NA	1.6E-07		NA	1.4E-02	NA	1.4E-02
	Exposure Medium Total			NA	1.6E-07	NA	1.6E-07		NA	1.4E-02	NA	1.4E-02
Medium Total				7.6E-05	1.6E-07	1.9E-06	7.8E-05		2.0E+00	1.4E-02	5.8E-02	2.1E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	8.8E-02	NA	1.6E-04	8.8E-02
			Antimony	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
			Arsenic	4.4E-03	NA	7.9E-06	4.4E-03	Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Beryllium	NA	NA	NA	NA	Gastrointestinal	1.7E-02	NA	4.3E-03	2.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium	NA	NA	NA	NA	N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.1E-02	NA	2.0E-05	1.1E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.2E-01	NA	5.5E-03	1.3E-01
			Mercury	NA	NA	NA	NA	Immune	5.9E-03	NA	1.5E-04	6.1E-03

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TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Nickel	NA	NA	NA	NA	Body Weight	1.3E-02	NA	1.1E-04	1.3E-02
			Selenium	NA	NA	NA	NA	Skin	1.2E-02	NA	2.2E-05	1.2E-02
			Thallium	NA	NA	NA	NA	Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.0E-01	NA	3.5E-02	5.3E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.3E-02	NA	3.6E-05	3.3E-02
			Chlordane - alpha	6.3E-09	NA	1.1E-08	1.7E-08	Liver	3.8E-04	NA	6.6E-04	1.0E-03
			Dieldrin	2.8E-07	NA	1.6E-07	4.4E-07	Liver	3.7E-03	NA	2.1E-03	5.9E-03
			Heptachlor Epoxide	7.3E-08	NA	2.9E-08	1.0E-07	Liver	6.5E-03	NA	2.6E-03	9.1E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	8.7E-03	NA	6.9E-04	9.4E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Nitrosodiphenylamine-n	4.3E-08	NA	1.2E-08	5.5E-08	Body Weight, Developmental, Reproductive	4.7E-03	NA	1.3E-03	5.9E-03
			Phenol	NA	NA	NA	NA	Body Weight	2.8E-02	NA	1.1E-03	2.9E-02
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06	Circulatory	7.3E-02	NA	9.2E-03	8.2E-02
			Chloroethane	3.1E-09	NA	1.5E-10	3.2E-09	Fetotoxicity	2.8E-05	NA	1.3E-06	3.0E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	6.3E-03	NA	4.8E-03	1.1E-02
			Dichlorobenzene-1,4	1.8E-08	NA	9.9E-09	2.8E-08	Liver, Developmental	2.6E-04	NA	1.5E-04	4.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.7E-03	NA	1.1E-04	1.8E-03
			Dichloroethane-1,2	7.0E-08	NA	2.8E-09	7.3E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.1E-04	NA	1.7E-05	4.2E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.1E-03	NA	1.6E-04	2.3E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.0E-01	NA	7.5E-03	1.1E-01
			Dichloropropane-1,2	4.8E-08	NA	4.0E-09	5.1E-08	Kidney	3.7E-04	NA	3.1E-05	4.0E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.0E-03	NA	5.0E-04	1.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.5E-03	NA	9.2E-05	3.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	3.5E-07	NA	1.7E-07	5.3E-07	Liver	6.9E-04	NA	3.4E-04	1.0E-03
			Trichloroethane-1,1,2	2.0E-08	NA	1.5E-09	2.1E-08	Circulatory	9.2E-04	NA	7.2E-05	9.9E-04
			Trichloroethylene	9.4E-07	NA	1.3E-07	1.1E-06	Liver, Kidney, Fetotoxicity	8.3E-02	NA	1.2E-02	9.5E-02
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05	Liver	4.0E-02	NA	1.7E-03	4.2E-02
Groundwater (cont.)	*Groundwater* (cont.)	*Upper PRM Aquifer* (cont.)	*Xylenes, total*	NA	NA	NA	NA	Body Weight	8.1E-04	NA	4.4E-04	1.2E-03
		Exposure Point Total		4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
			Benzene	NA	2.5E-07	NA	2.5E-07	Circulatory	NA	1.1E-02	NA	1.1E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-06	NA	1.3E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	5.5E-09	NA	5.5E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.0E-04	NA	4.0E-04
			Dichloroethane-1,2	NA	2.4E-08	NA	2.4E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03

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TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-03	NA	2.2E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.2E-04	NA	1.2E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-04	NA	1.1E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.9E-05	NA	7.9E-05
			Tetrachloroethylene	NA	4.6E-09	NA	4.6E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	6.6E-09	NA	6.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	3.2E-07	NA	3.2E-07	CNS, Liver, Endocrine	NA	8.4E-04	NA	8.4E-04
			Vinyl chloride	NA	5.9E-08	NA	5.9E-08	Liver	NA	1.4E-03	NA	1.4E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.9E-03	NA	1.9E-03
		Chemical Total		NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	6.7E-07	9.7E-06	4.4E-03		1.1E+02	1.2E+00	4.5E-01	1.1E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.1E-02	NA	5.7E-05	3.2E-02
			Antimony	NA	NA	NA	NA	Circulatory	6.2E-02	NA	7.5E-04	6.3E-02
			Arsenic	4.2E-06	NA	7.6E-09	4.3E-06	Skin, Circulatory	1.0E-01	NA	1.8E-04	1.0E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.6E-02	NA	9.3E-04	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	4.6E-02	NA	3.3E-03	5.0E-02
			Chromium	NA	NA	NA	NA	N/A	3.0E-02	NA	4.4E-03	3.5E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.2E-02	NA	2.3E-05	3.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.2E-02	NA	9.4E-05	5.2E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Manganese	NA	NA	NA	NA	CNS	2.1E-01	NA	9.5E-03	2.2E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
			Benzene	1.5E-08	NA	1.9E-09	1.7E-08	Circulatory	7.1E-04	NA	9.0E-05	8.0E-04
			Dichloroethane-1,2	6.4E-08	NA	2.6E-09	6.7E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.7E-04	NA	1.5E-05	3.9E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.7E-02	NA	2.0E-03	2.9E-02
			Dichloropropane-1,2	4.1E-08	NA	3.4E-09	4.4E-08	Kidney	3.2E-04	NA	2.6E-05	3.4E-04
			Tetrachloroethylene	4.4E-07	NA	2.2E-07	6.5E-07	Liver	8.6E-04	NA	4.2E-04	1.3E-03
			Trichloroethylene	4.8E-07	NA	7.0E-08	5.5E-07	Liver, Kidney, Fetotoxicity	4.3E-02	NA	6.2E-03	4.9E-02
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05	Liver	2.6E-02	NA	1.1E-03	2.7E-02
		Chemical Total		1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Exposure Medium Total			1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	2.5E-09	NA	2.5E-09	Circulatory	NA	1.1E-04	NA	1.1E-04
			Dichloroethane-1,2	NA	2.2E-08	NA	2.2E-08	Gastrointestinal, Liver, Kidney	NA	1.8E-03	NA	1.8E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-03	NA	1.9E-03
			Tetrachloroethylene	NA	5.7E-09	NA	5.7E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.6E-07	NA	1.6E-07	CNS, Liver, Endocrine	NA	4.3E-04	NA	4.3E-04
			Vinyl chloride	NA	3.8E-08	NA	3.8E-08	Liver	NA	9.1E-04	NA	9.1E-04
		Chemical Total		NA	2.3E-07	NA	2.3E-07		NA	5.1E-03	NA	5.1E-03
	Exposure Medium Total			NA	2.3E-07	NA	1.7E-05		NA	5.1E-03	NA	6.5E+00
Medium Total				1.6E-05	2.3E-07	7.7E-07	1.7E-05		6.5E+00	5.1E-03	3.9E-02	6.5E+00

301426

Table 9.8.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	2.2E-06	9.6E-09	9.6E-08	2.3E-06	2.0E-01	1.2E-02	1.4E-02	2.3E-01
Subsurface Soil	7.6E-05	1.6E-07	1.9E-06	7.8E-05	**2.0E+00**	1.4E-02	5.8E-02	**2.1E+00**
Upper PRM Aquifer	**4.4E-03**	6.7E-07	9.7E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.5E-01	**1.1E+02**
Middle PRM Aquifer	1.6E-05	2.3E-07	7.7E-07	1.7E-05	**6.5E+00**	5.1E-03	3.9E-02	**6.5E+00**
Surface Soil + Upper PRM Aquifer	**4.4E-03**	6.8E-07	9.8E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.7E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	1.8E-05	2.4E-07	8.7E-07	2.0E-05	**6.7E+00**	1.7E-02	5.4E-02	**6.8E+00**
Subsurface Soil + Upper PRM Aquifer	**4.5E-03**	8.2E-07	1.2E-05	**4.5E-03**	**1.1E+02**	**1.2E+00**	5.1E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	9.2E-05	3.9E-07	2.7E-06	9.5E-05	**8.5E+00**	1.9E-02	9.7E-02	**8.6E+00**

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Table 9.8.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	9E-06	6E-01	NA	6E-01	NA	6E-01	9E-06
Total Circulatory HI Across Media =	2E-01	**2E+00**	**1E+02**	**6E+00**	**1E+02**	**6E+00**	**1E+02**	**8E+00**
Total CNS HI Across Media =	2E-03	7E-03	**2E+00**	3E-01	**2E+00**	3E-01	**2E+00**	3E-01
Total Developmental HI Across Media =	NA	NA	6E-03	NA	6E-03	NA	6E-03	NA
Total Fetotoxicity HI Across Media =	1E-02	1E-02	9E-02	5E-02	1E-01	6E-02	1E-01	6E-02
Total Gastrointestinal HI Across Media =	5E-02	9E-02	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Immune HI Across Media =	4E-03	4E-03	6E-03	NA	1E-02	4E-03	1E-02	4E-03
Total Kidney HI Across Media =	1E-01	1E-01	**2E+00**	2E-01	**2E+00**	3E-01	**2E+00**	3E-01
Total Liver HI Across Media =	5E-02	9E-02	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Lungs HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Reproductive HI Across Media =	NA	NA	6E-03	NA	6E-03	NA	6E-03	NA
Total Respiratory HI Across Media =	6E-04	7E-04	1E+00	2E-03	1E+00	2E-03	1E+00	3E-03
Total Sensitizer HI Across Media =	NA	NA	NA	3E-02	NA	3E-02	NA	3E-02
Total Skin HI Across Media =	4E-02	**2E+00**	**1E+02**	1E-01	**1E+02**	1E-01	**1E+02**	**2E+00**
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	NA	NA	8E-04	4E-04	8E-04	4E-04	8E-04	4E-04

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TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	1.1E-02	NA	1.5E-03	1.3E-02
			Arsenic	3.2E-07	NA	1.9E-08	3.4E-07	Skin, Circulatory	3.0E-03	NA	1.8E-04	3.2E-03
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E-01	NA	3.5E-02	1.6E-01
			Cadmium	NA	NA	NA	NA	Kidney	9.9E-03	NA	4.0E-04	1.0E-02
			Chromium	NA	NA	NA	NA	N/A	4.4E-04	NA	3.5E-04	7.9E-04
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.9E-02	NA	1.2E-03	6.0E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.5E-04	NA	4.2E-04	1.3E-03
			Mercury	NA	NA	NA	NA	Immune	4.3E-03	NA	1.2E-03	5.6E-03
			Benzo(a)anthracene	9.1E-09	NA	2.4E-09	1.1E-08	Kidney	2.9E-06	NA	7.5E-07	3.6E-06
			Benzo(a)pyrene	8.5E-08	NA	2.2E-08	1.1E-07	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	8.5E-09	NA	2.2E-09	1.1E-08	Kidney	2.7E-06	NA	7.1E-07	3.4E-06
		Exposure Point Total		4.2E-07	NA	4.6E-08	4.7E-07		2.1E-01	NA	4.1E-02	2.5E-01
	Exposure Medium Total			4.2E-07	NA	4.6E-08	4.7E-07		2.1E-01	NA	4.1E-02	2.5E-01
	Ambient Air	Emissions from Junkyard Surface Soil	Antimony	NA	NA	NA	NA	N/A	NA	4.9E-07	NA	4.9E-07
			Arsenic	NA	8.1E-11	NA	8.1E-11	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.5E-04	NA	1.5E-04
			Cadmium	NA	2.2E-11	NA	2.2E-11	Kidney	NA	9.6E-07	NA	9.6E-07
			Chromium	NA	1.3E-10	NA	1.3E-10	Respiratory	NA	9.6E-05	NA	9.6E-05
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.1E-04	NA	2.1E-04
			Mercury	NA	NA	NA	NA	CNS	NA	3.8E-07	NA	3.8E-07
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	2.3E-10	NA	2.3E-10		NA	4.6E-04	NA	4.6E-04
	Exposure Medium Total			NA	2.3E-10	NA	2.3E-10		NA	4.6E-04	NA	4.6E-04
Medium Total				4.2E-07	2.3E-10	4.6E-08	4.7E-07		2.1E-01	4.6E-04	4.1E-02	2.5E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	5.0E-03	NA	9.9E-05	5.1E-03
			Antimony	NA	NA	NA	NA	Body Weight	1.1E-02	NA	2.2E-04	1.1E-02
			Arsenic	1.4E-05	NA	8.6E-07	1.5E-05	Skin, Circulatory	1.3E-01	NA	8.1E-03	1.4E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.4E-01	NA	2.9E-03	1.5E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.3E-02	NA	2.7E-05	1.3E-02
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Junkyard Subsurface Soil (cont.)	Chromium	NA	NA	NA	NA	N/A	5.0E-04	NA	9.9E-06	5.1E-04
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.1E-01	NA	2.2E-03	1.1E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.0E-03	NA	2.1E-05	1.0E-03

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TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	Immune	4.3E-03	NA	8.7E-05	4.4E-03
			Benzo(a)anthracene	1.0E-08	NA	2.6E-09	1.3E-08	Kidney	3.3E-06	NA	8.5E-07	4.1E-06
			Benzo(a)pyrene	9.1E-08	NA	2.4E-08	1.1E-07	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.1E-08	NA	2.8E-09	1.4E-08	Kidney	3.4E-06	NA	8.9E-07	4.3E-06
			Dibenzo(a,h)anthracene	2.0E-08	NA	5.3E-09	2.6E-08	Kidney	6.5E-07	NA	1.7E-07	8.2E-07
			Indeno(1,2,3-cd)pyrene	5.7E-09	NA	1.5E-09	7.1E-09	Body Weight	9.0E-07	NA	2.4E-07	1.1E-06
		Exposure Point Total		1.5E-05	NA	9.0E-07	1.5E-05		4.2E-01	NA	1.4E-02	4.4E-01
	Exposure Medium Total			1.5E-05	NA	9.0E-07	1.5E-05		4.2E-01	NA	1.4E-02	4.4E-01
Subsurface Soil	Ambient Air	Emissions from Junkyard Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	8.7E-05	NA	8.7E-05
			Antimony	NA	NA	NA	NA	N/A	NA	4.9E-07	NA	4.9E-07
			Arsenic	NA	3.6E-09	NA	3.6E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.8E-04	NA	1.8E-04
			Cadmium	NA	3.0E-11	NA	3.0E-11	Kidney	NA	1.3E-06	NA	1.3E-06
			Chromium	NA	1.5E-10	NA	1.5E-10	Respiratory	NA	1.1E-04	NA	1.1E-04
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.5E-04	NA	2.5E-04
			Mercury	NA	NA	NA	NA	CNS	NA	3.8E-07	NA	3.8E-07
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	3.8E-09	NA	3.8E-09		NA	6.3E-04	NA	6.3E-04
	Exposure Medium Total			NA	3.8E-09	NA	3.8E-09		NA	6.3E-04	NA	6.3E-04
Medium Total				1.5E-05	3.8E-09	9.0E-07	1.5E-05		4.2E-01	6.3E-04	1.4E-02	4.4E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	3.5E-04	3.5E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	6.1E-03	6.1E-03
			Arsenic	NA	NA	2.6E-06	2.6E-06	Skin, Circulatory	NA	NA	2.5E-02	2.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	6.7E-02	6.7E-02
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	3.8E-03	3.8E-03
			Cadmium	NA	NA	NA	NA	Kidney	NA	NA	9.0E-03	9.0E-03
			Chromium	NA	NA	NA	NA	N/A	NA	NA	6.0E-03	6.0E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	4.4E-05	4.4E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	1.3E-02	1.3E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	1.2E-02	1.2E-02
			Mercury	NA	NA	NA	NA	Immune	NA	NA	3.4E-04	3.4E-04

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TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	2.5E-04	2.5E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	4.8E-05	4.8E-05
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	2.0E-04	2.0E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	1.1E-02	1.1E-02
			Zinc	NA	NA	NA	NA	Circulatory	NA	NA	7.9E-05	7.9E-05
			Chlordane - alpha	NA	NA	5.8E-10	5.8E-10	Liver	NA	NA	1.9E-03	1.9E-03
			Dieldrin	NA	NA	8.5E-09	8.5E-09	Liver	NA	NA	7.5E-04	7.5E-04
			Heptachlor Epoxide	NA	NA	1.5E-09	1.5E-09	Liver	NA	NA	8.9E-04	8.9E-04
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	3.2E-05	3.2E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	8.8E-03	8.8E-03
			Ether, bis(2-chloroethyl)	NA	NA	1.9E-08	1.9E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	3.4E-02	3.4E-02
			Nitrosodiphenylamine-n	NA	NA	6.5E-10	6.5E-10	Body Weight, Developmental, Reproductive	NA	NA	4.6E-04	4.6E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	2.8E-04	2.8E-04
			Benzene	NA	NA	1.4E-08	1.4E-08	Circulatory, Immune	NA	NA	6.1E-03	6.1E-03
			Chloroethane	NA	NA	1.2E-11	1.2E-11	Fetotoxicity	NA	NA	7.5E-07	7.5E-07
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	1.8E-03	1.8E-03
			Dichlorobenzene-1,4	NA	NA	5.7E-10	5.7E-10	Liver, Developmental	NA	NA	5.5E-05	5.5E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	5.2E-06	5.2E-06
			Dichloroethane-1,2	NA	NA	2.1E-10	2.1E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	8.0E-06	8.0E-06
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	7.6E-05	7.6E-05
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	NA	NA	3.6E-04	3.6E-04
			Dichloropropane-1,2	NA	NA	2.7E-10	2.7E-10	Kidney	NA	NA	1.4E-05	1.4E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	2.1E-04	2.1E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	4.4E-06	4.4E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	NA	9.6E-09	9.6E-09	Liver	NA	NA	1.2E-05	1.2E-05
			Trichloroethane-1,1,2	NA	NA	9.8E-11	9.8E-11	Circulatory	NA	NA	3.0E-06	3.0E-06
			Trichloroethylene	NA	NA	8.3E-09	8.3E-09	Liver, Kidney, Fetotoxicity	NA	NA	4.8E-03	4.8E-03
			Vinyl chloride	NA	NA	6.3E-08	6.3E-08	Liver	NA	NA	9.9E-04	9.9E-04
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	1.8E-04	1.8E-04
		Exposure Point Total		NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
Exposure Medium Total				NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
			Benzene	NA	6.0E-07	NA	6.0E-07	Circulatory	NA	9.0E-02	NA	9.0E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.4E-05	NA	2.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.1E-08	NA	1.1E-08	Liver	NA	1.6E-04	NA	1.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.5E-04	NA	6.5E-04
			Dichloroethane-1,2	NA	5.6E-08	NA	5.6E-08	Gastrointestinal, Liver, Kidney	NA	3.0E-02	NA	3.0E-02

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TABLE 9.9.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	9.8E-03	NA	9.8E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.6E-03	NA	1.6E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-03	NA	1.2E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.2E-03	NA	1.2E-03
			Tetrachloroethylene	NA	9.8E-09	NA	9.8E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.4E-08	NA	1.4E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	7.2E-07	NA	7.2E-07	CNS, Liver, Endocrine	NA	1.3E-02	NA	1.3E-02
			Vinyl chloride	NA	3.6E-08	NA	3.6E-08	Liver	NA	5.7E-03	NA	5.7E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.0E-02	NA	3.0E-02
		Chemical Total		NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	1.4E-06	2.8E-06	4.2E-06		NA	1.5E+01	2.2E-01	1.6E+01

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Table 9.9.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	4.2E-07	2.3E-10	4.6E-08	4.7E-07	2.1E-01	4.6E-04	4.1E-02	2.5E-01
Subsurface Soil	1.5E-05	3.8E-09	9.0E-07	1.5E-05	4.2E-01	6.3E-04	1.4E-02	4.4E-01
Upper PRM Aquifer	NA	1.4E-06	2.8E-06	4.2E-06	NA	**1.5E+01**	2.2E-01	**1.6E+01**
Surface Soil + Upper PRM Aquifer	4.2E-07	1.4E-06	2.8E-06	4.7E-06	2.1E-01	**1.5E+01**	2.6E-01	**1.6E+01**
Subsurface Soil + Upper PRM Aquifer	1.5E-05	1.5E-06	3.7E-06	2.0E-05	4.2E-01	**1.5E+01**	2.3E-01	**1.6E+01**

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Table 9.9.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Junkyard			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Body Weight HI Across Media =	1E-02	1E-02	5E-02	6E-02	6E-02
Total Circulatory HI Across Media =	2E-01	4E-01	2E-01	4E-01	6E-01
Total CNS HI Across Media =	1E-03	6E-03	**2E+01**	**2E+01**	**2E+01**
Total Developmental HI Across Media =	NA	NA	2E-03	2E-03	2E-03
Total Fetotoxicity HI Across Media =	2E-04	2E-04	6E-03	6E-03	6E-03
Total Gastrointestinal HI Across Media =	6E-02	1E-01	5E-02	1E-01	2E-01
Total General HI Across Media =	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	8E-06	8E-06	8E-06
Total Immune HI Across Media =	6E-03	4E-03	6E-03	1E-02	1E-02
Total Kidney HI Across Media =	2E-01	2E-01	1E-01	3E-01	3E-01
Total Liver HI Across Media =	6E-02	1E-01	7E-02	1E-01	2E-01
Total Lungs HI Across Media =	NA	NA	8E-06	8E-06	8E-06
Total Reproductive HI Across Media =	NA	NA	5E-04	5E-04	5E-04
Total Respiratory HI Across Media =	1E-04	1E-04	**2E+01**	**2E+01**	**2E+01**
Total Sensitizer HI Across Media =	NA	NA	NA	NA	NA
Total Skin HI Across Media =	3E-03	1E-01	2E-02	3E-02	2E-01
Total Thyroid HI Across Media =	NA	NA	2E-03	2E-03	2E-03
Total Endocrine HI Across Media =	NA	NA	1E-02	1E-02	1E-02

TABLE 9.10.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Circulatory	3.9E-03	NA	3.0E-04	4.2E-03
			Arsenic	3.0E-05	NA	1.0E-06	3.1E-05	Skin, Circulatory	5.2E-01	NA	1.8E-02	5.4E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.5E-01	NA	2.4E-02	1.7E-01
			Cadmium	NA	NA	NA	NA	Kidney	2.1E-03	NA	4.8E-05	2.2E-03
			Chromium	NA	NA	NA	NA	N/A	6.3E-02	NA	2.9E-02	9.2E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.2E-02	NA	4.8E-04	4.3E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.9E-04	NA	2.0E-04	8.9E-04
			Mercury	NA	NA	NA	NA	Immune	8.7E-03	NA	1.4E-03	1.0E-02
			Aldrin	7.3E-08	NA	8.3E-09	8.1E-08	Liver	1.1E-03	NA	1.3E-04	1.2E-03
			Dieldrin	1.1E-07	NA	1.3E-08	1.3E-07	Liver	1.1E-03	NA	1.3E-04	1.2E-03
			Pcb-Aroclor 1254	3.8E-07	NA	6.0E-08	4.4E-07	Immune	7.3E-02	NA	1.2E-02	8.5E-02
			Benzo(a)anthracene	1.0E-06	NA	1.5E-07	1.2E-06	Kidney	3.7E-04	NA	5.4E-05	4.2E-04
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.9E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	6.9E-07	NA	1.0E-07	7.9E-07	Kidney	2.4E-04	NA	3.6E-05	2.8E-04
			Benzo(k)fluoranthene	7.7E-08	NA	1.1E-08	8.9E-08	Kidney	2.7E-04	NA	4.1E-05	3.2E-04
			Dibenzo(a,h)anthracene	8.6E-07	NA	1.3E-07	9.9E-07	Kidney	3.1E-05	NA	4.5E-06	3.5E-05
			Indeno(1,2,3-cd)pyrene	2.4E-07	NA	3.6E-08	2.8E-07	Body Weight	5.2E-05	NA	7.7E-06	6.0E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	1.4E-04	NA	2.0E-05	1.6E-04
		Exposure Point Total		4.1E-05	NA	2.7E-06	4.4E-05		8.6E-01	NA	8.5E-02	9.5E-01
	Exposure Medium Total			4.1E-05	NA	2.7E-06	4.4E-05		8.6E-01	NA	8.5E-02	9.5E-01
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Row Homes and Industrial	Arsenic	NA	1.2E-07	NA	1.2E-07	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.9E-02	NA	2.9E-02
			Cadmium	NA	6.7E-10	NA	6.7E-10	Kidney	NA	1.4E-05	NA	1.4E-05
			Chromium	NA	4.0E-07	NA	4.0E-07	Respiratory	NA	3.2E-02	NA	3.2E-02
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.6E-03	NA	2.6E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.2E-05	NA	1.2E-05
			Aldrin	NA	2.9E-11	NA	2.9E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	4.4E-11	NA	4.4E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	2.6E-11	NA	2.6E-11	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.8E-02	NA	2.8E-02
		Exposure Point Total		NA	5.2E-07	NA	5.2E-07		NA	9.2E-02	NA	9.2E-02

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TABLE 9.10.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
	Exposure Medium Total			NA	5.2E-07	NA	5.2E-07		NA	9.2E-02	NA	9.2E-02
Medium Total				4.1E-05	5.2E-07	2.7E-06	4.4E-05		8.6E-01	9.2E-02	8.5E-02	1.0E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.6E-03	NA	3.0E-05	2.6E-03
			Antimony	NA	NA	NA	NA	Circulatory	2.7E-03	NA	2.0E-04	2.9E-03
			Arsenic	3.2E-05	NA	1.1E-06	3.3E-05	Skin, Circulatory	5.6E-01	NA	1.9E-02	5.8E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.3E-01	NA	3.8E-02	2.7E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.4E-03	NA	3.1E-05	1.4E-03
			Chromium	NA	NA	NA	NA	N/A	4.3E-02	NA	1.9E-02	6.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.0E-03	NA	3.4E-05	3.0E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.1E-02	NA	3.6E-04	3.2E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	5.7E-04	NA	1.6E-04	7.3E-04
			Mercury	NA	NA	NA	NA	Immune	2.7E-03	NA	4.5E-04	3.2E-03
			Thallium	NA	NA	NA	NA	Circulatory	4.9E-03	NA	5.6E-05	4.9E-03
			Aldrin	4.3E-08	NA	4.9E-09	4.8E-08	Liver	6.6E-04	NA	7.5E-05	7.4E-04
			Chlordane - alpha	1.3E-07	NA	5.9E-09	1.4E-07	Liver	5.8E-03	NA	2.6E-04	6.0E-03
			Chlordane - gamma (technical mixture)	1.5E-07	NA	6.8E-09	1.6E-07	Liver	6.6E-03	NA	3.0E-04	6.9E-03
			Dieldrin	2.1E-07	NA	2.4E-08	2.4E-07	Liver	2.1E-03	NA	2.4E-04	2.3E-03
			Heptachlor Epoxide	2.3E-07	NA	2.7E-08	2.6E-07	Liver	1.5E-02	NA	1.7E-03	1.7E-02
			Pcb-Aroclor 1254	2.2E-07	NA	3.6E-08	2.6E-07	Immune	4.4E-02	NA	7.0E-03	5.1E-02
			Pcb-Aroclor 1260	7.6E-08	NA	1.2E-08	8.8E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	2.4E-07	NA	2.7E-08	2.7E-07
			Benzo(a)anthracene	1.0E-06	NA	1.5E-07	1.2E-06	Kidney	3.7E-04	NA	5.4E-05	4.2E-04
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.9E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	6.9E-07	NA	1.0E-07	7.9E-07	Kidney	2.4E-04	NA	3.6E-05	2.8E-04
			Benzo(k)fluoranthene	8.2E-08	NA	1.2E-08	9.4E-08	Kidney	2.9E-04	NA	4.3E-05	3.3E-04
			Dibenzo(a,h)anthracene	1.0E-06	NA	1.5E-07	1.2E-06	Kidney	3.7E-05	NA	5.4E-06	4.2E-05
			Indeno(1,2,3-cd)pyrene	2.8E-07	NA	4.1E-08	3.2E-07	Body Weight	5.9E-05	NA	8.7E-06	6.7E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	1.0E-04	NA	1.5E-05	1.2E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		4.4E-05	NA	2.8E-06	4.7E-05		9.5E-01	NA	8.7E-02	1.0E+00
	Exposure Medium Total			4.4E-05	NA	2.8E-06	4.7E-05		9.5E-01	NA	8.7E-02	1.0E+00
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	7.2E-04	NA	7.2E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	1.3E-07	NA	1.3E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	4.5E-02	NA	4.5E-02
			Cadmium	NA	4.4E-10	NA	4.4E-10	Kidney	NA	9.4E-06	NA	9.4E-06
			Chromium	NA	2.7E-07	NA	2.7E-07	Respiratory	NA	2.2E-02	NA	2.2E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.2E-03	NA	2.2E-03

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TABLE 9.10.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Mercury	NA	NA	NA	NA	CNS	NA	3.7E-06	NA	3.7E-06
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.7E-11	NA	1.7E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	5.1E-11	NA	5.1E-11	Liver	NA	5.6E-06	NA	5.6E-06
			Chlordane - gamma (technical mixture)	NA	5.8E-11	NA	5.8E-11	Liver	NA	6.5E-06	NA	6.5E-06
			Dieldrin	NA	8.4E-11	NA	8.4E-11	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	9.1E-11	NA	9.1E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	1.5E-11	NA	1.5E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	5.2E-12	NA	5.2E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	2.1E-02	NA	2.1E-02
		Exposure Point Total		NA	4.0E-07	NA	4.0E-07		NA	9.1E-02	NA	9.1E-02
	Exposure Medium Total			NA	4.0E-07	NA	4.0E-07		NA	9.1E-02	NA	9.1E-02
Medium Total				4.4E-05	4.0E-07	2.8E-06	4.7E-05		9.5E-01	9.1E-02	8.7E-02	1.1E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	2.5E-02	NA	4.6E-03	2.9E-02
			Cadmium	NA	NA	NA	NA	Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium	NA	NA	NA	NA	N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-02	NA	2.1E-05	1.7E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.8E-01	NA	5.8E-03	1.9E-01
			Mercury	NA	NA	NA	NA	Immune	8.9E-03	NA	1.6E-04	9.0E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.9E-02	NA	1.2E-04	1.9E-02
			Selenium	NA	NA	NA	NA	Skin	1.8E-02	NA	2.3E-05	1.8E-02
			Thallium	NA	NA	NA	NA	Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium	NA	NA	NA	NA	Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Zinc	NA	NA	NA	NA	Circulatory	5.0E-02	NA	3.9E-05	5.0E-02
			Chlordane - alpha	1.3E-08	NA	1.6E-08	2.9E-08	Liver	5.7E-04	NA	7.1E-04	1.3E-03
			Dieldrin	5.7E-07	NA	2.4E-07	8.1E-07	Liver	5.6E-03	NA	2.3E-03	7.8E-03
			Heptachlor Epoxide	1.5E-07	NA	4.2E-08	1.9E-07	Liver	9.7E-03	NA	2.7E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.3E-02	NA	7.4E-04	1.4E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01

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TABLE 9.10.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Nitrosodiphenylamine-n	8.8E-08	NA	1.7E-08	1.1E-07	Body Weight, Developmental, Reproductive	7.0E-03	NA	1.4E-03	8.3E-03
			Phenol	NA	NA	NA	NA	Body Weight	4.1E-02	NA	1.2E-03	4.3E-02
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Chloroethane	6.3E-09	NA	2.1E-10	6.5E-09	Fetotoxicity	4.2E-05	NA	1.4E-06	4.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	9.4E-03	NA	5.2E-03	1.5E-02
			Dichlorobenzene-1,4	3.6E-08	NA	1.4E-08	5.1E-08	Liver, Developmental	3.9E-04	NA	1.6E-04	5.5E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	2.5E-03	NA	1.2E-04	2.6E-03
			Dichloroethane-1,2	1.4E-07	NA	4.2E-09	1.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	6.1E-04	NA	1.8E-05	6.3E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	3.2E-03	NA	1.7E-04	3.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Dichloropropane-1,2	9.7E-08	NA	5.8E-09	1.0E-07	Kidney	5.5E-04	NA	3.3E-05	5.9E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.5E-03	NA	5.4E-04	2.0E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	5.2E-03	NA	9.8E-05	5.3E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	7.2E-07	NA	2.5E-07	9.7E-07	Liver	1.0E-03	NA	3.7E-04	1.4E-03
			Trichloroethane-1,1,2	4.0E-08	NA	2.3E-09	4.3E-08	Circulatory	1.4E-03	NA	7.7E-05	1.5E-03
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05	Liver	6.0E-02	NA	1.9E-03	6.2E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.2E-03	NA	4.7E-04	1.7E-03
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
			Benzene	NA	3.7E-07	NA	3.7E-07	Circulatory	NA	1.2E-02	NA	1.2E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.4E-06	NA	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	8.1E-09	NA	8.1E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.2E-04	NA	4.2E-04
			Dichloroethane-1,2	NA	3.4E-08	NA	3.4E-08	Gastrointestinal, Liver, Kidney	NA	2.1E-03	NA	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.3E-03	NA	2.3E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.3E-04	NA	1.3E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-04	NA	1.2E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	8.4E-05	NA	8.4E-05
			Tetrachloroethylene	NA	6.7E-09	NA	6.7E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	9.6E-09	NA	9.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	4.6E-07	NA	4.6E-07	CNS, Liver, Endocrine	NA	8.9E-04	NA	8.9E-04
			Vinyl chloride	NA	8.6E-08	NA	8.6E-08	Liver	NA	1.5E-03	NA	1.5E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	2.0E-03	NA	2.0E-03

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TABLE 9.10.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
Medium Total				9.0E-03	9.7E-07	1.4E-05	9.0E-03		1.7E+02	1.3E+00	4.9E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.7E-02	NA	6.1E-05	4.7E-02
			Antimony	NA	NA	NA	NA	Circulatory	9.3E-02	NA	8.0E-04	9.4E-02
			Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.4E-02	NA	9.9E-04	5.5E-02
			Cadmium	NA	NA	NA	NA	Kidney	6.9E-02	NA	3.6E-03	7.3E-02
			Chromium	NA	NA	NA	NA	N/A	4.5E-02	NA	4.7E-03	5.0E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	4.8E-02	NA	2.5E-05	4.8E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	7.8E-02	NA	1.0E-04	7.8E-02
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Benzene	3.0E-08	NA	2.7E-09	3.3E-08	Circulatory	1.1E-03	NA	9.6E-05	1.2E-03
			Dichloroethane-1,2	1.3E-07	NA	3.8E-09	1.3E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	5.6E-04	NA	1.6E-05	5.7E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	4.1E-02	NA	2.2E-03	4.3E-02
			Dichloropropane-1,2	8.3E-08	NA	4.9E-09	8.8E-08	Kidney	4.7E-04	NA	2.8E-05	5.0E-04
			Tetrachloroethylene	8.9E-07	NA	3.1E-07	1.2E-06	Liver	1.3E-03	NA	4.5E-04	1.7E-03
			Trichloroethylene	9.9E-07	NA	1.0E-07	1.1E-06	Liver, Kidney, Fetotoxicity	6.4E-02	NA	6.6E-03	7.1E-02
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05	Liver	3.8E-02	NA	1.2E-03	4.0E-02
		Chemical Total		3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Exposure Medium Total			3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	3.6E-09	NA	3.6E-09	Circulatory	NA	1.2E-04	NA	1.2E-04
			Dichloroethane-1,2	NA	3.1E-08	NA	3.1E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-03	NA	2.0E-03
			Tetrachloroethylene	NA	8.3E-09	NA	8.3E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.4E-07	NA	2.4E-07	CNS, Liver, Endocrine	NA	4.6E-04	NA	4.6E-04
			Vinyl chloride	NA	5.5E-08	NA	5.5E-08	Liver	NA	9.7E-04	NA	9.7E-04
		Chemical Total		NA	3.4E-07	NA	3.4E-07		NA	5.4E-03	NA	5.4E-03
	Exposure Medium Total			NA	3.4E-07	NA	3.4E-05		NA	5.4E-03	NA	9.8E+00
Medium Total				3.3E-05	3.4E-07	1.1E-06	3.4E-05		9.7E+00	5.4E-03	4.2E-02	9.8E+00

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Table 9.10.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	4.1E-05	5.2E-07	2.7E-06	4.4E-05	8.6E-01	9.2E-02	8.5E-02	1.0E+00
Subsurface Soil	4.4E-05	4.0E-07	2.8E-06	4.7E-05	9.5E-01	9.1E-02	8.7E-02	**1.1E+00**
Upper PRM Aquifer	**9.0E-03**	9.7E-07	1.4E-05	**9.0E-03**	**1.7E+02**	**1.3E+00**	4.9E-01	**1.7E+02**
Middle PRM Aquifer	3.3E-05	3.4E-07	1.1E-06	3.4E-05	**9.7E+00**	5.4E-03	4.2E-02	**9.8E+00**
Surface Soil + Upper PRM Aquifer	**9.1E-03**	1.5E-06	1.7E-05	**9.1E-03**	**1.7E+02**	**1.4E+00**	5.7E-01	**1.7E+02**
Surface Soil + Middle PRM Aquifer	7.4E-05	8.5E-07	3.8E-06	7.9E-05	**1.1E+01**	9.7E-02	1.3E-01	**1.1E+01**
Subsurface Soil + Upper PRM Aquifer	**9.1E-03**	1.4E-06	1.7E-05	**9.1E-03**	**1.7E+02**	**1.4E+00**	5.7E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	7.7E-05	7.3E-07	4.0E-06	8.2E-05	**1.1E+01**	9.6E-02	1.3E-01	**1.1E+01**

Table 9.10.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	2E-04	2E-04	8E-01	NA	8E-01	2E-04	8E-01	2E-04
Total Circulatory HI Across Media =	8E-01	9E-01	**2E+02**	**9E+00**	**2E+02**	**1E+01**	**2E+02**	**1E+01**
Total CNS HI Across Media =	3E-02	3E-02	**2E+00**	4E-01	**2E+00**	4E-01	**2E+00**	4E-01
Total Developmental HI Across Media =	NA	NA	9E-03	NA	9E-03	NA	9E-03	NA
Total Fetotoxicity HI Across Media =	3E-02	5E-02	1E-01	7E-02	2E-01	1E-01	2E-01	1E-01
Total Gastrointestinal HI Across Media =	4E-02	3E-02	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total General HI Across Media =	NA	3E-07	NA	NA	NA	NA	3E-07	3E-07
Total Heart HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Immune HI Across Media =	1E-01	5E-02	9E-03	NA	1E-01	1E-01	6E-02	5E-02
Total Kidney HI Across Media =	2E-01	3E-01	**3E+00**	3E-01	**3E+00**	5E-01	**3E+00**	6E-01
Total Liver HI Across Media =	5E-02	6E-02	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Lungs HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Reproductive HI Across Media =	NA	NA	8E-03	NA	8E-03	NA	8E-03	NA
Total Respiratory HI Across Media =	6E-02	4E-02	**2E+00**	2E-03	**2E+00**	6E-02	**2E+00**	4E-02
Total Sensitizer HI Across Media =	NA	NA	NA	5E-02	NA	5E-02	NA	5E-02
Total Skin HI Across Media =	5E-01	6E-01	**2E+02**	1E-01	**2E+02**	7E-01	**2E+02**	7E-01
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	NA	NA	9E-04	5E-04	9E-04	5E-04	9E-04	5E-04

TABLE 9.11.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	7.3E-02	NA	5.4E-03	7.8E-02
			Arsenic	1.9E-04	NA	6.3E-06	1.9E-04	Skin, Circulatory	2.9E-01	NA	9.7E-03	3.0E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.4E+00	NA	2.2E-01	1.6E+00
			Cadmium	NA	NA	NA	NA	Kidney	2.0E-02	NA	4.4E-04	2.0E-02
			Chromium	NA	NA	NA	NA	N/A	8.8E-02	NA	4.0E-02	1.3E-01
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.9E-01	NA	4.4E-03	4.0E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.4E-03	NA	1.8E-03	8.2E-03
			Mercury	NA	NA	NA	NA	Immune	8.1E-02	NA	1.3E-02	9.4E-02
			Aldrin	4.5E-07	NA	5.1E-08	5.1E-07	Liver	1.0E-02	NA	1.2E-03	1.2E-02
			Dieldrin	7.0E-07	NA	7.9E-08	7.8E-07	Liver	1.0E-02	NA	1.1E-03	1.1E-02
			Pcb-Aroclor 1254	2.3E-06	NA	3.7E-07	2.7E-06	Immune	2.7E-01	NA	4.3E-02	3.2E-01
			Benzo(a)anthracene	6.4E-06	NA	9.3E-07	7.4E-06	Kidney	3.4E-04	NA	5.0E-05	3.9E-04
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.3E-06	NA	6.2E-07	4.9E-06	Kidney	2.3E-04	NA	3.3E-05	2.6E-04
			Benzo(k)fluoranthene	4.8E-07	NA	7.0E-08	5.5E-07	Kidney	2.6E-04	NA	3.7E-05	2.9E-04
			Dibenzo(a,h)anthracene	5.3E-06	NA	7.8E-07	6.1E-06	Kidney	2.8E-05	NA	4.1E-06	3.3E-05
			Indeno(1,2,3-cd)pyrene	1.5E-06	NA	2.2E-07	1.7E-06	Body Weight	4.1E-05	NA	5.9E-06	4.7E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	1.3E-03	NA	1.8E-04	1.4E-03
		Exposure Point Total		2.6E-04	NA	1.6E-05	2.7E-04		2.6E+00	NA	3.4E-01	3.0E+00
	Exposure Medium Total			2.6E-04	NA	1.6E-05	2.7E-04		2.6E+00	NA	3.4E-01	3.0E+00
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	1.3E-05	NA	1.3E-05
		Row Homes and Industrial	Arsenic	NA	1.8E-07	NA	1.8E-07	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	6.8E-03	NA	6.8E-03
			Cadmium	NA	1.0E-09	NA	1.0E-09	Kidney	NA	7.6E-06	NA	7.6E-06
			Chromium	NA	6.3E-07	NA	6.3E-07	Respiratory	NA	7.6E-02	NA	7.6E-02
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	6.2E-03	NA	6.2E-03
			Mercury	NA	NA	NA	NA	CNS	NA	2.8E-05	NA	2.8E-05
			Aldrin	NA	4.5E-11	NA	4.5E-11	N/A	NA	NA	NA	NA
			Dieldrin	NA	7.0E-11	NA	7.0E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	4.1E-11	NA	4.1E-11	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.11.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	6.6E-02	NA	6.6E-02
		Exposure Point Total		NA	8.1E-07	NA	8.1E-07		NA	1.6E-01	NA	1.6E-01
	Exposure Medium Total			NA	8.1E-07	NA	8.1E-07		NA	1.6E-01	NA	1.6E-01
Medium Total				2.6E-04	8.1E-07	1.6E-05	2.7E-04		2.6E+00	1.6E-01	3.4E-01	3.1E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.4E-02	NA	2.7E-04	2.5E-02
			Antimony	NA	NA	NA	NA	Body Weight	5.0E-02	NA	3.7E-03	5.3E-02
			Arsenic	2.0E-04	NA	6.7E-06	2.1E-04	Skin, Circulatory	3.1E-01	NA	1.0E-02	3.2E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.2E+00	NA	3.4E-01	2.5E+00
			Cadmium	NA	NA	NA	NA	Kidney	1.3E-02	NA	2.9E-04	1.3E-02
			Chromium	NA	NA	NA	NA	N/A	6.0E-02	NA	2.7E-02	8.6E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	2.8E-02	NA	3.1E-04	2.8E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.9E-01	NA	3.3E-03	2.9E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	5.3E-03	NA	1.5E-03	6.8E-03
			Mercury	NA	NA	NA	NA	Immune	2.6E-02	NA	4.1E-03	3.0E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	4.6E-03	NA	5.1E-05	4.6E-03
			Aldrin	2.7E-07	NA	3.0E-08	3.0E-07	Liver	6.2E-03	NA	6.9E-04	6.9E-03
			Chlordane - alpha	8.1E-07	NA	3.6E-08	8.5E-07	Liver	4.5E-01	NA	2.0E-02	4.7E-01
			Chlordane - gamma (technical mixture)	9.3E-07	NA	4.2E-08	9.7E-07	Liver	5.1E-01	NA	2.3E-02	5.4E-01
			Dieldrin	1.3E-06	NA	1.5E-07	1.5E-06	Liver	1.9E-02	NA	2.2E-03	2.2E-02
			Heptachlor Epoxide	1.5E-06	NA	1.6E-07	1.6E-06	Liver	1.4E-01	NA	1.6E-02	1.6E-01
			Pcb-Aroclor 1254	1.4E-06	NA	2.2E-07	1.6E-06	Immune	1.6E-01	NA	2.6E-02	1.9E-01
			Pcb-Aroclor 1260	4.7E-07	NA	7.4E-08	5.5E-07	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	2.2E-07	NA	2.5E-08	2.5E-07
			Benzo(a)anthracene	6.4E-06	NA	9.3E-07	7.4E-06	Kidney	3.4E-04	NA	5.0E-05	3.9E-04
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.3E-06	NA	6.2E-07	4.9E-06	Kidney	2.3E-04	NA	3.3E-05	2.6E-04
			Benzo(k)fluoranthene	5.1E-07	NA	7.4E-08	5.8E-07	Kidney	2.7E-04	NA	3.9E-05	3.1E-04
			Dibenzo(a,h)anthracene	6.4E-06	NA	9.3E-07	7.4E-06	Kidney	3.4E-05	NA	5.0E-06	3.9E-05
			Indeno(1,2,3-cd)pyrene	1.7E-06	NA	2.5E-07	2.0E-06	Body Weight	4.6E-05	NA	6.6E-06	5.2E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	9.5E-04	NA	1.4E-04	1.1E-03
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		2.7E-04	NA	1.7E-05	2.9E-04		4.3E+00	NA	4.8E-01	4.7E+00
	Exposure Medium Total			2.7E-04	NA	1.7E-05	2.9E-04		4.3E+00	NA	4.8E-01	4.7E+00
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	1.7E-03	NA	1.7E-03
			Antimony	NA	NA	NA	NA	N/A	NA	8.6E-06	NA	8.6E-06
			Arsenic	NA	2.0E-07	NA	2.0E-07	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-02	NA	1.1E-02

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TABLE 9.11.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium	NA	6.8E-10	NA	6.8E-10	Kidney	NA	4.9E-06	NA	4.9E-06
			Chromium	NA	4.2E-07	NA	4.2E-07	Respiratory	NA	5.1E-02	NA	5.1E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	5.1E-03	NA	5.1E-03
			Mercury	NA	NA	NA	NA	CNS	NA	8.8E-06	NA	8.8E-06
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	2.7E-11	NA	2.7E-11	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	8.0E-11	NA	8.0E-11	Liver	NA	1.3E-05	NA	1.3E-05
			Chlordane - gamma (technical mixture)	NA	9.2E-11	NA	9.2E-11	Liver	NA	1.5E-05	NA	1.5E-05
			Dieldrin	NA	1.3E-10	NA	1.3E-10	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	1.4E-10	NA	1.4E-10	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	2.4E-11	NA	2.4E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	8.2E-12	NA	8.2E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	4.9E-02	NA	4.9E-02
		Exposure Point Total		NA	6.2E-07	NA	6.2E-07		NA	1.2E-01	NA	1.2E-01
	Exposure Medium Total			NA	6.2E-07	NA	6.2E-07		NA	1.2E-01	NA	1.2E-01
Medium Total				2.7E-04	6.2E-07	1.7E-05	2.9E-04		4.3E+00	1.2E-01	4.8E-01	4.9E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	3.3E-02	NA	4.4E-03	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Chromium	NA	NA	NA	NA	N/A	9.5E-02	NA	7.0E-03	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.6E-02	NA	5.1E-05	5.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.0E-01	NA	1.4E-02	6.2E-01
			Mercury	NA	NA	NA	NA	Immune	3.0E-02	NA	3.9E-04	3.0E-02
			Nickel	NA	NA	NA	NA	Body Weight	6.3E-02	NA	2.9E-04	6.3E-02
			Selenium	NA	NA	NA	NA	Skin	6.0E-02	NA	5.5E-05	6.0E-02

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TABLE 9.11.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium	NA	NA	NA	NA	Kidney	3.6E-01	NA	1.3E-02	3.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	1.7E-01	NA	9.2E-05	1.7E-01
			Chlordane - alpha	2.9E-08	NA	2.2E-08	5.0E-08	Liver	1.6E-02	NA	1.2E-02	2.8E-02
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06	Liver	1.9E-02	NA	4.6E-03	2.3E-02
			Heptachlor Epoxide	3.3E-07	NA	5.6E-08	3.9E-07	Liver	3.2E-02	NA	5.6E-03	3.8E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	4.3E-03	NA	1.5E-04	4.5E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00
			Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Nitrosodiphenylamine-n	2.0E-07	NA	2.3E-08	2.2E-07	Body Weight, Developmental, Reproductive	2.3E-02	NA	2.8E-03	2.6E-02
			Phenol	NA	NA	NA	NA	Body Weight	6.9E-02	NA	1.2E-03	7.0E-02
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Chloroethane	1.4E-08	NA	2.9E-10	1.4E-08	Fetotoxicity	1.4E-04	NA	2.9E-06	1.4E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	3.1E-02	NA	1.0E-02	4.2E-02
			Dichlorobenzene-1,4	8.1E-08	NA	2.0E-08	1.0E-07	Liver, Developmental	1.3E-03	NA	3.2E-04	1.6E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	8.4E-04	NA	2.4E-05	8.6E-04
			Dichloroethane-1,2	3.2E-07	NA	5.6E-09	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.0E-03	NA	3.6E-05	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.1E-03	NA	3.4E-04	1.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	5.1E-02	NA	1.6E-03	5.3E-02
			Dichloropropane-1,2	2.2E-07	NA	7.8E-09	2.2E-07	Kidney	1.8E-03	NA	6.7E-05	1.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	5.0E-03	NA	1.1E-03	6.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.7E-03	NA	2.0E-05	1.7E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06	Liver	3.4E-04	NA	7.4E-05	4.2E-04
			Trichloroethane-1,1,2	9.0E-08	NA	3.0E-09	9.3E-08	Circulatory	4.6E-04	NA	1.6E-05	4.7E-04
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	4.0E-03	NA	9.4E-04	5.0E-03
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Air	Emissions from	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+01	NA	1.2E+01
		Upper PRM Aquifer	Benzene	NA	2.2E-06	NA	2.2E-06	Circulatory	NA	5.5E-02	NA	5.5E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-05	NA	1.3E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.8E-08	NA	4.8E-08	Liver	NA	1.1E-04	NA	1.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	3.8E-04	NA	3.8E-04
			Dichloroethane-1,2	NA	2.1E-07	NA	2.1E-07	Gastrointestinal, Liver, Kidney	NA	1.9E-02	NA	1.9E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.11.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	6.5E-03	NA	6.5E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.1E-03	NA	1.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.0E-03	NA	1.0E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.6E-04	NA	7.6E-04
			Tetrachloroethylene	NA	4.0E-08	NA	4.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.7E-08	NA	5.7E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06	CNS, Liver, Endocrine	NA	8.1E-03	NA	8.1E-03
			Vinyl chloride	NA	5.2E-07	NA	5.2E-07	Liver	NA	1.4E-02	NA	1.4E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.8E-02	NA	1.8E-02
		Chemical Total		NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.8E-06	2.2E-05	2.0E-02		6.1E+01	1.2E+01	5.0E-01	7.3E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05	Skin, Circulatory	3.0E-02	NA	2.8E-05	3.0E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Chromium	NA	NA	NA	NA	N/A	2.3E-02	NA	1.7E-03	2.4E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
Groundwater	Groundwater	*Middle PRM Aquifer*	*Iron*	NA	NA	NA	NA	*Circulatory, Gastrointestinal, Liver*	2.3E+01	NA	2.1E-02	2.3E+01
(cont.)	(cont.)	(cont.)	Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.1E+00	NA	2.4E-02	1.1E+00
			Thallium	NA	NA	NA	NA	Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Benzene	6.6E-08	NA	3.7E-09	7.0E-08	Circulatory, Immune	4.7E-03	NA	2.6E-04	5.0E-03
			Dichloroethane-1,2	2.9E-07	NA	5.1E-09	3.0E-07	*Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal*	1.9E-03	NA	3.3E-05	1.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.4E-02	NA	4.4E-04	1.4E-02
			Dichloropropane-1,2	1.8E-07	NA	6.7E-09	1.9E-07	Kidney	1.6E-03	NA	5.7E-05	1.6E-03
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06	Liver	4.3E-04	NA	9.2E-05	5.2E-04
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Air	Emissions from	Benzene	NA	2.2E-08	NA	2.2E-08	Circulatory	NA	5.4E-04	NA	5.4E-04
		Middle PRM Aquifer	Dichloroethane-1,2	NA	1.9E-07	NA	1.9E-07	Gastrointestinal, Liver, Kidney	NA	1.7E-02	NA	1.7E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	5.5E-03	NA	5.5E-03
			Tetrachloroethylene	NA	5.0E-08	NA	5.0E-08	N/A	NA	NA	NA	NA

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TABLE 9.11.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	4.2E-03	NA	4.2E-03
			Vinyl chloride	NA	3.3E-07	NA	3.3E-07	Liver	NA	8.8E-03	NA	8.8E-03
		Chemical Total		NA	2.0E-06	NA	2.0E-06		NA	3.6E-02	NA	3.6E-02
	Exposure Medium Total			NA	2.0E-06	NA	7.5E-05		NA	3.6E-02	NA	2.7E+01
Medium Total				7.3E-05	2.0E-06	1.5E-06	7.7E-05		2.6E+01	3.6E-02	7.3E-02	2.7E+01

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Table 9.11.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**2.6E-04**	8.1E-07	1.6E-05	**2.7E-04**	**2.6E+00**	1.6E-01	3.4E-01	**3.1E+00**
Subsurface Soil	**2.7E-04**	6.2E-07	1.7E-05	**2.9E-04**	**4.3E+00**	1.2E-01	4.8E-01	**4.9E+00**
Upper PRM Aquifer	**2.0E-02**	5.8E-06	2.2E-05	**2.0E-02**	**6.1E+01**	**1.2E+01**	5.0E-01	**7.3E+01**
Middle PRM Aquifer	7.3E-05	2.0E-06	1.5E-06	7.7E-05	**2.6E+01**	3.6E-02	7.3E-02	**2.7E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	6.7E-06	3.8E-05	**2.0E-02**	**6.3E+01**	**1.2E+01**	8.4E-01	**7.6E+01**
Surface Soil + Middle PRM Aquifer	**3.3E-04**	2.8E-06	1.8E-05	**3.5E-04**	**2.9E+01**	1.9E-01	4.1E-01	**3.0E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	6.5E-06	3.9E-05	**2.0E-02**	**6.5E+01**	**1.2E+01**	9.9E-01	**7.8E+01**
Subsurface Soil + Middle PRM Aquifer	**3.5E-04**	2.6E-06	1.9E-05	**3.7E-04**	**3.1E+01**	1.5E-01	5.6E-01	**3.1E+01**

Table 9.11.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	8E-02	5E-02	**4E+00**	6E-01	**4E+00**	7E-01	**4E+00**	7E-01
Total Circulatory HI Across Media =	**2E+00**	**3E+00**	**5E+01**	**2E+01**	**6E+01**	**3E+01**	**6E+01**	**3E+01**
Total CNS HI Across Media =	8E-02	9E-02	**1E+01**	1E+00	**1E+01**	1E+00	**1E+01**	1E+00
Total Developmental HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Fetotoxicity HI Across Media =	7E-03	1E-02	4E-01	2E-01	4E-01	2E-01	4E-01	2E-01
Total Gastrointestinal HI Across Media =	4E-01	3E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total General HI Across Media =	NA	2E-07	NA	NA	NA	NA	2E-07	2E-07
Total Heart HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Immune HI Across Media =	4E-01	2E-01	5E-01	5E-03	9E-01	4E-01	8E-01	2E-01
Total Kidney HI Across Media =	**2E+00**	**3E+00**	**7E+00**	8E-01	**9E+00**	**2E+00**	**1E+01**	**3E+00**
Total Liver HI Across Media =	4E-01	1E+00	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**3E+01**
Total Lungs HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Reproductive HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Respiratory HI Across Media =	1E-01	1E-01	**1E+01**	6E-03	**1E+01**	1E-01	**1E+01**	1E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	3E-01	3E-01	**3E+01**	3E-02	**3E+01**	3E-01	**3E+01**	4E-01
Total Thyroid HI Across Media =	NA	NA	4E-02	NA	4E-02	NA	4E-02	NA
Total Endocrine HI Across Media =	NA	NA	8E-03	4E-03	8E-03	4E-03	8E-03	4E-03

TABLE 9.12.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Circulatory	3.6E-03	NA	3.2E-04	4.0E-03
			Arsenic	2.1E-05	NA	8.1E-07	2.1E-05	Skin, Circulatory	4.8E-01	NA	1.9E-02	5.0E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.4E-01	NA	2.6E-02	1.6E-01
			Cadmium	NA	NA	NA	NA	Kidney	2.0E-03	NA	5.2E-05	2.0E-03
			Chromium	NA	NA	NA	NA	N/A	5.9E-02	NA	3.1E-02	9.0E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.0E-02	NA	5.2E-04	4.0E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.5E-04	NA	2.1E-04	8.6E-04
			Mercury	NA	NA	NA	NA	Immune	8.1E-03	NA	1.5E-03	9.7E-03
			Aldrin	5.0E-08	NA	6.6E-09	5.7E-08	Liver	1.0E-03	NA	1.4E-04	1.2E-03
			Dieldrin	7.8E-08	NA	1.0E-08	8.8E-08	Liver	1.0E-03	NA	1.4E-04	1.2E-03
			Pcb-Aroclor 1254	2.6E-07	NA	4.8E-08	3.1E-07	Immune	6.9E-02	NA	1.3E-02	8.1E-02
			Benzo(a)anthracene	7.1E-07	NA	1.2E-07	8.3E-07	Kidney	3.4E-04	NA	5.9E-05	4.0E-04
			Benzo(a)pyrene	5.3E-06	NA	9.1E-07	6.2E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.7E-07	NA	8.1E-08	5.5E-07	Kidney	2.3E-04	NA	3.9E-05	2.7E-04
			Benzo(k)fluoranthene	5.3E-08	NA	9.1E-09	6.2E-08	Kidney	2.6E-04	NA	4.4E-05	3.0E-04
			Dibenzo(a,h)anthracene	5.9E-07	NA	1.0E-07	6.9E-07	Kidney	2.9E-05	NA	4.9E-06	3.3E-05
			Indeno(1,2,3-cd)pyrene	1.7E-07	NA	2.9E-08	2.0E-07	Body Weight	4.9E-05	NA	8.4E-06	5.7E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	1.3E-04	NA	2.2E-05	1.5E-04
		Exposure Point Total		2.8E-05	NA	2.1E-06	3.0E-05		8.1E-01	NA	9.2E-02	9.0E-01
	Exposure Medium Total			2.8E-05	NA	2.1E-06	3.0E-05		8.1E-01	NA	9.2E-02	9.0E-01
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Row Homes and Industrial	Arsenic	NA	4.0E-08	NA	4.0E-08	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.4E-02	NA	1.4E-02
			Cadmium	NA	2.3E-10	NA	2.3E-10	Kidney	NA	6.8E-06	NA	6.8E-06
			Chromium	NA	1.4E-07	NA	1.4E-07	Respiratory	NA	1.5E-02	NA	1.5E-02
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.2E-03	NA	1.2E-03
			Mercury	NA	NA	NA	NA	CNS	NA	5.6E-06	NA	5.6E-06
			Aldrin	NA	9.9E-12	NA	9.9E-12	N/A	NA	NA	NA	NA
			Dieldrin	NA	1.5E-11	NA	1.5E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	8.9E-12	NA	8.9E-12	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.12.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.3E-02	NA	1.3E-02
		Exposure Point Total		NA	1.8E-07	NA	1.8E-07		NA	4.3E-02	NA	4.3E-02
	Exposure Medium Total			NA	1.8E-07	NA	1.8E-07		NA	4.3E-02	NA	4.3E-02
Medium Total				2.8E-05	1.8E-07	2.1E-06	3.1E-05		8.1E-01	4.3E-02	9.2E-02	9.4E-01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.4E-03	NA	3.2E-05	2.5E-03
			Antimony	NA	NA	NA	NA	Circulatory	2.5E-03	NA	2.2E-04	2.7E-03
			Arsenic	2.2E-05	NA	8.8E-07	2.3E-05	Skin, Circulatory	5.2E-01	NA	2.1E-02	5.4E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.2E-01	NA	4.1E-02	2.6E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.3E-03	NA	3.4E-05	1.3E-03
			Chromium	NA	NA	NA	NA	N/A	4.0E-02	NA	2.1E-02	6.1E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	2.8E-03	NA	3.7E-05	2.8E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.9E-02	NA	3.9E-04	3.0E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	5.3E-04	NA	1.8E-04	7.1E-04
			Mercury	NA	NA	NA	NA	Immune	2.6E-03	NA	4.8E-04	3.0E-03
			Thallium	NA	NA	NA	NA	Circulatory	4.6E-03	NA	6.0E-05	4.6E-03
			Aldrin	3.0E-08	NA	3.9E-09	3.4E-08	Liver	6.2E-04	NA	8.2E-05	7.0E-04
			Chlordane - alpha	8.9E-08	NA	4.7E-09	9.4E-08	Liver	5.4E-03	NA	2.9E-04	5.7E-03
			Chlordane - gamma (technical mixture)	1.0E-07	NA	5.4E-09	1.1E-07	Liver	6.2E-03	NA	3.3E-04	6.5E-03
			Dieldrin	1.5E-07	NA	1.9E-08	1.7E-07	Liver	1.9E-03	NA	2.6E-04	2.2E-03
			Heptachlor Epoxide	1.6E-07	NA	2.1E-08	1.8E-07	Liver	1.4E-02	NA	1.9E-03	1.6E-02
			Pcb-Aroclor 1254	1.5E-07	NA	2.8E-08	1.8E-07	Immune	4.1E-02	NA	7.5E-03	4.8E-02
			Pcb-Aroclor 1260	5.2E-08	NA	9.7E-09	6.2E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	2.2E-07	NA	2.9E-08	2.5E-07
			Benzo(a)anthracene	7.1E-07	NA	1.2E-07	8.3E-07	Kidney	3.4E-04	NA	5.9E-05	4.0E-04
			Benzo(a)pyrene	5.3E-06	NA	9.1E-07	6.2E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	4.7E-07	NA	8.1E-08	5.5E-07	Kidney	2.3E-04	NA	3.9E-05	2.7E-04
			Benzo(k)fluoranthene	5.6E-08	NA	9.6E-09	6.6E-08	Kidney	2.7E-04	NA	4.7E-05	3.2E-04
			Dibenzo(a,h)anthracene	7.1E-07	NA	1.2E-07	8.3E-07	Kidney	3.4E-05	NA	5.9E-06	4.0E-05
			Indeno(1,2,3-cd)pyrene	1.9E-07	NA	3.2E-08	2.2E-07	Body Weight	5.5E-05	NA	9.4E-06	6.4E-05
			Naphthalene	NA	NA	NA	NA	Body Weight	9.5E-05	NA	1.6E-05	1.1E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		3.0E-05	NA	2.2E-06	3.3E-05		8.9E-01	NA	9.4E-02	9.9E-01
	Exposure Medium Total			3.0E-05	NA	2.2E-06	3.3E-05		8.9E-01	NA	9.4E-02	9.9E-01
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	3.4E-04	NA	3.4E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	4.4E-08	NA	4.4E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.1E-02	NA	2.1E-02

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TABLE 9.12.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium	NA	1.5E-10	NA	1.5E-10	Kidney	NA	4.4E-06	NA	4.4E-06
			Chromium	NA	9.3E-08	NA	9.3E-08	Respiratory	NA	1.0E-02	NA	1.0E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.0E-03	NA	1.0E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.8E-06	NA	1.8E-06
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	5.9E-12	NA	5.9E-12	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	1.8E-11	NA	1.8E-11	Liver	NA	2.7E-06	NA	2.7E-06
			Chlordane - gamma (technical mixture)	NA	2.0E-11	NA	2.0E-11	Liver	NA	3.0E-06	NA	3.0E-06
			Dieldrin	NA	2.9E-11	NA	2.9E-11	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	3.1E-11	NA	3.1E-11	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	5.3E-12	NA	5.3E-12	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	1.8E-12	NA	1.8E-12	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	9.8E-03	NA	9.8E-03
		Exposure Point Total		NA	1.4E-07	NA	1.4E-07		NA	4.3E-02	NA	4.3E-02
	Exposure Medium Total			NA	1.4E-07	NA	1.4E-07		NA	4.3E-02	NA	4.3E-02
Medium Total				3.0E-05	1.4E-07	2.2E-06	3.3E-05		8.9E-01	4.3E-02	9.4E-02	1.0E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	8.8E-02	NA	1.6E-04	8.8E-02
			Antimony	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	4.4E-03	NA	7.9E-06	4.4E-03	Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	1.7E-02	NA	4.3E-03	2.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium	NA	NA	NA	NA	N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.1E-02	NA	2.0E-05	1.1E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.2E-01	NA	5.5E-03	1.3E-01
			Mercury	NA	NA	NA	NA	Immune	5.9E-03	NA	1.5E-04	6.1E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.3E-02	NA	1.1E-04	1.3E-02
			Selenium	NA	NA	NA	NA	Skin	1.2E-02	NA	2.2E-05	1.2E-02

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TABLE 9.12.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.0E-01	NA	3.5E-02	5.3E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.3E-02	NA	3.6E-05	3.3E-02
			Chlordane - alpha	6.3E-09	NA	1.1E-08	1.7E-08	Liver	3.8E-04	NA	6.6E-04	1.0E-03
			Dieldrin	2.8E-07	NA	1.6E-07	4.4E-07	Liver	3.7E-03	NA	2.1E-03	5.9E-03
			Heptachlor Epoxide	7.3E-08	NA	2.9E-08	1.0E-07	Liver	6.5E-03	NA	2.6E-03	9.1E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	8.7E-03	NA	6.9E-04	9.4E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Nitrosodiphenylamine-n	4.3E-08	NA	1.2E-08	5.5E-08	Body Weight, Developmental, Reproductive	4.7E-03	NA	1.3E-03	5.9E-03
			Phenol	NA	NA	NA	NA	Body Weight	2.8E-02	NA	1.1E-03	2.9E-02
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06	Circulatory	7.3E-02	NA	9.2E-03	8.2E-02
			Chloroethane	3.1E-09	NA	1.5E-10	3.2E-09	Fetotoxicity	2.8E-05	NA	1.3E-06	3.0E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	6.3E-03	NA	4.8E-03	1.1E-02
			Dichlorobenzene-1,4	1.8E-08	NA	9.9E-09	2.8E-08	Liver, Developmental	2.6E-04	NA	1.5E-04	4.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.7E-03	NA	1.1E-04	1.8E-03
			Dichloroethane-1,2	7.0E-08	NA	2.8E-09	7.3E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.1E-04	NA	1.7E-05	4.2E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.1E-03	NA	1.6E-04	2.3E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.0E-01	NA	7.5E-03	1.1E-01
			Dichloropropane-1,2	4.8E-08	NA	4.0E-09	5.1E-08	Kidney	3.7E-04	NA	3.1E-05	4.0E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.0E-03	NA	5.0E-04	1.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.5E-03	NA	9.2E-05	3.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	3.5E-07	NA	1.7E-07	5.3E-07	Liver	6.9E-04	NA	3.4E-04	1.0E-03
			Trichloroethane-1,1,2	2.0E-08	NA	1.5E-09	2.1E-08	Circulatory	9.2E-04	NA	7.2E-05	9.9E-04
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	9.4E-07	NA	1.3E-07	1.1E-06	Liver, Kidney, Fetotoxicity	8.3E-02	NA	1.2E-02	9.5E-02
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05	Liver	4.0E-02	NA	1.7E-03	4.2E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	8.1E-04	NA	4.4E-04	1.2E-03
		Exposure Point Total		4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
			Benzene	NA	2.5E-07	NA	2.5E-07	Circulatory	NA	1.1E-02	NA	1.1E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-06	NA	1.3E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	5.5E-09	NA	5.5E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.0E-04	NA	4.0E-04
			Dichloroethane-1,2	NA	2.4E-08	NA	2.4E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.12.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-03	NA	2.2E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.2E-04	NA	1.2E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-04	NA	1.1E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.9E-05	NA	7.9E-05
			Tetrachloroethylene	NA	4.6E-09	NA	4.6E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	6.6E-09	NA	6.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	3.2E-07	NA	3.2E-07	CNS, Liver, Endocrine	NA	8.4E-04	NA	8.4E-04
			Vinyl chloride	NA	5.9E-08	NA	5.9E-08	Liver	NA	1.4E-03	NA	1.4E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.9E-03	NA	1.9E-03
		Chemical Total		NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	6.7E-07	9.7E-06	4.4E-03		1.1E+02	1.2E+00	4.5E-01	1.1E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.1E-02	NA	5.7E-05	3.2E-02
			Antimony	NA	NA	NA	NA	Circulatory	6.2E-02	NA	7.5E-04	6.3E-02
			Arsenic	4.2E-06	NA	7.6E-09	4.3E-06	Skin, Circulatory	1.0E-01	NA	1.8E-04	1.0E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.6E-02	NA	9.3E-04	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	4.6E-02	NA	3.3E-03	5.0E-02
			Chromium	NA	NA	NA	NA	N/A	3.0E-02	NA	4.4E-03	3.5E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.2E-02	NA	2.3E-05	3.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.2E-02	NA	9.4E-05	5.2E-02
Groundwater	Groundwater	Middle PRM Aquifer	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
(cont.)	(cont.)	(cont.)	Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.1E-01	NA	9.5E-03	2.2E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
			Benzene	1.5E-08	NA	1.9E-09	1.7E-08	Circulatory	7.1E-04	NA	9.0E-05	8.0E-04
			Dichloroethane-1,2	6.4E-08	NA	2.6E-09	6.7E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.7E-04	NA	1.5E-05	3.9E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.7E-02	NA	2.0E-03	2.9E-02
			Dichloropropane-1,2	4.1E-08	NA	3.4E-09	4.4E-08	Kidney	3.2E-04	NA	2.6E-05	3.4E-04
			Tetrachloroethylene	4.4E-07	NA	2.2E-07	6.5E-07	Liver	8.6E-04	NA	4.2E-04	1.3E-03
			Trichloroethylene	4.8E-07	NA	7.0E-08	5.5E-07	Liver, Kidney, Fetotoxicity	4.3E-02	NA	6.2E-03	4.9E-02
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05	Liver	2.6E-02	NA	1.1E-03	2.7E-02
		Chemical Total		1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Exposure Medium Total			1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Air	Emissions from	Benzene	NA	2.5E-09	NA	2.5E-09	Circulatory	NA	1.1E-04	NA	1.1E-04
		Middle PRM Aquifer	Dichloroethane-1,2	NA	2.2E-08	NA	2.2E-08	Gastrointestinal, Liver, Kidney	NA	1.8E-03	NA	1.8E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-03	NA	1.9E-03
			Tetrachloroethylene	NA	5.7E-09	NA	5.7E-09	N/A	NA	NA	NA	NA

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TABLE 9.12.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	1.6E-07	NA	1.6E-07	CNS, Liver, Endocrine	NA	4.3E-04	NA	4.3E-04
			Vinyl chloride	NA	3.8E-08	NA	3.8E-08	Liver	NA	9.1E-04	NA	9.1E-04
		Chemical Total		NA	2.3E-07	NA	2.3E-07		NA	5.1E-03	NA	5.1E-03
	Exposure Medium Total			NA	2.3E-07	NA	1.7E-05		NA	5.1E-03	NA	6.5E+00
Medium Total				1.6E-05	2.3E-07	7.7E-07	1.7E-05		6.5E+00	5.1E-03	3.9E-02	6.5E+00

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Table 9.12.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	2.8E-05	1.8E-07	2.1E-06	3.1E-05	8.1E-01	4.3E-02	9.2E-02	9.4E-01
Subsurface Soil	3.0E-05	1.4E-07	2.2E-06	3.3E-05	8.9E-01	4.3E-02	9.4E-02	1.0E+00
Upper PRM Aquifer	**4.4E-03**	6.7E-07	9.7E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.5E-01	**1.1E+02**
Middle PRM Aquifer	1.6E-05	2.3E-07	7.7E-07	1.7E-05	**6.5E+00**	5.1E-03	3.9E-02	**6.5E+00**
Surface Soil + Upper PRM Aquifer	**4.4E-03**	8.5E-07	1.2E-05	**4.5E-03**	**1.1E+02**	**1.3E+00**	5.5E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	4.4E-05	4.1E-07	2.9E-06	4.8E-05	**7.3E+00**	4.8E-02	1.3E-01	**7.5E+00**
Subsurface Soil + Upper PRM Aquifer	**4.4E-03**	8.0E-07	1.2E-05	**4.5E-03**	**1.1E+02**	**1.3E+00**	5.5E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	4.6E-05	3.7E-07	3.0E-06	5.0E-05	**7.4E+00**	4.8E-02	1.3E-01	**7.6E+00**

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Table 9.12.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	2E-04	2E-04	6E-01	NA	6E-01	2E-04	6E-01	2E-04
Total Circulatory HI Across Media =	7E-01	8E-01	**1E+02**	**6E+00**	**1E+02**	**7E+00**	**1E+02**	**7E+00**
Total CNS HI Across Media =	2E-02	1E-02	**2E+00**	3E-01	**2E+00**	3E-01	**2E+00**	3E-01
Total Developmental HI Across Media =	NA	NA	6E-03	NA	6E-03	NA	6E-03	NA
Total Fetotoxicity HI Across Media =	1E-02	2E-02	9E-02	5E-02	1E-01	6E-02	1E-01	7E-02
Total Gastrointestinal HI Across Media =	4E-02	3E-02	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total General HI Across Media =	NA	3E-07	NA	NA	NA	NA	3E-07	3E-07
Total Heart HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Immune HI Across Media =	9E-02	5E-02	6E-03	NA	1E-01	9E-02	6E-02	5E-02
Total Kidney HI Across Media =	2E-01	3E-01	**2E+00**	2E-01	**2E+00**	4E-01	**2E+00**	5E-01
Total Liver HI Across Media =	4E-02	6E-02	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Lungs HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Reproductive HI Across Media =	NA	NA	6E-03	NA	6E-03	NA	6E-03	NA
Total Respiratory HI Across Media =	3E-02	2E-02	1E+00	2E-03	**2E+00**	3E-02	1E+00	2E-02
Total Sensitizer HI Across Media =	NA	NA	NA	3E-02	NA	3E-02	NA	3E-02
Total Skin HI Across Media =	5E-01	5E-01	**1E+02**	1E-01	**1E+02**	6E-01	**1E+02**	6E-01
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	NA	NA	8E-04	4E-04	8E-04	4E-04	8E-04	4E-04

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TABLE 9.13.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Antimony	NA	NA	NA	NA	Body Weight	9.2E-03	NA	1.2E-03	1.0E-02
			Arsenic	3.9E-06	NA	2.4E-07	4.2E-06	Skin, Circulatory	3.7E-02	NA	2.2E-03	3.9E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E-01	NA	5.0E-02	2.3E-01
			Cadmium	NA	NA	NA	NA	Kidney	2.5E-03	NA	1.0E-04	2.6E-03
			Chromium	NA	NA	NA	NA	N/A	1.1E-02	NA	9.0E-03	2.0E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.0E-02	NA	1.0E-03	5.1E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.2E-04	NA	4.1E-04	1.2E-03
			Mercury	NA	NA	NA	NA	Immune	1.0E-02	NA	2.9E-03	1.3E-02
			Aldrin	9.6E-09	NA	1.9E-09	1.2E-08	Liver	1.3E-03	NA	2.6E-04	1.6E-03
			Dieldrin	1.5E-08	NA	3.0E-09	1.8E-08	Liver	1.3E-03	NA	2.6E-04	1.6E-03
			Pcb-Aroclor 1254	5.0E-08	NA	1.4E-08	6.3E-08	Immune	3.5E-02	NA	9.7E-03	4.4E-02
			Benzo(a)anthracene	1.4E-07	NA	3.5E-08	1.7E-07	Kidney	4.3E-05	NA	1.1E-05	5.5E-05
			Benzo(a)pyrene	1.0E-06	NA	2.6E-07	1.3E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	9.1E-08	NA	2.4E-08	1.1E-07	Kidney	2.9E-05	NA	7.5E-06	3.6E-05
			Benzo(k)fluoranthene	1.0E-08	NA	2.6E-09	1.3E-08	Kidney	3.3E-05	NA	8.5E-06	4.1E-05
			Dibenzo(a,h)anthracene	1.1E-07	NA	2.9E-08	1.4E-07	Kidney	3.6E-06	NA	9.4E-07	4.6E-06
			Indeno(1,2,3-cd)pyrene	3.2E-08	NA	8.4E-09	4.1E-08	Body Weight	5.2E-06	NA	1.3E-06	6.5E-06
			Naphthalene	NA	NA	NA	NA	Body Weight	1.6E-04	NA	4.2E-05	2.0E-04
		Exposure Point Total		5.4E-06	NA	6.2E-07	6.0E-06		3.3E-01	NA	7.7E-02	4.1E-01
	Exposure Medium Total			5.4E-06	NA	6.2E-07	6.0E-06		3.3E-01	NA	7.7E-02	4.1E-01
	Ambient Air	Emissions from	Antimony	NA	NA	NA	NA	N/A	NA	4.0E-07	NA	4.0E-07
		Row Homes and Industrial	Arsenic	NA	9.9E-10	NA	9.9E-10	N/A	NA	NA	NA	NA
		Area Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.2E-04	NA	2.2E-04
			Cadmium	NA	5.6E-12	NA	5.6E-12	Kidney	NA	2.4E-07	NA	2.4E-07
			Chromium	NA	3.4E-09	NA	3.4E-09	Respiratory	NA	2.4E-03	NA	2.4E-03
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.0E-04	NA	2.0E-04
			Mercury	NA	NA	NA	NA	CNS	NA	9.0E-07	NA	9.0E-07
			Aldrin	NA	2.4E-13	NA	2.4E-13	N/A	NA	NA	NA	NA
			Dieldrin	NA	3.7E-13	NA	3.7E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	2.2E-13	NA	2.2E-13	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from Row Homes and Industrial Area Surface Soil (cont.)	Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.13.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	9.2E-04	NA	9.2E-04
		Exposure Point Total		NA	4.3E-09	NA	4.3E-09		NA	3.8E-03	NA	3.8E-03
	Exposure Medium Total			NA	4.3E-09	NA	4.3E-09		NA	3.8E-03	NA	3.8E-03
Medium Total				5.4E-06	4.3E-09	6.2E-07	6.0E-06		3.3E-01	3.8E-03	7.7E-02	4.1E-01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	3.1E-03	NA	6.2E-05	3.2E-03
			Antimony	NA	NA	NA	NA	Body Weight	6.3E-03	NA	1.3E-04	6.4E-03
			Arsenic	4.2E-06	NA	2.5E-07	4.5E-06	Skin, Circulatory	4.0E-02	NA	2.4E-03	4.2E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.7E-01	NA	5.5E-03	2.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.6E-03	NA	3.3E-06	1.6E-03
			Chromium	NA	NA	NA	NA	N/A	7.6E-03	NA	1.5E-04	7.7E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	3.5E-03	NA	7.1E-05	3.6E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.7E-02	NA	7.4E-04	3.8E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.7E-04	NA	1.3E-05	6.9E-04
			Mercury	NA	NA	NA	NA	Immune	3.2E-03	NA	6.5E-05	3.3E-03
			Thallium	NA	NA	NA	NA	Liver, Circulatory	5.8E-04	NA	1.2E-05	5.9E-04
			Aldrin	5.7E-09	NA	1.1E-09	6.8E-09	Liver	7.8E-04	NA	1.6E-04	9.4E-04
			Chlordane - alpha	1.7E-08	NA	1.4E-09	1.9E-08	Liver	5.7E-02	NA	4.6E-03	6.2E-02
			Chlordane - gamma (technical mixture)	2.0E-08	NA	1.6E-09	2.1E-08	Liver	6.5E-02	NA	5.2E-03	7.1E-02
			Dieldrin	2.8E-08	NA	5.6E-09	3.4E-08	Liver	2.5E-03	NA	4.9E-04	3.0E-03
			Heptachlor Epoxide	3.1E-08	NA	6.1E-09	3.7E-08	Liver	1.8E-02	NA	3.6E-03	2.2E-02
			Pcb-Aroclor 1254	3.0E-08	NA	8.3E-09	3.8E-08	Immune	2.1E-02	NA	5.8E-03	2.6E-02
			Pcb-Aroclor 1260	1.0E-08	NA	2.8E-09	1.3E-08	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	General	2.8E-08	NA	5.6E-09	3.4E-08
			Benzo(a)anthracene	1.4E-07	NA	3.5E-08	1.7E-07	Kidney	4.3E-05	NA	1.1E-05	5.5E-05
			Benzo(a)pyrene	1.0E-06	NA	2.6E-07	1.3E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	9.1E-08	NA	2.4E-08	1.1E-07	Kidney	2.9E-05	NA	7.5E-06	3.6E-05
			Benzo(k)fluoranthene	1.1E-08	NA	2.8E-09	1.4E-08	Kidney	3.4E-05	NA	8.9E-06	4.3E-05
			Dibenzo(a,h)anthracene	1.4E-07	NA	3.5E-08	1.7E-07	Kidney	4.3E-06	NA	1.1E-06	5.5E-06
			Indeno(1,2,3-cd)pyrene	3.6E-08	NA	9.4E-09	4.6E-08	Body Weight	5.8E-06	NA	1.5E-06	7.3E-06
			Naphthalene	NA	NA	NA	NA	Body Weight	1.2E-04	NA	3.1E-05	1.5E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	Exposure Point Total		5.8E-06	NA	6.5E-07	6.5E-06		5.4E-01	NA	2.9E-02	5.7E-01
	Exposure Medium Total			5.8E-06	NA	6.5E-07	6.5E-06		5.4E-01	NA	2.9E-02	5.7E-01
	Ambient Air	Emissions from Row Homes and Industrial Area Subsurface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	5.4E-05	NA	5.4E-05
			Antimony	NA	NA	NA	NA	N/A	NA	2.8E-07	NA	2.8E-07
			Arsenic	NA	1.1E-09	NA	1.1E-09	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.4E-04	NA	3.4E-04

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TABLE 9.13.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cadmium	NA	3.7E-12	NA	3.7E-12	Kidney	NA	1.6E-07	NA	1.6E-07
			Chromium	NA	2.3E-09	NA	2.3E-09	Respiratory	NA	1.7E-03	NA	1.7E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.6E-04	NA	1.6E-04
			Mercury	NA	NA	NA	NA	CNS	NA	2.8E-07	NA	2.8E-07
			Thallium	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Aldrin	NA	1.4E-13	NA	1.4E-13	N/A	NA	NA	NA	NA
			Chlordane - alpha	NA	4.3E-13	NA	4.3E-13	Liver	NA	4.3E-07	NA	4.3E-07
			Chlordane - gamma (technical mixture)	NA	4.9E-13	NA	4.9E-13	Liver	NA	4.9E-07	NA	4.9E-07
			Dieldrin	NA	7.1E-13	NA	7.1E-13	N/A	NA	NA	NA	NA
			Heptachlor Epoxide	NA	7.7E-13	NA	7.7E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1254	NA	1.3E-13	NA	1.3E-13	N/A	NA	NA	NA	NA
			Pcb-Aroclor 1260	NA	4.4E-14	NA	4.4E-14	N/A	NA	NA	NA	NA
			Acetophenone	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	6.9E-04	NA	6.9E-04
		Exposure Point Total		NA	3.3E-09	NA	3.3E-09		NA	2.9E-03	NA	2.9E-03
	Exposure Medium Total			NA	3.3E-09	NA	3.3E-09		NA	2.9E-03	NA	2.9E-03
Medium Total				5.8E-06	3.3E-09	6.5E-07	6.5E-06		5.4E-01	2.9E-03	2.9E-02	5.7E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	3.5E-04	3.5E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	6.1E-03	6.1E-03
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	2.6E-06	2.6E-06	Skin, Circulatory	NA	NA	2.5E-02	2.5E-02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	6.7E-02	6.7E-02
			Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	3.8E-03	3.8E-03
			Cadmium	NA	NA	NA	NA	Kidney	NA	NA	9.0E-03	9.0E-03
			Chromium	NA	NA	NA	NA	N/A	NA	NA	6.0E-03	6.0E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	4.4E-05	4.4E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	1.3E-02	1.3E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	1.2E-02	1.2E-02
			Mercury	NA	NA	NA	NA	Immune	NA	NA	3.4E-04	3.4E-04
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	2.5E-04	2.5E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	4.8E-05	4.8E-05

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TABLE 9.13.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	2.0E-04	2.0E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	1.1E-02	1.1E-02
			Zinc	NA	NA	NA	NA	Circulatory	NA	NA	7.9E-05	7.9E-05
			Chlordane - alpha	NA	NA	5.8E-10	5.8E-10	Liver	NA	NA	1.9E-03	1.9E-03
			Dieldrin	NA	NA	8.5E-09	8.5E-09	Liver	NA	NA	7.5E-04	7.5E-04
			Heptachlor Epoxide	NA	NA	1.5E-09	1.5E-09	Liver	NA	NA	8.9E-04	8.9E-04
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	3.2E-05	3.2E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	8.8E-03	8.8E-03
			Ether, bis(2-chloroethyl)	NA	NA	1.9E-08	1.9E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	3.4E-02	3.4E-02
			Nitrosodiphenylamine-n	NA	NA	6.5E-10	6.5E-10	Body Weight, Developmental, Reproductive	NA	NA	4.6E-04	4.6E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	2.8E-04	2.8E-04
			Benzene	NA	NA	1.4E-08	1.4E-08	Circulatory, Immune	NA	NA	6.1E-03	6.1E-03
			Chloroethane	NA	NA	1.2E-11	1.2E-11	Fetotoxicity	NA	NA	7.5E-07	7.5E-07
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	1.8E-03	1.8E-03
			Dichlorobenzene-1,4	NA	NA	5.7E-10	5.7E-10	Liver, Developmental	NA	NA	5.5E-05	5.5E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	5.2E-06	5.2E-06
			Dichloroethane-1,2	NA	NA	2.1E-10	2.1E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	8.0E-06	8.0E-06
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	7.6E-05	7.6E-05
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	NA	NA	3.6E-04	3.6E-04
			Dichloropropane-1,2	NA	NA	2.7E-10	2.7E-10	Kidney	NA	NA	1.4E-05	1.4E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	2.1E-04	2.1E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	4.4E-06	4.4E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	NA	NA	9.6E-09	9.6E-09	Liver	NA	NA	1.2E-05	1.2E-05
			Trichloroethane-1,1,2	NA	NA	9.8E-11	9.8E-11	Circulatory	NA	NA	3.0E-06	3.0E-06
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	NA	NA	8.3E-09	8.3E-09	Liver, Kidney, Fetotoxicity	NA	NA	4.8E-03	4.8E-03
			Vinyl chloride	NA	NA	6.3E-08	6.3E-08	Liver	NA	NA	9.9E-04	9.9E-04
			Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	1.8E-04	1.8E-04
		Exposure Point Total		NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
	Exposure Medium Total			NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
			Benzene	NA	6.0E-07	NA	6.0E-07	Circulatory	NA	9.0E-02	NA	9.0E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.4E-05	NA	2.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.1E-08	NA	1.1E-08	Liver	NA	1.6E-04	NA	1.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.5E-04	NA	6.5E-04
			Dichloroethane-1,2	NA	5.6E-08	NA	5.6E-08	Gastrointestinal, Liver, Kidney	NA	3.0E-02	NA	3.0E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.13.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	9.8E-03	NA	9.8E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.6E-03	NA	1.6E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-03	NA	1.2E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.2E-03	NA	1.2E-03
			Tetrachloroethylene	NA	9.8E-09	NA	9.8E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.4E-08	NA	1.4E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	7.2E-07	NA	7.2E-07	CNS, Liver, Endocrine	NA	1.3E-02	NA	1.3E-02
			Vinyl chloride	NA	3.6E-08	NA	3.6E-08	Liver	NA	5.7E-03	NA	5.7E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.0E-02	NA	3.0E-02
		Chemical Total		NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	1.4E-06	2.8E-06	4.2E-06		NA	1.5E+01	2.2E-01	1.6E+01

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Table 9.13.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	5.4E-06	4.3E-09	6.2E-07	6.0E-06	3.3E-01	3.8E-03	7.7E-02	4.1E-01
Subsurface Soil	5.8E-06	3.3E-09	6.5E-07	6.5E-06	5.4E-01	2.9E-03	2.9E-02	5.7E-01
Upper PRM Aquifer	NA	1.4E-06	2.8E-06	4.2E-06	NA	**1.5E+01**	2.2E-01	**1.6E+01**
Surface Soil + Upper PRM Aquifer	5.4E-06	1.5E-06	3.4E-06	1.0E-05	3.3E-01	**1.5E+01**	2.9E-01	**1.6E+01**
Subsurface Soil + Upper PRM Aquifer	5.8E-06	1.5E-06	3.4E-06	1.1E-05	5.4E-01	**1.5E+01**	2.4E-01	**1.6E+01**

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Table 9.13.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Row Homes and Industrial Area			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Body Weight HI Across Media =	1E-02	7E-03	5E-02	6E-02	6E-02
Total Circulatory HI Across Media =	3E-01	4E-01	2E-01	5E-01	6E-01
Total CNS HI Across Media =	2E-03	5E-03	**2E+01**	**2E+01**	**2E+01**
Total Developmental HI Across Media =	NA	NA	2E-03	2E-03	2E-03
Total Fetotoxicity HI Across Media =	2E-04	3E-04	6E-03	6E-03	6E-03
Total Gastrointestinal HI Across Media =	5E-02	4E-02	5E-02	1E-01	9E-02
Total General HI Across Media =	NA	3E-08	NA	NA	3E-08
Total Heart HI Across Media =	NA	NA	8E-06	8E-06	8E-06
Total Immune HI Across Media =	6E-02	3E-02	6E-03	6E-02	4E-02
Total Kidney HI Across Media =	2E-01	3E-01	1E-01	4E-01	4E-01
Total Liver HI Across Media =	5E-02	2E-01	7E-02	1E-01	3E-01
Total Lungs HI Across Media =	NA	NA	8E-06	8E-06	8E-06
Total Reproductive HI Across Media =	NA	NA	5E-04	5E-04	5E-04
Total Respiratory HI Across Media =	3E-03	2E-03	**2E+01**	**2E+01**	**2E+01**
Total Sensitizer HI Across Media =	NA	NA	NA	NA	NA
Total Skin HI Across Media =	4E-02	4E-02	2E-02	6E-02	7E-02
Total Thyroid HI Across Media =	NA	NA	2E-03	2E-03	2E-03
Total Endocrine HI Across Media =	NA	NA	1E-02	1E-02	1E-02

TABLE 9.14.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	1.3E-03	NA	2.0E-04	1.5E-03
			Arsenic	1.4E-06	NA	6.3E-07	2.1E-06	Skin, Circulatory	2.5E-02	NA	1.1E-02	3.6E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.4E-02	NA	2.9E-02	4.3E-02
			Cadmium	NA	NA	NA	NA	Kidney	9.3E-04	NA	2.8E-04	1.2E-03
			Chromium	NA	NA	NA	NA	N/A	6.9E-03	NA	4.1E-02	4.7E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	8.9E-04	NA	1.3E-04	1.0E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.5E-02	NA	2.2E-03	1.7E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	4.8E-04	NA	1.8E-03	2.2E-03
			Mercury	NA	NA	NA	NA	Immune	6.5E-04	NA	1.4E-03	2.0E-03
			Benzo(a)anthracene	1.8E-08	NA	3.5E-08	5.4E-08	Kidney	6.5E-06	NA	1.3E-05	1.9E-05
			Benzo(a)pyrene	8.1E-06	NA	1.6E-05	2.4E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	7.4E-07	NA	1.4E-06	2.2E-06	Kidney	2.6E-04	NA	5.0E-04	7.7E-04
			Benzo(k)fluoranthene	7.6E-08	NA	1.5E-07	2.2E-07	Kidney	2.7E-04	NA	5.2E-04	7.9E-04
			Carbazole	1.4E-08	NA	2.6E-08	4.0E-08	N/A	NA	NA	NA	NA
			Chrysene	8.8E-09	NA	1.7E-08	2.6E-08	Kidney	3.1E-04	NA	6.0E-04	9.1E-04
			Dibenzo(a,h)anthracene	1.7E-07	NA	3.3E-07	5.0E-07	Kidney	6.1E-06	NA	1.2E-05	1.8E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	4.6E-04	NA	9.9E-04	1.4E-03
			Indeno(1,2,3-cd)pyrene	4.6E-07	NA	8.8E-07	1.3E-06	Body Weight	9.8E-05	NA	1.9E-04	2.9E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	5.0E-04	NA	9.6E-04	1.5E-03
		Exposure Point Total		1.1E-05	NA	1.9E-05	3.0E-05		6.6E-02	NA	9.0E-02	1.6E-01
	Exposure Medium Total			1.1E-05	NA	1.9E-05	3.0E-05		6.6E-02	NA	9.0E-02	1.6E-01
	Ambient Air	Emissions from South Jersey Port property Surface Soil (cont.)	Aluminum	NA	NA	NA	NA	CNS	NA	3.0E-05	NA	3.0E-05
			Arsenic	NA	4.6E-10	NA	4.6E-10	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.2E-04	NA	2.2E-04
			Cadmium	NA	2.5E-11	NA	2.5E-11	Kidney	NA	5.3E-07	NA	5.3E-07
			Chromium	NA	3.6E-09	NA	3.6E-09	Respiratory	NA	2.9E-04	NA	2.9E-04
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.5E-04	NA	1.5E-04
			Mercury	NA	NA	NA	NA	CNS	NA	7.4E-08	NA	7.4E-08
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.14.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil (cont.)	Ambient Air (cont.)	Emissions from South Jersey Port property Surface Soil (cont.)	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	4.1E-09	NA	4.1E-09		NA	7.0E-04	NA	7.0E-04
	Exposure Medium Total			NA	4.1E-09	NA	4.1E-09		NA	7.0E-04	NA	7.0E-04
Medium Total				1.1E-05	4.1E-09	1.9E-05	3.0E-05		6.6E-02	7.0E-04	9.0E-02	1.6E-01
Receptor Total				1.1E-05	4.1E-09	1.9E-05	3.0E-05		6.6E-02	7.0E-04	9.0E-02	1.6E-01

Total Body Weight HI Across Media =	3E-04
Total Circulatory HI Across Media =	1E-01
Total CNS HI Across Media =	4E-03
Total Fetotoxicity HI Across Media =	2E-04
Total Gastrointestinal HI Across Media =	2E-02
Total Immune HI Across Media =	2E-03
Total Kidney HI Across Media =	5E-02
Total Liver HI Across Media =	2E-02
Total Respiratory HI Across Media =	3E-04
Total Skin HI Across Media =	4E-02

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TABLE 9.15.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	2.7E-03	NA	3.1E-05	2.7E-03
			Arsenic	2.9E-06	NA	9.8E-08	3.0E-06	Skin, Circulatory	4.9E-02	NA	1.7E-03	5.1E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.8E-02	NA	4.5E-03	3.2E-02
			Cadmium	NA	NA	NA	NA	Kidney	1.9E-03	NA	4.3E-05	1.9E-03
			Chromium	NA	NA	NA	NA	N/A	1.4E-02	NA	6.3E-03	2.0E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.8E-03	NA	2.0E-05	1.8E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.9E-02	NA	3.3E-04	3.0E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.6E-04	NA	2.7E-04	1.2E-03
			Mercury	NA	NA	NA	NA	Immune	1.3E-03	NA	2.1E-04	1.5E-03
			Benzo(a)anthracene	3.7E-08	NA	5.4E-09	4.2E-08	Kidney	1.3E-05	NA	1.9E-06	1.5E-05
			Benzo(a)pyrene	1.6E-05	NA	2.4E-06	1.9E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.5E-06	NA	2.2E-07	1.7E-06	Kidney	5.3E-04	NA	7.8E-05	6.0E-04
			Benzo(k)fluoranthene	1.5E-07	NA	2.3E-08	1.8E-07	Kidney	5.4E-04	NA	8.0E-05	6.2E-04
			Carbazole	2.7E-08	NA	4.0E-09	3.1E-08	N/A	NA	NA	NA	NA
			Chrysene	1.8E-08	NA	2.6E-09	2.0E-08	Kidney	6.3E-04	NA	9.3E-05	7.2E-04
			Dibenzo(a,h)anthracene	3.4E-07	NA	5.1E-08	3.9E-07	Kidney	1.2E-05	NA	1.8E-06	1.4E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	9.2E-04	NA	1.5E-04	1.1E-03
			Indeno(1,2,3-cd)pyrene	9.2E-07	NA	1.4E-07	1.1E-06	Body Weight	2.0E-04	NA	2.9E-05	2.3E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	1.0E-03	NA	1.5E-04	1.2E-03
		Exposure Point Total		2.2E-05	NA	2.9E-06	2.5E-05		1.3E-01	NA	1.4E-02	1.5E-01
	Exposure Medium Total			2.2E-05	NA	2.9E-06	2.5E-05		1.3E-01	NA	1.4E-02	1.5E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	7.2E-13	NA	7.2E-13
		South Jersey Port property	Arsenic	NA	1.1E-08	NA	1.1E-08	N/A	NA	NA	NA	NA
		Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	5.3E-12	NA	5.3E-12
			Cadmium	NA	5.9E-10	NA	5.9E-10	Kidney	NA	1.3E-14	NA	1.3E-14
			Chromium	NA	8.7E-08	NA	8.7E-08	Respiratory	NA	6.9E-12	NA	6.9E-12
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	3.6E-12	NA	3.6E-12
			Mercury	NA	NA	NA	NA	CNS	NA	1.7E-15	NA	1.7E-15
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	South Jersey Port property	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Surface Soil (cont.)	Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.15.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
		Exposure Point Total		NA	9.9E-08	NA	9.9E-08		NA	1.7E-11	NA	1.7E-11
	Exposure Medium Total			NA	9.9E-08	NA	9.9E-08		NA	1.7E-11	NA	1.7E-11
Medium Total				2.2E-05	9.9E-08	2.9E-06	2.5E-05		1.3E-01	1.7E-11	1.4E-02	1.5E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.3E-03	NA	2.7E-05	2.4E-03
			Antimony	NA	NA	NA	NA	Circulatory	3.0E-03	NA	2.3E-04	3.3E-03
			Arsenic	8.5E-06	NA	2.9E-07	8.7E-06	Skin, Circulatory	1.5E-01	NA	5.0E-03	1.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.6E-02	NA	5.9E-03	4.2E-02
			Cadmium	NA	NA	NA	NA	Kidney	3.3E-02	NA	7.4E-04	3.3E-02
			Chromium	NA	NA	NA	NA	N/A	5.5E-03	NA	2.5E-03	8.0E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.5E-03	NA	1.7E-05	1.5E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.1E-02	NA	3.5E-04	3.1E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	7.4E-04	NA	2.1E-04	9.5E-04
			Mercury	NA	NA	NA	NA	Immune	1.4E-03	NA	2.2E-04	1.6E-03
			Zinc	NA	NA	NA	NA	Circulatory	3.8E-03	NA	4.4E-05	3.9E-03
			Benzo(a)anthracene	9.6E-07	NA	1.4E-07	1.1E-06	Kidney	3.4E-04	NA	5.1E-05	3.9E-04
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.8E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	9.1E-07	NA	1.3E-07	1.0E-06	Kidney	3.2E-04	NA	4.8E-05	3.7E-04
			Benzo(k)fluoranthene	8.0E-08	NA	1.2E-08	9.2E-08	Kidney	2.9E-04	NA	4.2E-05	3.3E-04
			Carbazole	1.7E-08	NA	2.5E-09	2.0E-08	N/A	NA	NA	NA	NA
			Chrysene	8.6E-09	NA	1.3E-09	9.9E-09	Kidney	3.1E-04	NA	4.6E-05	3.5E-04
			Dibenzo(a,h)anthracene	5.9E-06	NA	8.7E-07	6.8E-06	Kidney	2.1E-04	NA	3.1E-05	2.4E-04
			Dibenzofuran	NA	NA	NA	NA	Kidney	3.3E-03	NA	4.8E-04	3.7E-03
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	4.1E-04	NA	6.9E-05	4.8E-04
			Indeno(1,2,3-cd)pyrene	5.8E-07	NA	8.5E-08	6.6E-07	Body Weight	1.2E-04	NA	1.8E-05	1.4E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	3.4E-04	NA	5.0E-05	3.9E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	5.8E-04	NA	8.7E-05	6.7E-04
			Pyrene	NA	NA	NA	NA	Kidney	4.8E-04	NA	7.1E-05	5.5E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Surface Soil (cont.)	Benzene	9.7E-12	NA	0.0E+00	9.7E-12	Circulatory	3.4E-07	NA	0.0E+00	3.4E-07
		Exposure Point Total		2.5E-05	NA	2.7E-06	2.7E-05		2.7E-01	NA	1.6E-02	2.9E-01
	Exposure Medium Total			2.5E-05	NA	2.7E-06	2.7E-05		2.7E-01	NA	1.6E-02	2.9E-01
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	6.4E-04	NA	6.4E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	3.3E-08	NA	3.3E-08	N/A	NA	NA	NA	NA

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TABLE 9.15.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	7.1E-03	NA	7.1E-03
			Cadmium	NA	1.0E-08	NA	1.0E-08	Kidney	NA	2.2E-04	NA	2.2E-04
			Chromium	NA	3.5E-08	NA	3.5E-08	Respiratory	NA	2.8E-03	NA	2.8E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	2.8E-03	NA	2.8E-03
			Mercury	NA	NA	NA	NA	CNS	NA	1.9E-06	NA	1.9E-06
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	7.0E-02	NA	7.0E-02
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	6.6E-10	NA	6.6E-10	Circulatory	NA	2.2E-05	NA	2.2E-05
		Exposure Point Total		NA	7.9E-08	NA	7.9E-08		NA	8.4E-02	NA	8.4E-02
	Exposure Medium Total			NA	7.9E-08	NA	7.9E-08		NA	8.4E-02	NA	8.4E-02
Medium Total				2.5E-05	7.9E-08	2.7E-06	2.7E-05		2.7E-01	8.4E-02	1.6E-02	3.7E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony	NA	NA	NA	NA	Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	2.5E-02	NA	4.6E-03	2.9E-02
			Cadmium	NA	NA	NA	NA	Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium	NA	NA	NA	NA	N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-02	NA	2.1E-05	1.7E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.8E-01	NA	5.8E-03	1.9E-01
			Mercury	NA	NA	NA	NA	Immune	8.9E-03	NA	1.6E-04	9.0E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.9E-02	NA	1.2E-04	1.9E-02
			Selenium	NA	NA	NA	NA	Skin	1.8E-02	NA	2.3E-05	1.8E-02

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TABLE 9.15.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium	NA	NA	NA	NA	Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium	NA	NA	NA	NA	Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Zinc	NA	NA	NA	NA	Circulatory	5.0E-02	NA	3.9E-05	5.0E-02
			Chlordane - alpha	1.3E-08	NA	1.6E-08	2.9E-08	Liver	5.7E-04	NA	7.1E-04	1.3E-03
			Dieldrin	5.7E-07	NA	2.4E-07	8.1E-07	Liver	5.6E-03	NA	2.3E-03	7.8E-03
			Heptachlor Epoxide	1.5E-07	NA	4.2E-08	1.9E-07	Liver	9.7E-03	NA	2.7E-03	1.2E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	1.3E-02	NA	7.4E-04	1.4E-02
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Nitrosodiphenylamine-n	8.8E-08	NA	1.7E-08	1.1E-07	Body Weight, Developmental, Reproductive	7.0E-03	NA	1.4E-03	8.3E-03
			Phenol	NA	NA	NA	NA	Body Weight	4.1E-02	NA	1.2E-03	4.3E-02
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Chloroethane	6.3E-09	NA	2.1E-10	6.5E-09	Fetotoxicity	4.2E-05	NA	1.4E-06	4.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	9.4E-03	NA	5.2E-03	1.5E-02
			Dichlorobenzene-1,4	3.6E-08	NA	1.4E-08	5.1E-08	Liver, Developmental	3.9E-04	NA	1.6E-04	5.5E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	2.5E-03	NA	1.2E-04	2.6E-03
			Dichloroethane-1,2	1.4E-07	NA	4.2E-09	1.5E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	6.1E-04	NA	1.8E-05	6.3E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	3.2E-03	NA	1.7E-04	3.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Dichloropropane-1,2	9.7E-08	NA	5.8E-09	1.0E-07	Kidney	5.5E-04	NA	3.3E-05	5.9E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.5E-03	NA	5.4E-04	2.0E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	5.2E-03	NA	9.8E-05	5.3E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	7.2E-07	NA	2.5E-07	9.7E-07	Liver	1.0E-03	NA	3.7E-04	1.4E-03
			Trichloroethane-1,1,2	4.0E-08	NA	2.3E-09	4.3E-08	Circulatory	1.4E-03	NA	7.7E-05	1.5E-03
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05	Liver	6.0E-02	NA	1.9E-03	6.2E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	1.2E-03	NA	4.7E-04	1.7E-03
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.7E+02	NA	4.9E-01	1.7E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
			Benzene	NA	3.7E-07	NA	3.7E-07	Circulatory	NA	1.2E-02	NA	1.2E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.4E-06	NA	1.4E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	8.1E-09	NA	8.1E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.2E-04	NA	4.2E-04
			Dichloroethane-1,2	NA	3.4E-08	NA	3.4E-08	Gastrointestinal, Liver, Kidney	NA	2.1E-03	NA	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.15.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.3E-03	NA	2.3E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.3E-04	NA	1.3E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-04	NA	1.2E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	8.4E-05	NA	8.4E-05
			Tetrachloroethylene	NA	6.7E-09	NA	6.7E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	9.6E-09	NA	9.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	4.6E-07	NA	4.6E-07	CNS, Liver, Endocrine	NA	8.9E-04	NA	8.9E-04
			Vinyl chloride	NA	8.6E-08	NA	8.6E-08	Liver	NA	1.5E-03	NA	1.5E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	2.0E-03	NA	2.0E-03
		Chemical Total		NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	9.7E-07	NA	9.7E-07		NA	1.3E+00	NA	1.3E+00
Medium Total				9.0E-03	9.7E-07	1.4E-05	9.0E-03		1.7E+02	1.3E+00	4.9E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.7E-02	NA	6.1E-05	4.7E-02
			Antimony	NA	NA	NA	NA	Circulatory	9.3E-02	NA	8.0E-04	9.4E-02
			Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.4E-02	NA	9.9E-04	5.5E-02
			Cadmium	NA	NA	NA	NA	Kidney	6.9E-02	NA	3.6E-03	7.3E-02
			Chromium	NA	NA	NA	NA	N/A	4.5E-02	NA	4.7E-03	5.0E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	4.8E-02	NA	2.5E-05	4.8E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	7.8E-02	NA	1.0E-04	7.8E-02
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Benzene	3.0E-08	NA	2.7E-09	3.3E-08	Circulatory	1.1E-03	NA	9.6E-05	1.2E-03
			Dichloroethane-1,2	1.3E-07	NA	3.8E-09	1.3E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	5.6E-04	NA	1.6E-05	5.7E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	4.1E-02	NA	2.2E-03	4.3E-02
			Dichloropropane-1,2	8.3E-08	NA	4.9E-09	8.8E-08	Kidney	4.7E-04	NA	2.8E-05	5.0E-04
			Tetrachloroethylene	8.9E-07	NA	3.1E-07	1.2E-06	Liver	1.3E-03	NA	4.5E-04	1.7E-03
			Trichloroethylene	9.9E-07	NA	1.0E-07	1.1E-06	Liver, Kidney, Fetotoxicity	6.4E-02	NA	6.6E-03	7.1E-02
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05	Liver	3.8E-02	NA	1.2E-03	4.0E-02
		Chemical Total		3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Exposure Medium Total			3.3E-05	NA	1.1E-06	3.4E-05		9.7E+00	NA	4.2E-02	9.8E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	3.6E-09	NA	3.6E-09	Circulatory	NA	1.2E-04	NA	1.2E-04
			Dichloroethane-1,2	NA	3.1E-08	NA	3.1E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.0E-03	NA	2.0E-03
			Tetrachloroethylene	NA	8.3E-09	NA	8.3E-09	N/A	NA	NA	NA	NA

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TABLE 9.15.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Trichloroethylene	NA	2.4E-07	NA	2.4E-07	CNS, Liver, Endocrine	NA	4.6E-04	NA	4.6E-04
			Vinyl chloride	NA	5.5E-08	NA	5.5E-08	Liver	NA	9.7E-04	NA	9.7E-04
		Chemical Total		NA	3.4E-07	NA	3.4E-07		NA	5.4E-03	NA	5.4E-03
	Exposure Medium Total			NA	3.4E-07	NA	3.4E-05		NA	5.4E-03	NA	9.8E+00
Medium Total				3.3E-05	3.4E-07	1.1E-06	3.4E-05		9.7E+00	5.4E-03	4.2E-02	9.8E+00

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Table 9.15.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	2.2E-05	9.9E-08	2.9E-06	2.5E-05	1.3E-01	1.7E-11	1.4E-02	1.5E-01
Subsurface Soil	2.5E-05	7.9E-08	2.7E-06	2.7E-05	2.7E-01	8.4E-02	1.6E-02	3.7E-01
Upper PRM Aquifer	**9.0E-03**	9.7E-07	1.4E-05	**9.0E-03**	**1.7E+02**	**1.3E+00**	4.9E-01	**1.7E+02**
Middle PRM Aquifer	3.3E-05	3.4E-07	1.1E-06	3.4E-05	**9.7E+00**	5.4E-03	4.2E-02	**9.8E+00**
Surface Soil + Upper PRM Aquifer	**9.0E-03**	1.1E-06	1.7E-05	**9.1E-03**	**1.7E+02**	**1.3E+00**	5.0E-01	**1.7E+02**
Surface Soil + Middle PRM Aquifer	5.5E-05	4.4E-07	4.1E-06	6.0E-05	**9.8E+00**	5.4E-03	5.6E-02	**9.9E+00**
Subsurface Soil + Upper PRM Aquifer	**9.0E-03**	1.1E-06	1.7E-05	**9.1E-03**	**1.7E+02**	**1.4E+00**	5.0E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	5.8E-05	4.2E-07	3.8E-06	6.2E-05	**1.0E+01**	8.9E-02	5.8E-02	**1.0E+01**

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Table 9.15.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	2E-04	5E-04	8E-01	NA	8E-01	2E-04	8E-01	5E-04
Total Circulatory HI Across Media =	1E-01	2E-01	**2E+02**	**9E+00**	**2E+02**	**9E+00**	**2E+02**	**9E+00**
Total CNS HI Across Media =	4E-03	8E-02	**2E+00**	4E-01	**2E+00**	4E-01	**2E+00**	5E-01
Total Developmental HI Across Media =	NA	NA	9E-03	NA	9E-03	NA	9E-03	NA
Total Fetotoxicity HI Across Media =	5E-12	7E-03	1E-01	7E-02	1E-01	7E-02	1E-01	8E-02
Total Gastrointestinal HI Across Media =	3E-02	3E-02	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Immune HI Across Media =	2E-03	2E-03	9E-03	NA	1E-02	2E-03	1E-02	2E-03
Total Kidney HI Across Media =	4E-02	8E-02	**3E+00**	3E-01	**3E+00**	3E-01	**3E+00**	4E-01
Total Liver HI Across Media =	3E-02	3E-02	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Lungs HI Across Media =	NA	NA	6E-04	6E-04	6E-04	6E-04	6E-04	6E-04
Total Reproductive HI Across Media =	NA	NA	8E-03	NA	8E-03	NA	8E-03	NA
Total Respiratory HI Across Media =	7E-12	7E-02	**2E+00**	2E-03	**2E+00**	2E-03	**2E+00**	7E-02
Total Sensitizer HI Across Media =	NA	NA	NA	5E-02	NA	5E-02	NA	5E-02
Total Skin HI Across Media =	5E-02	2E-01	**2E+02**	1E-01	**2E+02**	2E-01	**2E+02**	3E-01
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	NA	NA	9E-04	5E-04	9E-04	5E-04	9E-04	5E-04

TABLE 9.16.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	2.5E-02	NA	2.8E-04	2.5E-02
			Arsenic	1.8E-05	NA	6.0E-07	1.8E-05	Skin, Circulatory	2.8E-02	NA	9.3E-04	2.9E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.6E-01	NA	4.1E-02	3.0E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.7E-02	NA	3.9E-04	1.8E-02
			Chromium	NA	NA	NA	NA	N/A	1.9E-02	NA	8.6E-03	2.8E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-02	NA	1.9E-04	1.7E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.7E-01	NA	3.1E-03	2.8E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	8.9E-03	NA	2.5E-03	1.1E-02
			Mercury	NA	NA	NA	NA	Immune	1.2E-02	NA	1.9E-03	1.4E-02
			Benzo(a)anthracene	2.3E-07	NA	3.3E-08	2.6E-07	Kidney	1.2E-05	NA	1.8E-06	1.4E-05
			Benzo(a)pyrene	1.0E-04	NA	1.5E-05	1.2E-04	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	9.2E-06	NA	1.3E-06	1.1E-05	Kidney	4.9E-04	NA	7.1E-05	5.6E-04
			Benzo(k)fluoranthene	9.5E-07	NA	1.4E-07	1.1E-06	Kidney	5.1E-04	NA	7.4E-05	5.8E-04
			Carbazole	1.7E-07	NA	2.5E-08	1.9E-07	N/A	NA	NA	NA	NA
			Chrysene	1.1E-07	NA	1.6E-08	1.3E-07	Kidney	5.8E-04	NA	8.5E-05	6.7E-04
			Dibenzo(a,h)anthracene	2.1E-06	NA	3.1E-07	2.5E-06	Kidney	1.1E-05	NA	1.7E-06	1.3E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	8.6E-04	NA	1.4E-04	1.0E-03
			Indeno(1,2,3-cd)pyrene	5.7E-06	NA	8.4E-07	6.6E-06	Body Weight	1.5E-04	NA	2.2E-05	1.8E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	9.4E-04	NA	1.4E-04	1.1E-03
		Exposure Point Total		1.4E-04	NA	1.8E-05	1.6E-04		6.6E-01	NA	6.0E-02	7.2E-01
	Exposure Medium Total			1.4E-04	NA	1.8E-05	1.6E-04		6.6E-01	NA	6.0E-02	7.2E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	1.7E-03	NA	1.7E-03
		South Jersey Port property	Arsenic	NA	1.8E-08	NA	1.8E-08	N/A	NA	NA	NA	NA
		Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.3E-03	NA	1.3E-03
			Cadmium	NA	9.3E-10	NA	9.3E-10	Kidney	NA	6.7E-06	NA	6.7E-06
			Chromium	NA	1.4E-07	NA	1.4E-07	Respiratory	NA	1.7E-02	NA	1.7E-02
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	8.7E-03	NA	8.7E-03
			Mercury	NA	NA	NA	NA	CNS	NA	4.2E-06	NA	4.2E-06
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	South Jersey Port property	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Surface Soil (cont.)	Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.16.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		NA	1.6E-07	NA	1.6E-07		NA	2.8E-02	NA	2.8E-02
	Exposure Medium Total			NA	1.6E-07	NA	1.6E-07		NA	2.8E-02	NA	2.8E-02
Medium Total				1.4E-04	1.6E-07	1.8E-05	1.6E-04		6.6E-01	2.8E-02	6.0E-02	7.5E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.2E-02	NA	2.4E-04	2.2E-02
			Antimony	NA	NA	NA	NA	Body Weight	5.7E-02	NA	4.2E-03	6.1E-02
			Arsenic	5.3E-05	NA	1.8E-06	5.4E-05	Skin, Circulatory	8.2E-02	NA	2.7E-03	8.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.4E-01	NA	5.4E-02	3.9E-01
			Cadmium	NA	NA	NA	NA	Kidney	3.0E-01	NA	6.8E-03	3.1E-01
			Chromium	NA	NA	NA	NA	N/A	7.7E-03	NA	3.4E-03	1.1E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.4E-02	NA	1.6E-04	1.4E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.9E-01	NA	3.2E-03	2.9E-01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.9E-03	NA	1.9E-03	8.8E-03
			Mercury	NA	NA	NA	NA	Immune	1.3E-02	NA	2.0E-03	1.5E-02
			Zinc	NA	NA	NA	NA	Circulatory	3.6E-02	NA	4.0E-04	3.6E-02
			Benzo(a)anthracene	6.0E-06	NA	8.7E-07	6.9E-06	Kidney	3.2E-04	NA	4.6E-05	3.7E-04
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	5.7E-06	NA	8.2E-07	6.5E-06	Kidney	3.0E-04	NA	4.4E-05	3.5E-04
			Benzo(k)fluoranthene	5.0E-07	NA	7.3E-08	5.7E-07	Kidney	2.7E-04	NA	3.9E-05	3.1E-04
			Carbazole	1.1E-07	NA	1.6E-08	1.2E-07	N/A	NA	NA	NA	NA
			Chrysene	5.4E-08	NA	7.8E-09	6.2E-08	Kidney	2.9E-04	NA	4.2E-05	3.3E-04
			Dibenzo(a,h)anthracene	3.7E-05	NA	5.3E-06	4.2E-05	Kidney	2.0E-04	NA	2.8E-05	2.2E-04
			Dibenzofuran	NA	NA	NA	NA	Kidney	3.0E-02	NA	4.4E-03	3.5E-02
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	3.9E-04	NA	6.3E-05	4.5E-04
			Indeno(1,2,3-cd)pyrene	3.6E-06	NA	5.2E-07	4.1E-06	Body Weight	9.5E-05	NA	1.4E-05	1.1E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	3.2E-03	NA	4.6E-04	3.6E-03
			Phenanthrene	NA	NA	NA	NA	Kidney	5.4E-04	NA	7.9E-05	6.2E-04
			Pyrene	NA	NA	NA	NA	Kidney	4.5E-04	NA	6.5E-05	5.1E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Surface Soil (cont.)	Benzene	6.0E-11	NA	0.0E+00	6.0E-11	Circulatory, Immune	4.3E-06	NA	0.0E+00	4.3E-06
		Exposure Point Total		1.5E-04	NA	1.6E-05	1.7E-04		1.2E+00	NA	8.5E-02	1.3E+00
	Exposure Medium Total			1.5E-04	NA	1.6E-05	1.7E-04		1.2E+00	NA	8.5E-02	1.3E+00
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	1.5E-03	NA	1.5E-03
			Antimony	NA	NA	NA	NA	N/A	NA	9.8E-06	NA	9.8E-06
			Arsenic	NA	5.2E-08	NA	5.2E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	1.7E-03	NA	1.7E-03
			Cadmium	NA	1.6E-08	NA	1.6E-08	Kidney	NA	1.2E-04	NA	1.2E-04
			Chromium	NA	5.5E-08	NA	5.5E-08	Respiratory	NA	6.6E-03	NA	6.6E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.16.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Manganese	NA	NA	NA	NA	CNS	NA	6.7E-03	NA	6.7E-03
			Mercury	NA	NA	NA	NA	CNS	NA	4.4E-06	NA	4.4E-06
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.7E-01	NA	1.7E-01
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	1.0E-09	NA	1.0E-09	Circulatory	NA	2.6E-05	NA	2.6E-05
		Exposure Point Total		NA	1.2E-07	NA	1.2E-07		NA	1.8E-01	NA	1.8E-01
	Exposure Medium Total			NA	1.2E-07	NA	1.2E-07		NA	1.8E-01	NA	1.8E-01
Medium Total				1.5E-04	1.2E-07	1.6E-05	1.7E-04		1.2E+00	1.8E-01	8.5E-02	1.5E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony	NA	NA	NA	NA	Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
			Beryllium	NA	NA	NA	NA	Gastrointestinal	3.3E-02	NA	4.4E-03	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Chromium	NA	NA	NA	NA	N/A	9.5E-02	NA	7.0E-03	1.0E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.6E-02	NA	5.1E-05	5.6E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.0E-01	NA	1.4E-02	6.2E-01
			Mercury	NA	NA	NA	NA	Immune	3.0E-02	NA	3.9E-04	3.0E-02
			Nickel	NA	NA	NA	NA	Body Weight	6.3E-02	NA	2.9E-04	6.3E-02
			Selenium	NA	NA	NA	NA	Skin	6.0E-02	NA	5.5E-05	6.0E-02
			Thallium	NA	NA	NA	NA	Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium	NA	NA	NA	NA	Kidney	3.6E-01	NA	1.3E-02	3.7E-01
			Zinc	NA	NA	NA	NA	Circulatory	1.7E-01	NA	9.2E-05	1.7E-01
			Chlordane - alpha	2.9E-08	NA	2.2E-08	5.0E-08	Liver	1.6E-02	NA	1.2E-02	2.8E-02
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06	Liver	1.9E-02	NA	4.6E-03	2.3E-02
			Heptachlor Epoxide	3.3E-07	NA	5.6E-08	3.9E-07	Liver	3.2E-02	NA	5.6E-03	3.8E-02
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	4.3E-03	NA	1.5E-04	4.5E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00

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TABLE 9.16.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure *Routes Total*	Primary *Target Organ(s)*	Ingestion	Inhalation	Dermal	Exposure *Routes Total*
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Nitrosodiphenylamine-n	2.0E-07	NA	2.3E-08	2.2E-07	Body Weight, Developmental, Reproductive	2.3E-02	NA	2.8E-03	2.6E-02
			Phenol	NA	NA	NA	NA	Body Weight	6.9E-02	NA	1.2E-03	7.0E-02
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Chloroethane	1.4E-08	NA	2.9E-10	1.4E-08	Fetotoxicity	1.4E-04	NA	2.9E-06	1.4E-04
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	3.1E-02	NA	1.0E-02	4.2E-02
			Dichlorobenzene-1,4	8.1E-08	NA	2.0E-08	1.0E-07	Liver, Developmental	1.3E-03	NA	3.2E-04	1.6E-03
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	8.4E-04	NA	2.4E-05	8.6E-04
			Dichloroethane-1,2	3.2E-07	NA	5.6E-09	3.2E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	2.0E-03	NA	3.6E-05	2.1E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	1.1E-03	NA	3.4E-04	1.4E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	5.1E-02	NA	1.6E-03	5.3E-02
			Dichloropropane-1,2	2.2E-07	NA	7.8E-09	2.2E-07	Kidney	1.8E-03	NA	6.7E-05	1.9E-03
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	5.0E-03	NA	1.1E-03	6.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	1.7E-03	NA	2.0E-05	1.7E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06	Liver	3.4E-04	NA	7.4E-05	4.2E-04
			Trichloroethane-1,1,2	9.0E-08	NA	3.0E-09	9.3E-08	Circulatory	4.6E-04	NA	1.6E-05	4.7E-04
			Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
			Xylenes, total	NA	NA	NA	NA	Body Weight	4.0E-03	NA	9.4E-04	5.0E-03
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.1E+01	NA	5.0E-01	6.1E+01
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+01	NA	1.2E+01
			Benzene	NA	2.2E-06	NA	2.2E-06	Circulatory	NA	5.5E-02	NA	5.5E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-05	NA	1.3E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	4.8E-08	NA	4.8E-08	Liver	NA	1.1E-04	NA	1.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	3.8E-04	NA	3.8E-04
			Dichloroethane-1,2	NA	2.1E-07	NA	2.1E-07	Gastrointestinal, Liver, Kidney	NA	1.9E-02	NA	1.9E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	6.5E-03	NA	6.5E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.1E-03	NA	1.1E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.0E-03	NA	1.0E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.6E-04	NA	7.6E-04
			Tetrachloroethylene	NA	4.0E-08	NA	4.0E-08	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	5.7E-08	NA	5.7E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06	CNS, Liver, Endocrine	NA	8.1E-03	NA	8.1E-03
			Vinyl chloride	NA	5.2E-07	NA	5.2E-07	Liver	NA	1.4E-02	NA	1.4E-02
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.8E-02	NA	1.8E-02

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TABLE 9.16.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.8E-06	NA	5.8E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.8E-06	2.2E-05	2.0E-02		6.1E+01	1.2E+01	5.0E-01	7.3E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony	NA	NA	NA	NA	Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05	Skin, Circulatory	3.0E-02	NA	2.8E-05	3.0E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium	NA	NA	NA	NA	Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Chromium	NA	NA	NA	NA	N/A	2.3E-02	NA	1.7E-03	2.4E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
Groundwater	Groundwater	Middle PRM Aquifer	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.3E+01	NA	2.1E-02	2.3E+01
(cont.)	(cont.)	(cont.)	Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.1E+00	NA	2.4E-02	1.1E+00
			Thallium	NA	NA	NA	NA	Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Benzene	6.6E-08	NA	3.7E-09	7.0E-08	Circulatory, Immune	4.7E-03	NA	2.6E-04	5.0E-03
			Dichloroethane-1,2	2.9E-07	NA	5.1E-09	3.0E-07	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	1.9E-03	NA	3.3E-05	1.9E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.4E-02	NA	4.4E-04	1.4E-02
			Dichloropropane-1,2	1.8E-07	NA	6.7E-09	1.9E-07	Kidney	1.6E-03	NA	5.7E-05	1.6E-03
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06	Liver	4.3E-04	NA	9.2E-05	5.2E-04
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.5E-05		2.6E+01	NA	7.3E-02	2.7E+01
	Air	Emissions from	Benzene	NA	2.2E-08	NA	2.2E-08	Circulatory	NA	5.4E-04	NA	5.4E-04
		Middle PRM Aquifer	Dichloroethane-1,2	NA	1.9E-07	NA	1.9E-07	Gastrointestinal, Liver, Kidney	NA	1.7E-02	NA	1.7E-02
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	5.5E-03	NA	5.5E-03
			Tetrachloroethylene	NA	5.0E-08	NA	5.0E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.4E-06	NA	1.4E-06	CNS, Liver, Endocrine	NA	4.2E-03	NA	4.2E-03
			Vinyl chloride	NA	3.3E-07	NA	3.3E-07	Liver	NA	8.8E-03	NA	8.8E-03
		Chemical Total		NA	2.0E-06	NA	2.0E-06		NA	3.6E-02	NA	3.6E-02
	Exposure Medium Total			NA	2.0E-06	NA	7.5E-05		NA	3.6E-02	NA	2.7E+01
Medium Total				7.3E-05	2.0E-06	1.5E-06	7.7E-05		2.6E+01	3.6E-02	7.3E-02	2.7E+01

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Table 9.16.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.4E-04	1.6E-07	1.8E-05	**1.6E-04**	6.6E-01	2.8E-02	6.0E-02	7.5E-01
Subsurface Soil	**1.5E-04**	1.2E-07	1.6E-05	**1.7E-04**	**1.2E+00**	1.8E-01	8.5E-02	**1.5E+00**
Upper PRM Aquifer	**2.0E-02**	5.8E-06	2.2E-05	**2.0E-02**	**6.1E+01**	**1.2E+01**	5.0E-01	**7.3E+01**
Middle PRM Aquifer	7.3E-05	2.0E-06	1.5E-06	7.7E-05	**2.6E+01**	3.6E-02	7.3E-02	**2.7E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	6.0E-06	4.0E-05	**2.0E-02**	**6.1E+01**	**1.2E+01**	5.6E-01	**7.3E+01**
Surface Soil + Middle PRM Aquifer	**2.1E-04**	2.2E-06	1.9E-05	**2.3E-04**	**2.7E+01**	6.4E-02	1.3E-01	**2.7E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	6.0E-06	3.8E-05	**2.0E-02**	**6.2E+01**	**1.2E+01**	5.9E-01	**7.4E+01**
Subsurface Soil + Middle PRM Aquifer	**2.3E-04**	2.1E-06	1.8E-05	**2.5E-04**	**2.8E+01**	2.2E-01	1.6E-01	**2.8E+01**

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Table 9.16.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	2E-04	6E-02	**4E+00**	6E-01	**4E+00**	6E-01	**4E+00**	7E-01
Total Circulatory HI Across Media =	6E-01	8E-01	**5E+01**	**2E+01**	**6E+01**	**2E+01**	**6E+01**	**2E+01**
Total CNS HI Across Media =	5E-02	2E-01	**1E+01**	1E+00	**1E+01**	1E+00	**1E+01**	1E+00
Total Developmental HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Fetotoxicity HI Across Media =	1E-03	2E-03	4E-01	2E-01	4E-01	2E-01	4E-01	2E-01
Total Gastrointestinal HI Across Media =	3E-01	3E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Immune HI Across Media =	1E-02	1E-02	5E-01	5E-03	6E-01	2E-02	6E-01	2E-02
Total Kidney HI Across Media =	3E-01	8E-01	**7E+00**	8E-01	**8E+00**	1E+00	**8E+00**	**2E+00**
Total Liver HI Across Media =	3E-01	3E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Lungs HI Across Media =	NA	NA	2E-03	2E-03	2E-03	2E-03	2E-03	2E-03
Total Reproductive HI Across Media =	NA	NA	3E-02	NA	3E-02	NA	3E-02	NA
Total Respiratory HI Across Media =	2E-02	2E-01	**1E+01**	6E-03	**1E+01**	2E-02	**1E+01**	2E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	3E-02	8E-02	**3E+01**	3E-02	**3E+01**	6E-02	**3E+01**	1E-01
Total Thyroid HI Across Media =	NA	NA	4E-02	NA	4E-02	NA	4E-02	NA
Total Endocrine HI Across Media =	NA	NA	8E-03	4E-03	8E-03	4E-03	8E-03	4E-03

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TABLE 9.17.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Aluminum	NA	NA	NA	NA	CNS	2.5E-03	NA	3.3E-05	2.5E-03
			Arsenic	2.0E-06	NA	7.8E-08	2.0E-06	Skin, Circulatory	4.6E-02	NA	1.8E-03	4.8E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	2.6E-02	NA	4.9E-03	3.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	1.8E-03	NA	4.6E-05	1.8E-03
			Chromium	NA	NA	NA	NA	N/A	1.3E-02	NA	6.8E-03	2.0E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.7E-03	NA	2.2E-05	1.7E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.7E-02	NA	3.6E-04	2.8E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	9.0E-04	NA	3.0E-04	1.2E-03
			Mercury	NA	NA	NA	NA	Immune	1.2E-03	NA	2.3E-04	1.5E-03
			Benzo(a)anthracene	2.5E-08	NA	4.3E-09	3.0E-08	Kidney	1.2E-05	NA	2.1E-06	1.4E-05
			Benzo(a)pyrene	1.1E-05	NA	1.9E-06	1.3E-05	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	1.0E-06	NA	1.7E-07	1.2E-06	Kidney	4.9E-04	NA	8.4E-05	5.8E-04
			Benzo(k)fluoranthene	1.0E-07	NA	1.8E-08	1.2E-07	Kidney	5.1E-04	NA	8.7E-05	5.9E-04
			Carbazole	1.9E-08	NA	3.2E-09	2.2E-08	N/A	NA	NA	NA	NA
			Chrysene	1.2E-08	NA	2.1E-09	1.4E-08	Kidney	5.9E-04	NA	1.0E-04	6.9E-04
			Dibenzo(a,h)anthracene	2.4E-07	NA	4.0E-08	2.8E-07	Kidney	1.1E-05	NA	2.0E-06	1.3E-05
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	8.6E-04	NA	1.7E-04	1.0E-03
			Indeno(1,2,3-cd)pyrene	6.3E-07	NA	1.1E-07	7.4E-07	Body Weight	1.8E-04	NA	3.2E-05	2.2E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	9.4E-04	NA	1.6E-04	1.1E-03
		Exposure Point Total		1.5E-05	NA	2.3E-06	1.7E-05		1.2E-01	NA	1.5E-02	1.4E-01
	Exposure Medium Total			1.5E-05	NA	2.3E-06	1.7E-05		1.2E-01	NA	1.5E-02	1.4E-01
	Ambient Air	Emissions from	Aluminum	NA	NA	NA	NA	CNS	NA	3.4E-04	NA	3.4E-04
		South Jersey Port property	Arsenic	NA	3.9E-09	NA	3.9E-09	N/A	NA	NA	NA	NA
		Surface Soil	Barium	NA	NA	NA	NA	Fetotoxicity	NA	2.5E-03	NA	2.5E-03
			Cadmium	NA	2.0E-10	NA	2.0E-10	Kidney	NA	6.0E-06	NA	6.0E-06
			Chromium	NA	3.0E-08	NA	3.0E-08	Respiratory	NA	3.3E-03	NA	3.3E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	1.7E-03	NA	1.7E-03
			Mercury	NA	NA	NA	NA	CNS	NA	8.4E-07	NA	8.4E-07
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Surface Soil	Ambient Air	South Jersey Port property	Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
(cont.)	(cont.)	Surface Soil (cont.)	Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.17.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Exposure Point Total		NA	3.4E-08	NA	3.4E-08		NA	7.9E-03	NA	7.9E-03
	Exposure Medium Total			NA	3.4E-08	NA	3.4E-08		NA	7.9E-03	NA	7.9E-03
Medium Total				1.5E-05	3.4E-08	2.3E-06	1.7E-05		1.2E-01	7.9E-03	1.5E-02	1.5E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	2.2E-03	NA	2.9E-05	2.2E-03
			Antimony	NA	NA	NA	NA	Circulatory	2.8E-03	NA	2.5E-04	3.1E-03
			Arsenic	5.8E-06	NA	2.3E-07	6.0E-06	Skin, Circulatory	1.4E-01	NA	5.4E-03	1.4E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.4E-02	NA	6.4E-03	4.0E-02
			Cadmium	NA	NA	NA	NA	Kidney	3.1E-02	NA	8.1E-04	3.1E-02
			Chromium	NA	NA	NA	NA	N/A	5.1E-03	NA	2.7E-03	7.8E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.4E-03	NA	1.8E-05	1.4E-03
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	2.9E-02	NA	3.8E-04	2.9E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	6.9E-04	NA	2.3E-04	9.2E-04
			Mercury	NA	NA	NA	NA	Immune	1.3E-03	NA	2.4E-04	1.5E-03
			Zinc	NA	NA	NA	NA	Circulatory	3.6E-03	NA	4.7E-05	3.6E-03
			Benzo(a)anthracene	6.6E-07	NA	1.1E-07	7.7E-07	Kidney	3.2E-04	NA	5.5E-05	3.7E-04
			Benzo(a)pyrene	5.3E-06	NA	9.1E-07	6.2E-06	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	6.2E-07	NA	1.1E-07	7.3E-07	Kidney	3.0E-04	NA	5.2E-05	3.5E-04
			Benzo(k)fluoranthene	5.5E-08	NA	9.5E-09	6.5E-08	Kidney	2.7E-04	NA	4.6E-05	3.1E-04
			Carbazole	1.2E-08	NA	2.0E-09	1.4E-08	N/A	NA	NA	NA	NA
			Chrysene	5.9E-09	NA	1.0E-09	7.0E-09	Kidney	2.9E-04	NA	4.9E-05	3.4E-04
			Dibenzo(a,h)anthracene	4.0E-06	NA	6.9E-07	4.7E-06	Kidney	2.0E-04	NA	3.4E-05	2.3E-04
			Dibenzofuran	NA	NA	NA	NA	Kidney	3.1E-03	NA	5.2E-04	3.6E-03
			Fluoranthene	NA	NA	NA	NA	Kidney, Liver, Circulatory	3.9E-04	NA	7.5E-05	4.6E-04
			Indeno(1,2,3-cd)pyrene	4.0E-07	NA	6.8E-08	4.6E-07	Body Weight	1.1E-04	NA	2.0E-05	1.3E-04
			Naphthalene	NA	NA	NA	NA	Body Weight	3.2E-04	NA	5.5E-05	3.7E-04
			Phenanthrene	NA	NA	NA	NA	Kidney	5.5E-04	NA	9.4E-05	6.4E-04
			Pyrene	NA	NA	NA	NA	Kidney	4.5E-04	NA	7.7E-05	5.3E-04
Subsurface Soil (cont.)	Subsurface Soil (cont.)	South Jersey Port property Surface Soil (cont.)	Benzene	6.7E-12	NA	0.0E+00	6.7E-12	Circulatory	3.2E-07	NA	0.0E+00	3.2E-07
		Exposure Point Total		1.7E-05	NA	2.1E-06	1.9E-05		2.5E-01	NA	1.8E-02	2.7E-01
	Exposure Medium Total			1.7E-05	NA	2.1E-06	1.9E-05		2.5E-01	NA	1.8E-02	2.7E-01
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Aluminum	NA	NA	NA	NA	CNS	NA	3.0E-04	NA	3.0E-04
			Antimony	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Arsenic	NA	1.1E-08	NA	1.1E-08	N/A	NA	NA	NA	NA
			Barium	NA	NA	NA	NA	Fetotoxicity	NA	3.3E-03	NA	3.3E-03
			Cadmium	NA	3.6E-09	NA	3.6E-09	Kidney	NA	1.0E-04	NA	1.0E-04
			Chromium	NA	1.2E-08	NA	1.2E-08	Respiratory	NA	1.3E-03	NA	1.3E-03
			Copper	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA

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TABLE 9.17.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Manganese	NA	NA	NA	NA	CNS	NA	1.3E-03	NA	1.3E-03
			Mercury	NA	NA	NA	NA	CNS	NA	8.7E-07	NA	8.7E-07
			Zinc	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(a)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(b)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzo(k)fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Carbazole	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Chrysene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzo(a,h)anthracene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Fluoranthene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	3.3E-02	NA	3.3E-02
			Phenanthrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Pyrene	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Benzene	NA	2.3E-10	NA	2.3E-10	Circulatory	NA	1.0E-05	NA	1.0E-05
		Exposure Point Total		NA	2.7E-08	NA	2.7E-08		NA	3.9E-02	NA	3.9E-02
	Exposure Medium Total			NA	2.7E-08	NA	2.7E-08		NA	3.9E-02	NA	3.9E-02
Medium Total				1.7E-05	2.7E-08	2.1E-06	1.9E-05		2.5E-01	3.9E-02	1.8E-02	3.1E-01
Groundwater	*Groundwater*	Upper PRM Aquifer	*Aluminum*	NA	NA	NA	NA	CNS	8.8E-02	NA	1.6E-04	8.8E-02
			Antimony	NA	NA	NA	NA	Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	4.4E-03	NA	7.9E-06	4.4E-03	Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
(cont.)	(cont.)	(cont.)	Barium	NA	NA	NA	NA	Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
			Beryllium	NA	NA	NA	NA	*Gastrointestinal*	1.7E-02	NA	4.3E-03	2.1E-02
			Cadmium	NA	NA	NA	NA	Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium	NA	NA	NA	NA	N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	1.1E-02	NA	2.0E-05	1.1E-02
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	1.2E-01	NA	5.5E-03	1.3E-01
			Mercury	NA	NA	NA	NA	*Immune*	5.9E-03	NA	1.5E-04	6.1E-03
			Nickel	NA	NA	NA	NA	Body Weight	1.3E-02	NA	1.1E-04	1.3E-02
			Selenium	NA	NA	NA	NA	Skin	1.2E-02	NA	2.2E-05	1.2E-02
			Thallium	NA	NA	NA	NA	Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium	NA	NA	NA	NA	Kidney	5.0E-01	NA	3.5E-02	5.3E-01
			Zinc	NA	NA	NA	NA	Circulatory	3.3E-02	NA	3.6E-05	3.3E-02
			Chlordane - alpha	6.3E-09	NA	1.1E-08	1.7E-08	Liver	3.8E-04	NA	6.6E-04	1.0E-03
			Dieldrin	2.8E-07	NA	1.6E-07	4.4E-07	Liver	3.7E-03	NA	2.1E-03	5.9E-03
			Heptachlor Epoxide	7.3E-08	NA	2.9E-08	1.0E-07	Liver	6.5E-03	NA	2.6E-03	9.1E-03
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	8.7E-03	NA	6.9E-04	9.4E-03
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01

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TABLE 9.17.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Nitrosodiphenylamine-n	4.3E-08	NA	1.2E-08	5.5E-08	Body Weight, Developmental, Reproductive	4.7E-03	NA	1.3E-03	5.9E-03
			Phenol	NA	NA	NA	NA	Body Weight	2.8E-02	NA	1.1E-03	2.9E-02
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06	Circulatory	7.3E-02	NA	9.2E-03	8.2E-02
			Chloroethane	3.1E-09	NA	1.5E-10	3.2E-09	Fetotoxicity	2.8E-05	NA	1.3E-06	3.0E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	6.3E-03	NA	4.8E-03	1.1E-02
			Dichlorobenzene-1,4	1.8E-08	NA	9.9E-09	2.8E-08	Liver, Developmental	2.6E-04	NA	1.5E-04	4.1E-04
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	1.7E-03	NA	1.1E-04	1.8E-03
			Dichloroethane-1,2	7.0E-08	NA	2.8E-09	7.3E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	4.1E-04	NA	1.7E-05	4.2E-04
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	2.1E-03	NA	1.6E-04	2.3E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	1.0E-01	NA	7.5E-03	1.1E-01
			Dichloropropane-1,2	4.8E-08	NA	4.0E-09	5.1E-08	Kidney	3.7E-04	NA	3.1E-05	4.0E-04
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	1.0E-03	NA	5.0E-04	1.5E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	3.5E-03	NA	9.2E-05	3.5E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Tetrachloroethylene	3.5E-07	NA	1.7E-07	5.3E-07	Liver	6.9E-04	NA	3.4E-04	1.0E-03
			Trichloroethane-1,1,2	2.0E-08	NA	1.5E-09	2.1E-08	Circulatory	9.2E-04	NA	7.2E-05	9.9E-04
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Trichloroethylene	9.4E-07	NA	1.3E-07	1.1E-06	Liver, Kidney, Fetotoxicity	8.3E-02	NA	1.2E-02	9.5E-02
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05	Liver	4.0E-02	NA	1.7E-03	4.2E-02
			Xylenes, total	NA	NA	NA	NA	Body Weight	8.1E-04	NA	4.4E-04	1.2E-03
		Exposure Point Total		4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.7E-06	4.4E-03		1.1E+02	NA	4.5E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
			Benzene	NA	2.5E-07	NA	2.5E-07	Circulatory	NA	1.1E-02	NA	1.1E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	1.3E-06	NA	1.3E-06
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	5.5E-09	NA	5.5E-09	Liver	NA	1.2E-05	NA	1.2E-05
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	4.0E-04	NA	4.0E-04
			Dichloroethane-1,2	NA	2.4E-08	NA	2.4E-08	Gastrointestinal, Liver, Kidney	NA	1.9E-03	NA	1.9E-03
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	2.2E-03	NA	2.2E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.2E-04	NA	1.2E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.1E-04	NA	1.1E-04
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	7.9E-05	NA	7.9E-05
			Tetrachloroethylene	NA	4.6E-09	NA	4.6E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	6.6E-09	NA	6.6E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	3.2E-07	NA	3.2E-07	CNS, Liver, Endocrine	NA	8.4E-04	NA	8.4E-04
			Vinyl chloride	NA	5.9E-08	NA	5.9E-08	Liver	NA	1.4E-03	NA	1.4E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	1.9E-03	NA	1.9E-03

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TABLE 9.17.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Chemical Total		NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	6.7E-07	NA	6.7E-07		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	6.7E-07	9.7E-06	4.4E-03		1.1E+02	1.2E+00	4.5E-01	1.1E+02
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	3.1E-02	NA	5.7E-05	3.2E-02
			Antimony	NA	NA	NA	NA	Circulatory	6.2E-02	NA	7.5E-04	6.3E-02
			Arsenic	4.2E-06	NA	7.6E-09	4.3E-06	Skin, Circulatory	1.0E-01	NA	1.8E-04	1.0E-01
			Barium	NA	NA	NA	NA	Kidney, Circulatory	3.6E-02	NA	9.3E-04	3.7E-02
			Cadmium	NA	NA	NA	NA	Kidney	4.6E-02	NA	3.3E-03	5.0E-02
			Chromium	NA	NA	NA	NA	N/A	3.0E-02	NA	4.4E-03	3.5E-02
			Cobalt	NA	NA	NA	NA	Sensitizer	3.2E-02	NA	2.3E-05	3.2E-02
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	5.2E-02	NA	9.4E-05	5.2E-02
Groundwater (cont.)	Groundwater (cont.)	Middle PRM Aquifer (cont.)	Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	2.1E-01	NA	9.5E-03	2.2E-01
			Thallium	NA	NA	NA	NA	Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
			Benzene	1.5E-08	NA	1.9E-09	1.7E-08	Circulatory	7.1E-04	NA	9.0E-05	8.0E-04
			Dichloroethane-1,2	6.4E-08	NA	2.6E-09	6.7E-08	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	3.7E-04	NA	1.5E-05	3.9E-04
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	2.7E-02	NA	2.0E-03	2.9E-02
			Dichloropropane-1,2	4.1E-08	NA	3.4E-09	4.4E-08	Kidney	3.2E-04	NA	2.6E-05	3.4E-04
			Tetrachloroethylene	4.4E-07	NA	2.2E-07	6.5E-07	Liver	8.6E-04	NA	4.2E-04	1.3E-03
			Trichloroethylene	4.8E-07	NA	7.0E-08	5.5E-07	Liver, Kidney, Fetotoxicity	4.3E-02	NA	6.2E-03	4.9E-02
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05	Liver	2.6E-02	NA	1.1E-03	2.7E-02
		Chemical Total		1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Exposure Medium Total			1.6E-05	NA	7.7E-07	1.7E-05		6.5E+00	NA	3.9E-02	6.5E+00
	Air	Emissions from Middle PRM Aquifer	Benzene	NA	2.5E-09	NA	2.5E-09	Circulatory	NA	1.1E-04	NA	1.1E-04
			Dichloroethane-1,2	NA	2.2E-08	NA	2.2E-08	Gastrointestinal, Liver, Kidney	NA	1.8E-03	NA	1.8E-03
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	1.9E-03	NA	1.9E-03
			Tetrachloroethylene	NA	5.7E-09	NA	5.7E-09	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	1.6E-07	NA	1.6E-07	CNS, Liver, Endocrine	NA	4.3E-04	NA	4.3E-04
			Vinyl chloride	NA	3.8E-08	NA	3.8E-08	Liver	NA	9.1E-04	NA	9.1E-04
		Chemical Total		NA	2.3E-07	NA	2.3E-07		NA	5.1E-03	NA	5.1E-03
	Exposure Medium Total			NA	2.3E-07	NA	1.7E-05		NA	5.1E-03	NA	6.5E+00
Medium Total				1.6E-05	2.3E-07	7.7E-07	1.7E-05		6.5E+00	5.1E-03	3.9E-02	6.5E+00

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Table 9.17.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.5E-05	3.4E-08	2.3E-06	1.7E-05	1.2E-01	7.9E-03	1.5E-02	1.5E-01
Subsurface Soil	1.7E-05	2.7E-08	2.1E-06	1.9E-05	2.5E-01	3.9E-02	1.8E-02	3.1E-01
Upper PRM Aquifer	**4.4E-03**	6.7E-07	9.7E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.5E-01	**1.1E+02**
Middle PRM Aquifer	1.6E-05	2.3E-07	7.7E-07	1.7E-05	**6.5E+00**	5.1E-03	3.9E-02	**6.5E+00**
Surface Soil + Upper PRM Aquifer	**4.4E-03**	7.0E-07	1.2E-05	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.7E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	3.1E-05	2.7E-07	3.1E-06	3.5E-05	**6.6E+00**	1.3E-02	5.5E-02	**6.7E+00**
Subsurface Soil + Upper PRM Aquifer	**4.4E-03**	6.9E-07	1.2E-05	**4.4E-03**	**1.1E+02**	**1.3E+00**	4.7E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	3.3E-05	2.6E-07	2.9E-06	3.6E-05	**6.7E+00**	4.4E-02	5.7E-02	**6.8E+00**

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Table 9.17.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	2E-04	5E-04	6E-01	NA	6E-01	2E-04	6E-01	5E-04
Total Circulatory HI Across Media =	1E-01	2E-01	**1E+02**	**6E+00**	**1E+02**	**6E+00**	**1E+02**	**6E+00**
Total CNS HI Across Media =	6E-03	4E-02	**2E+00**	3E-01	**2E+00**	3E-01	**2E+00**	3E-01
Total Developmental HI Across Media =	NA	NA	6E-03	NA	6E-03	NA	6E-03	NA
Total Fetotoxicity HI Across Media =	3E-03	3E-03	9E-02	5E-02	1E-01	5E-02	1E-01	5E-02
Total Gastrointestinal HI Across Media =	3E-02	3E-02	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total General HI Across Media =	NA	NA	NA	NA	NA	NA	NA	NA
Total Heart HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Immune HI Across Media =	1E-03	2E-03	6E-03	NA	8E-03	1E-03	8E-03	2E-03
Total Kidney HI Across Media =	4E-02	8E-02	**2E+00**	2E-01	**2E+00**	2E-01	**2E+00**	3E-01
Total Liver HI Across Media =	3E-02	3E-02	**4E+00**	**5E+00**	**4E+00**	**5E+00**	**4E+00**	**5E+00**
Total Lungs HI Across Media =	NA	NA	4E-04	4E-04	4E-04	4E-04	4E-04	4E-04
Total Reproductive HI Across Media =	NA	NA	6E-03	NA	6E-03	NA	6E-03	NA
Total Respiratory HI Across Media =	3E-03	3E-02	1E+00	2E-03	1E+00	5E-03	**2E+00**	4E-02
Total Sensitizer HI Across Media =	NA	NA	NA	3E-02	NA	3E-02	NA	3E-02
Total Skin HI Across Media =	5E-02	1E-01	**1E+02**	1E-01	**1E+02**	1E-01	**1E+02**	2E-01
Total Thyroid HI Across Media =	NA	NA	1E-02	NA	1E-02	NA	1E-02	NA
Total Endocrine HI Across Media =	NA	NA	8E-04	4E-04	8E-04	4E-04	8E-04	4E-04

TABLE 9.18.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum	NA	NA	NA	NA	CNS	NA	NA	3.5E-04	3.5E-04
			Antimony	NA	NA	NA	NA	Body Weight	NA	NA	6.1E-03	6.1E-03
			Arsenic	NA	NA	2.6E-06	2.6E-06	Skin, Circulatory	NA	NA	2.5E-02	2.5E-02
			Barium	NA	NA	NA	NA	Kidney, Circulatory	NA	NA	6.7E-02	6.7E-02
			Beryllium	NA	NA	NA	NA	Gastrointestinal	NA	NA	3.8E-03	3.8E-03
			Cadmium	NA	NA	NA	NA	Kidney	NA	NA	9.0E-03	9.0E-03
			Chromium	NA	NA	NA	NA	N/A	NA	NA	6.0E-03	6.0E-03
			Copper	NA	NA	NA	NA	Kidney, Gastrointestinal	NA	NA	4.4E-05	4.4E-05
			Iron	NA	NA	NA	NA	Circulatory, Gastrointestinal, Liver	NA	NA	1.3E-02	1.3E-02
			Lead	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	CNS	NA	NA	1.2E-02	1.2E-02
			Mercury	NA	NA	NA	NA	Immune	NA	NA	3.4E-04	3.4E-04
			Nickel	NA	NA	NA	NA	Body Weight	NA	NA	2.5E-04	2.5E-04
			Selenium	NA	NA	NA	NA	Skin	NA	NA	4.8E-05	4.8E-05
			Thallium	NA	NA	NA	NA	Liver, Circulatory	NA	NA	2.0E-04	2.0E-04
			Vanadium	NA	NA	NA	NA	Kidney	NA	NA	1.1E-02	1.1E-02
			Zinc	NA	NA	NA	NA	Circulatory	NA	NA	7.9E-05	7.9E-05
			Chlordane - alpha	NA	NA	5.8E-10	5.8E-10	Liver	NA	NA	1.9E-03	1.9E-03
			Dieldrin	NA	NA	8.5E-09	8.5E-09	Liver	NA	NA	7.5E-04	7.5E-04
			Heptachlor Epoxide	NA	NA	1.5E-09	1.5E-09	Liver	NA	NA	8.9E-04	8.9E-04
			Cresol-o	NA	NA	NA	NA	Body Weight, CNS	NA	NA	3.2E-05	3.2E-05
			Cresol-p	NA	NA	NA	NA	CNS, Respiratory, Body Weight	NA	NA	8.8E-03	8.8E-03
			Ether, bis(2-chloroethyl)	NA	NA	1.9E-08	1.9E-08	N/A	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	Body Weight	NA	NA	3.4E-02	3.4E-02
			Nitrosodiphenylamine-n	NA	NA	6.5E-10	6.5E-10	Body Weight, Developmental, Reproductive	NA	NA	4.6E-04	4.6E-04
			Phenol	NA	NA	NA	NA	Body Weight	NA	NA	2.8E-04	2.8E-04
			Benzene	NA	NA	1.4E-08	1.4E-08	Circulatory, Immune	NA	NA	6.1E-03	6.1E-03
			Chloroethane	NA	NA	1.2E-11	1.2E-11	Fetotoxicity	NA	NA	7.5E-07	7.5E-07
			Dichlorobenzene-1,3	NA	NA	NA	NA	Circulatory, Thyroid	NA	NA	1.8E-03	1.8E-03
			Dichlorobenzene-1,4	NA	NA	5.7E-10	5.7E-10	Liver, Developmental	NA	NA	5.5E-05	5.5E-05
			Dichloroethane-1,1	NA	NA	NA	NA	N/A	NA	NA	5.2E-06	5.2E-06
			Dichloroethane-1,2	NA	NA	2.1E-10	2.1E-10	Heart, Lungs, CNS, Kidney, Liver, Gastrointestinal	NA	NA	8.0E-06	8.0E-06
			Dichloroethene-1,2 trans	NA	NA	NA	NA	Circulatory	NA	NA	7.6E-05	7.6E-05
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	Circulatory	NA	NA	3.6E-04	3.6E-04
			Dichloropropane-1,2	NA	NA	2.7E-10	2.7E-10	Kidney	NA	NA	1.4E-05	1.4E-05
			Ethylbenzene	NA	NA	NA	NA	Kidney, Liver	NA	NA	2.1E-04	2.1E-04
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Kidney, Liver	NA	NA	4.4E-06	4.4E-06
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	N/A	NA	NA	NA	NA
Groundwater (cont.)	Groundwater (cont.)	Upper PRM Aquifer (cont.)	Tetrachloroethylene	NA	NA	9.6E-09	9.6E-09	Liver	NA	NA	1.2E-05	1.2E-05
			Trichloroethane-1,1,2	NA	NA	9.8E-11	9.8E-11	Circulatory	NA	NA	3.0E-06	3.0E-06
			Trichloroethylene	NA	NA	8.3E-09	8.3E-09	Liver, Kidney, Fetotoxicity	NA	NA	4.8E-03	4.8E-03
			Vinyl chloride	NA	NA	6.3E-08	6.3E-08	Liver	NA	NA	9.9E-04	9.9E-04

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TABLE 9.18.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Xylenes, total	NA	NA	NA	NA	Body Weight	NA	NA	1.8E-04	1.8E-04
		Exposure Point Total		NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
	Exposure Medium Total			NA	NA	2.8E-06	2.8E-06		NA	NA	2.2E-01	2.2E-01
	Air	Emissions from	Naphthalene	NA	NA	NA	NA	CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
		Upper PRM Aquifer	Benzene	NA	6.0E-07	NA	6.0E-07	Circulatory	NA	9.0E-02	NA	9.0E-02
			Chloroethane	NA	NA	NA	NA	Developmental	NA	2.4E-05	NA	2.4E-05
			Dichlorobenzene-1,3	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichlorobenzene-1,4	NA	1.1E-08	NA	1.1E-08	Liver	NA	1.6E-04	NA	1.6E-04
			Dichloroethane-1,1	NA	NA	NA	NA	Kidney	NA	6.5E-04	NA	6.5E-04
			Dichloroethane-1,2	NA	5.6E-08	NA	5.6E-08	Gastrointestinal, Liver, Kidney	NA	3.0E-02	NA	3.0E-02
			Dichloroethene-1,2 trans	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloroethylene-1,2 cis	NA	NA	NA	NA	N/A	NA	NA	NA	NA
			Dichloropropane-1,2	NA	NA	NA	NA	Respiratory	NA	9.8E-03	NA	9.8E-03
			Ethylbenzene	NA	NA	NA	NA	Developmental	NA	1.6E-03	NA	1.6E-03
			Methyl isobutyl ketone (4-methyl-2-pentanone)	NA	NA	NA	NA	Fetotoxicity	NA	1.2E-03	NA	1.2E-03
			Methyl tertiary butyl ether (MTBE)	NA	NA	NA	NA	Liver, Kidney	NA	1.2E-03	NA	1.2E-03
			Tetrachloroethylene	NA	9.8E-09	NA	9.8E-09	N/A	NA	NA	NA	NA
			Trichloroethane-1,1,2	NA	1.4E-08	NA	1.4E-08	N/A	NA	NA	NA	NA
			Trichloroethylene	NA	7.2E-07	NA	7.2E-07	CNS, Liver, Endocrine	NA	1.3E-02	NA	1.3E-02
			Vinyl chloride	NA	3.6E-08	NA	3.6E-08	Liver	NA	5.7E-03	NA	5.7E-03
			Xylenes, total	NA	NA	NA	NA	CNS	NA	3.0E-02	NA	3.0E-02
		Chemical Total		NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	1.4E-06	NA	1.4E-06		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	1.4E-06	2.8E-06	4.2E-06		NA	1.5E+01	2.2E-01	1.6E+01

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Table 9.18.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Upper PRM Aquifer	NA	1.4E-06	2.8E-06	4.2E-06	NA	**1.5E+01**	2.2E-01	**1.6E+01**

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Table 9.18.CTE Supplement
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	South Jersey *Port property* Upper PRM Aquifer
Total Body Weight HI Across Media =	5E-02
Total Circulatory HI Across Media =	2E-01
Total CNS HI Across Media =	**2E+01**
Total Developmental HI Across Media =	2E-03
Total Fetotoxicity HI Across Media =	6E-03
Total Gastrointestinal HI Across Media =	5E-02
Total General HI Across Media =	NA
Total Heart HI Across Media =	8E-06
Total Immune HI Across Media =	6E-03
Total Kidney HI Across Media =	1E-01
Total Liver HI Across Media =	7E-02
Total Lungs HI Across Media =	8E-06
Total Reproductive HI Across Media =	5E-04
Total Respiratory HI Across Media =	**2E+01**
Total Sensitizer HI Across Media =	NA
Total Skin HI Across Media =	2E-02
Total Thyroid HI Across Media =	2E-03
Total Endocrine HI Across Media =	1E-02

TABLE 10.1.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current
Receptor Population: Trespasser/Visitor
Receptor Age: Adolescents

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	1.3E-05	NA	5.6E-06	1.8E-05	Skin, Circulatory	2.2E-01	NA	9.6E-02	3.1E-01
			Barium					Kidney, Circulatory	1.2E-01	NA	2.6E-01	3.8E-01
			Chromium					N/A	2.3E-02	NA	1.3E-01	1.6E-01
			Dieldrin	6.1E-07	NA	9.0E-07	1.5E-06					
			Pcb-araclor 1254	6.3E-07	NA	1.3E-06	1.9E-06	Immune	1.2E-01	NA	2.5E-01	3.8E-01
			Benzo(a)anthracene	1.4E-06	NA	2.7E-06	4.1E-06					
			Benzo(a)pyrene	1.3E-05	NA	2.6E-05	3.9E-05					
			Benzo(b)fluoranthene	1.5E-06	NA	2.9E-06	4.4E-06					
			Dibenzo(a,h)anthracene	9.1E-07	NA	1.8E-06	2.7E-06					
		Exposure Point Total		3.1E-05	NA	4.1E-05	7.2E-05		4.9E-01	NA	7.4E-01	1.2E+00
	Exposure Medium Total			3.1E-05	NA	4.1E-05	7.2E-05		4.9E-01	NA	7.4E-01	1.2E+00
Medium Total				3.1E-05	0.0E+00	4.1E-05	7.2E-05		4.9E-01	0.0E+00	7.4E-01	1.2E+00
Receptor Total				3.1E-05	0.0E+00	4.1E-05	7.2E-05		4.9E-01	0.0E+00	7.4E-01	1.2E+00

Total Circulatory HI Across Media =	7E-01
Total Immune HI Across Media =	4E-01
Total Kidney HI Across Media =	4E-01
Total Skin HI Across Media =	3E-01

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TABLE 10.2.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	1.7E-05	NA	4.2E-07	1.8E-05	Skin, Circulatory	4.1E-01	NA	9.8E-03	4.2E-01
			Barium					Kidney, Circulatory	2.3E-01	NA	2.7E-02	2.6E-01
			Pcb-araclor 1254					Immune	2.3E-01	NA	2.6E-02	2.5E-01
			Benzo(a)anthracene	1.9E-06	NA	2.0E-07	2.1E-06					
			Benzo(a)pyrene	1.8E-05	NA	1.9E-06	2.0E-05					
			Benzo(b)fluoranthene	2.1E-06	NA	2.1E-07	2.3E-06					
		Exposure Point Total		4.0E-05	NA	2.7E-06	4.2E-05		8.7E-01	NA	6.2E-02	9.3E-01
	Exposure Medium Total			4.0E-05	NA	2.7E-06	4.2E-05		8.7E-01	NA	6.2E-02	9.3E-01
	Ambient Air	Emissions from Surface Soil	Trichloroethylene	NA	3.1E-06	NA	3.1E-06					
		Exposure Point Total		NA	3.1E-06	NA	3.1E-06		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	3.1E-06	NA	3.1E-06		NA	0.0E+00	NA	0.0E+00
Medium Total				4.0E-05	3.1E-06	2.7E-06	4.6E-05		8.7E-01	0.0E+00	6.2E-02	9.3E-01
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Arsenic	4.4E-05	NA	1.1E-06	4.6E-05	Skin, Circulatory	1.0E+00	NA	2.5E-02	1.1E+00
			Barium					Kidney, Circulatory	1.3E-01	NA	1.5E-02	1.5E-01
			Chromium					N/A	3.9E-01	NA	1.2E-01	5.1E-01
			Pcb-araclor 1254					Immune	2.3E-01	NA	2.6E-02	2.6E-01
			Benzo(a)pyrene	5.3E-06	NA	5.5E-07	5.9E-06					
			Trichloroethylene	1.8E-06	NA	0.0E+00	1.8E-06	Liver, Kidney, Fetotoxicity	1.6E-01	NA	0.0E+00	1.6E-01
		Exposure Point Total		5.2E-05	NA	1.6E-06	5.3E-05		2.0E+00	NA	1.9E-01	2.1E+00
	Exposure Medium Total			5.2E-05	NA	1.6E-06	5.3E-05		2.0E+00	NA	1.9E-01	2.1E+00
	Ambient Air	Emissions from Subsurface Soil	Trichloroethylene	NA	1.1E-04	NA	1.1E-04	CNS, Liver, Endocrine	NA	2.9E-01	NA	2.9E-01
		Exposure Point Total		NA	1.1E-04	NA	1.1E-04		NA	2.9E-01	NA	2.9E-01
	Exposure Medium Total			NA	1.1E-04	NA	1.1E-04		NA	2.9E-01	NA	2.9E-01
Medium Total				5.2E-05	1.1E-04	1.6E-06	1.6E-04		2.0E+00	2.9E-01	1.9E-01	2.4E+00
Groundwater	Groundwater	Upper PRM Aquifer	Antimony	4.4E-03	NA	7.9E-06	4.4E-03	Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
			Arsenic					Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
			Barium					Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
			Cadmium					Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium					N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Manganese					CNS	1.2E-01	NA	5.5E-03	1.3E-01
			Thallium					Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium					Kidney	5.0E-01	NA	3.5E-02	5.3E-01

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TABLE 10.2.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Cresol-p					CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05					
			Naphthalene					Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06					
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05					
		Exposure Point Total		4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	0.0E+00	9.1E-06	4.4E-03		1.1E+02	1.2E+00	4.1E-01	1.1E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	4.2E-06	NA	7.6E-09	4.3E-06					
			Iron					Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
			Manganese					CNS	2.1E-01	NA	9.5E-03	2.2E-01
			Thallium					Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05					
		Chemical Total		1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
	Exposure Medium Total			1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
Medium Total				1.5E-05	0.0E+00	4.8E-07	1.6E-05		6.0E+00	0.0E+00	2.0E-02	6.0E+00

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Table 10.2.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	4.0E-05	3.1E-06	2.7E-06	4.6E-05	8.7E-01	0.0E+00	6.2E-02	9.3E-01
Subsurface Soil	5.2E-05	1.1E-04	1.6E-06	**1.6E-04**	**2.0E+00**	2.9E-01	1.9E-01	**2.4E+00**
Upper PRM Aquifer	**4.4E-03**	0.0E+00	9.1E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.1E-01	**1.1E+02**
Middle PRM Aquifer	1.5E-05	0.0E+00	4.8E-07	1.6E-05	**6.0E+00**	0.0E+00	2.0E-02	**6.0E+00**
Surface Soil + Upper PRM Aquifer	**4.5E-03**	3.1E-06	1.2E-05	**4.5E-03**	**1.1E+02**	**1.2E+00**	4.7E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	5.5E-05	3.1E-06	3.2E-06	6.1E-05	**6.9E+00**	0.0E+00	8.2E-02	**7.0E+00**
Subsurface Soil + Upper PRM Aquifer	**4.5E-03**	1.1E-04	1.1E-05	**4.6E-03**	**1.1E+02**	**1.5E+00**	6.0E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	6.7E-05	1.1E-04	2.1E-06	**1.8E-04**	**8.0E+00**	2.9E-01	2.1E-01	**8.5E+00**

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Table 10.2.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	5E-01	NA	5E-01	NA	5E-01	NA
Total Circulatory HI Across Media =	7E-01	1E+00	**1E+02**	**6E+00**	**1E+02**	**6E+00**	**1E+02**	**7E+00**
Total CNS HI Across Media =	NA	3E-01	**2E+00**	2E-01	**2E+00**	2E-01	**2E+00**	5E-01
Total Fetotoxicity HI Across Media =	NA	2E-01	NA	NA	NA	NA	2E-01	2E-01
Total Gastrointestinal HI Across Media =	NA	NA	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total Immune HI Across Media =	3E-01	3E-01	NA	NA	3E-01	3E-01	3E-01	3E-01
Total Kidney HI Across Media =	3E-01	3E-01	**2E+00**	NA	**2E+00**	3E-01	**2E+00**	3E-01
Total Liver HI Across Media =	NA	4E-01	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**4E+00**	**5E+00**
Total Respiratory HI Across Media =	NA	NA	1E+00	NA	1E+00	NA	1E+00	NA
Total Skin HI Across Media =	4E-01	1E+00	**1E+02**	NA	**1E+02**	4E-01	**1E+02**	1E+00
Total Endocrine HI Across Media =	NA	3E-01	NA	NA	NA	NA	3E-01	3E-01

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TABLE 10.3.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	2.5E-05	NA	8.6E-07	2.6E-05	Skin, Circulatory	4.4E-01	NA	1.5E-02	4.5E-01
			Barium					Kidney, Circulatory	2.5E-01	NA	4.0E-02	2.9E-01
			Pcb-araclor 1254	1.3E-06	NA	2.0E-07	1.5E-06	Immune	2.4E-01	NA	3.9E-02	2.8E-01
			Benzo(a)anthracene	2.8E-06	NA	4.2E-07	3.3E-06					
			Benzo(a)pyrene	2.7E-05	NA	4.0E-06	3.1E-05					
			Benzo(b)fluoranthene	3.0E-06	NA	4.5E-07	3.5E-06					
			Dibenzo(a,h)anthracene	1.8E-06	NA	2.7E-07	2.1E-06					
		Exposure Point Total		6.1E-05	NA	6.2E-06	6.7E-05		9.3E-01	NA	9.4E-02	1.0E+00
	Exposure Medium Total			6.1E-05	NA	6.2E-06	6.7E-05		9.3E-01	NA	9.4E-02	1.0E+00
	Ambient Air	Emissions from Martin Aaron property Surface Soil	Tetrachloroethylene	NA	1.8E-06	NA	1.8E-06					
			Trichloroethylene	NA	8.9E-06	NA	8.9E-06					
		Exposure Point Total		NA	1.1E-05	NA	1.1E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.1E-05	NA	1.1E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				6.1E-05	1.1E-05	6.2E-06	7.8E-05		9.3E-01	0.0E+00	9.4E-02	1.0E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Arsenic	6.5E-05	NA	2.2E-06	6.7E-05	Skin, Circulatory	1.1E+00	NA	3.8E-02	1.2E+00
			Barium					Kidney, Circulatory	1.4E-01	NA	2.3E-02	1.6E-01
			Chromium					N/A	4.1E-01	NA	1.9E-01	6.0E-01
			Pcb-araclor 1254	1.3E-06	NA	2.0E-07	1.5E-06	Immune	2.5E-01	NA	3.9E-02	2.9E-01
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.9E-06					
			Dibenzo(a,h)anthracene	1.7E-06	NA	2.6E-07	2.0E-06					
			Trichloroethylene	2.7E-06	NA	0.0E+00	2.7E-06	Liver, Kidney, Fetotoxicity	1.7E-01	NA	0.0E+00	1.7E-01
		Exposure Point Total		7.8E-05	NA	3.8E-06	8.2E-05		2.1E+00	NA	2.9E-01	2.4E+00
	Exposure Medium Total			7.8E-05	NA	3.8E-06	8.2E-05		2.1E+00	NA	2.9E-01	2.4E+00
	Ambient Air	Emissions from Martin Aaron property Subsurface Soil	Chromium	NA	2.6E-06	NA	2.6E-06	Respiratory	NA	2.1E-01	NA	2.1E-01
			Naphthalene					CNS; Respiratory	NA	1.5E-01	NA	1.5E-01
			Tetrachloroethylene	NA	3.4E-06	NA	3.4E-06					
			Trichloroethylene	NA	3.1E-04	NA	3.1E-04	CNS, Liver, Endocrine	NA	6.1E-01	NA	6.1E-01
		Exposure Point Total		NA	3.2E-04	NA	3.2E-04		NA	9.7E-01	NA	9.7E-01
	Exposure Medium Total			NA	3.2E-04	NA	3.2E-04		NA	9.7E-01	NA	9.7E-01
Medium Total				7.8E-05	3.2E-04	3.8E-06	4.0E-04		2.1E+00	9.7E-01	2.9E-01	3.4E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony					Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
			Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02

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TABLE 10.3.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Barium					Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Cadmium					Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium					N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Manganese					CNS	1.8E-01	NA	5.8E-03	1.9E-01
			Thallium					Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium					Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Cresol-p					CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05	N/A	NA	NA	NA	NA
			Naphthalene					Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Dichloroethylene-1,2 cis					Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05					
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00
Medium Total				9.0E-03	0.0E+00	1.4E-05	9.0E-03		1.6E+02	1.3E+00	4.6E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00
			Manganese					CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium					Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05					
		Chemical Total		3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
	Exposure Medium Total			3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
Medium Total				3.1E-05	0.0E+00	7.0E-07	3.2E-05		9.1E+00	0.0E+00	2.1E-02	9.1E+00

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Table 10.3.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	6.1E-05	1.1E-05	6.2E-06	7.8E-05	9.3E-01	0.0E+00	9.4E-02	1.0E+00
Subsurface Soil	7.8E-05	**3.2E-04**	3.8E-06	**4.0E-04**	**2.1E+00**	9.7E-01	2.9E-01	**3.4E+00**
Upper PRM Aquifer	**9.0E-03**	0.0E+00	1.4E-05	**9.0E-03**	**1.6E+02**	**1.3E+00**	4.6E-01	**1.7E+02**
Middle PRM Aquifer	3.1E-05	0.0E+00	7.0E-07	3.2E-05	**9.1E+00**	0.0E+00	2.1E-02	**9.1E+00**
Surface Soil + Upper PRM Aquifer	**9.1E-03**	1.1E-05	2.0E-05	**9.1E-03**	**1.7E+02**	**1.3E+00**	5.6E-01	**1.7E+02**
Surface Soil + Middle PRM Aquifer	9.2E-05	1.1E-05	6.9E-06	1.1E-04	**1.0E+01**	0.0E+00	1.2E-01	**1.0E+01**
Subsurface Soil + Upper PRM Aquifer	**9.1E-03**	**3.2E-04**	1.7E-05	**9.4E-03**	**1.7E+02**	**2.3E+00**	7.5E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	1.1E-04	**3.2E-04**	4.5E-06	**4.3E-04**	**1.1E+01**	9.7E-01	3.1E-01	**1.3E+01**

301500

Table 10.3.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	7E-01	NA	7E-01	NA	7E-01	NA
Total Circulatory HI Across Media =	7E-01	1E+00	**2E+02**	**9E+00**	**2E+02**	**1E+01**	**2E+02**	**1E+01**
Total CNS HI Across Media =	NA	8E-01	**2E+00**	3E-01	**2E+00**	3E-01	**3E+00**	1E+00
Total Fetotoxicity HI Across Media =	NA	2E-01	1E-01	NA	1E-01	NA	3E-01	2E-01
Total Gastrointestinal HI Across Media =	NA	NA	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Immune HI Across Media =	3E-01	3E-01	NA	NA	3E-01	3E-01	3E-01	3E-01
Total Kidney HI Across Media =	3E-01	3E-01	**3E+00**	NA	**3E+00**	3E-01	**3E+00**	3E-01
Total Liver HI Across Media =	NA	8E-01	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**6E+00**	**8E+00**
Total Respiratory HI Across Media =	NA	4E-01	**2E+00**	NA	**2E+00**	NA	**2E+00**	4E-01
Total Skin HI Across Media =	5E-01	1E+00	**2E+02**	1E-01	**2E+02**	6E-01	**2E+02**	1E+00
Total Endocrine HI Across Media =	NA	6E-01	NA	NA	NA	NA	6E-01	6E-01

301501

TABLE 10.4.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Antimony					Body Weight	1.0E-01	NA	7.5E-03	1.1E-01
			Arsenic	1.6E-04	NA	5.3E-06	1.6E-04	Skin, Circulatory	2.4E-01	NA	8.2E-03	2.5E-01
			Barium					Kidney, Circulatory	2.3E+00	NA	3.7E-01	2.7E+00
			Iron					Circulatory, Gastrointestinal, Liver	7.5E-01	NA	8.4E-03	7.5E-01
			Aldrin	2.6E-06	NA	2.9E-07	2.9E-06	Liver	5.9E-02	NA	6.7E-03	6.6E-02
			Chlordane - alpha					Liver	2.9E-01	NA	1.3E-02	3.0E-01
			Chlordane - gamma (technical mixture)					Liver	3.1E-01	NA	1.4E-02	3.3E-01
			DDE-4,4'					Reproductive, Fetotoxicity	1.1E-01	NA	3.6E-03	1.1E-01
			Dieldrin	7.6E-06	NA	8.5E-07	8.5E-06	Liver	1.1E-01	NA	1.2E-02	1.2E-01
			Pcb-araclor 1254	7.8E-06	NA	1.2E-06	9.1E-06	Immune	9.1E-01	NA	1.4E-01	1.1E+00
			Pcb-araclor 1260	1.6E-06	NA	2.6E-07	1.9E-06					
			Benzo(a)anthracene	1.8E-05	NA	2.6E-06	2.0E-05					
			Benzo(a)pyrene	1.7E-04	NA	2.4E-05	1.9E-04					
			Benzo(b)fluoranthene	1.9E-05	NA	2.7E-06	2.1E-05					
			Dibenzo(a,h)anthracene	1.1E-05	NA	1.7E-06	1.3E-05					
			Indeno(1,2,3-cd)pyrene	4.5E-06	NA	6.5E-07	5.1E-06					
			Tetrachloroethylene	2.4E-06	NA	0.0E+00	2.4E-06					
		Exposure Point Total		4.0E-04	NA	4.0E-05	4.4E-04		5.2E+00	NA	5.9E-01	5.8E+00
	Exposure Medium Total			4.0E-04	NA	4.0E-05	4.4E-04		5.2E+00	NA	5.9E-01	5.8E+00
	Ambient Air	Emissions from Martin Aaron property Surface Soil	Tetrachloroethylene	NA	2.8E-06	NA	2.8E-06					
			Trichloroethylene	NA	1.4E-05	NA	1.4E-05					
		Exposure Point Total		NA	1.7E-05	NA	1.7E-05		NA	0.0E+00	NA	0.0E+00
	Exposure Medium Total			NA	1.7E-05	NA	1.7E-05		NA	0.0E+00	NA	0.0E+00
Medium Total				4.0E-04	1.7E-05	4.0E-05	4.5E-04		5.2E+00	0.0E+00	5.9E-01	5.8E+00
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Antimony					Body Weight	2.2E-01	NA	1.6E-02	2.3E-01
			Arsenic	4.0E-04	NA	1.4E-05	4.2E-04	Skin, Circulatory	6.3E-01	NA	2.1E-02	6.5E-01
			Barium					Kidney, Circulatory	1.3E+00	NA	2.1E-01	1.5E+00
			Chromium					N/A	5.8E-01	NA	2.6E-01	8.4E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.8E-01	NA	4.3E-03	3.8E-01
			Mercury					Immune	4.0E-01	NA	6.4E-02	4.6E-01
			Chlordane - alpha					Liver	1.1E-01	NA	5.1E-03	1.2E-01
			Chlordane - gamma (technical mixture)					Liver	1.4E-01	NA	6.1E-03	1.4E-01
			Pcb-araclor 1254	7.9E-06	NA	1.2E-06	9.1E-06	Immune	9.2E-01	NA	1.4E-01	1.1E+00
			Benzo(a)anthracene	5.2E-06	NA	7.6E-07	6.0E-06					
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05					
			Benzo(b)fluoranthene	5.8E-06	NA	8.4E-07	6.6E-06					
			Dibenzo(a,h)anthracene	1.1E-05	NA	1.6E-06	1.2E-05					

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TABLE 10.4.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Indeno(1,2,3-cd)pyrene	2.6E-06	NA	3.8E-07	3.0E-06					
			Tetrachloroethylene	4.5E-06	NA	0.0E+00	4.5E-06					
			Trichloroethylene	1.7E-05	NA	0.0E+00	1.7E-05	Liver, Kidney, Fetotoxicity	1.6E+00	NA	0.0E+00	1.6E+00
		Exposure Point Total		5.0E-04	NA	2.5E-05	5.3E-04		6.3E+00	NA	7.3E-01	7.0E+00
	Exposure Medium Total			5.0E-04	NA	2.5E-05	5.3E-04		6.3E+00	NA	7.3E-01	7.0E+00
	Ambient Air	Emissions from	Chromium	NA	4.1E-06	NA	4.1E-06	Respiratory	NA	5.0E-01	NA	5.0E-01
		Martin Aaron property	Naphthalene					CNS; Respiratory	NA	3.6E-01	NA	3.6E-01
		Subsurface Soil	Benzene	NA	2.0E-06	NA	2.0E-06					
			Chloroform	NA	2.2E-06	NA	2.2E-06					
			Tetrachloroethylene	NA	5.3E-06	NA	5.3E-06					
			Trichloroethylene	NA	4.9E-04	NA	4.9E-04	CNS, Liver, Endocrine	NA	1.4E+00	NA	1.4E+00
			Xylenes, total					CNS	NA	1.5E-01	NA	1.5E-01
		Exposure Point Total		NA	5.1E-04	NA	5.1E-04		NA	2.4E+00	NA	2.4E+00
	Exposure Medium Total			NA	5.1E-04	NA	5.1E-04		NA	2.4E+00	NA	2.4E+00
Medium Total				5.0E-04	5.1E-04	2.5E-05	1.0E-03		6.3E+00	2.4E+00	7.3E-01	9.5E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony					Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
			Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
			Barium					Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
			Cadmium					Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Manganese					CNS	6.0E-01	NA	1.4E-02	6.2E-01
			Thallium					Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium					Kidney	3.6E-01	NA	1.3E-02	3.7E-01
			Zinc					Circulatory	1.7E-01	NA	9.2E-05	1.7E-01
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06					
			Cresol-p					CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00
			Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05					
			Naphthalene					Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06					
			Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	1.2E+01	NA	1.2E+01

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TABLE 10.4.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Upper PRM Aquifer	Benzene	NA	2.2E-06	NA	2.2E-06					
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06					
		Chemical Total		NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.0E-06	2.2E-05	2.0E-02		6.0E+01	1.2E+01	4.5E-01	7.2E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony					Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05					
			Barium					Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium					Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Cobalt					Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper					Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.3E+01	NA	2.1E-02	2.3E+01
			Manganese					CNS	1.1E+00	NA	2.4E-02	1.1E+00
			Thallium					Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06					
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.0E-02	2.6E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.0E-02	2.6E+01
Medium Total				7.3E-05	0.0E+00	1.5E-06	7.4E-05		2.6E+01	0.0E+00	7.0E-02	2.6E+01

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Table 10.4.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	**4.0E-04**	1.7E-05	4.0E-05	**4.5E-04**	**5.2E+00**	0.0E+00	5.9E-01	**5.8E+00**
Subsurface Soil	**5.0E-04**	**5.1E-04**	2.5E-05	**1.0E-03**	**6.3E+00**	**2.4E+00**	7.3E-01	**9.5E+00**
Upper PRM Aquifer	**2.0E-02**	5.0E-06	2.2E-05	**2.0E-02**	**6.0E+01**	**1.2E+01**	4.5E-01	**7.2E+01**
Middle PRM Aquifer	7.3E-05	0.0E+00	1.5E-06	7.4E-05	**2.6E+01**	0.0E+00	7.0E-02	**2.6E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	2.2E-05	6.1E-05	**2.0E-02**	**6.5E+01**	**1.2E+01**	1.0E+00	**7.8E+01**
Surface Soil + Middle PRM Aquifer	**4.7E-04**	1.7E-05	4.1E-05	**5.3E-04**	**3.2E+01**	0.0E+00	6.6E-01	**3.2E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	**5.1E-04**	4.7E-05	**2.1E-02**	**6.6E+01**	**1.4E+01**	**1.2E+00**	**8.2E+01**
Subsurface Soil + Middle PRM Aquifer	**5.8E-04**	**5.1E-04**	2.7E-05	**1.1E-03**	**3.3E+01**	**2.4E+00**	8.0E-01	**3.6E+01**

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Table 10.4.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Martin Aaron property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	1E-01	2E-01	**3E+00**	6E-01	**3E+00**	7E-01	**4E+00**	9E-01
Total Circulatory HI Across Media =	**4E+00**	**3E+00**	**5E+01**	**2E+01**	**6E+01**	**3E+01**	**6E+01**	**3E+01**
Total CNS HI Across Media =	NA	**2E+00**	**1E+01**	1E+00	**1E+01**	1E+00	**2E+01**	**3E+00**
Total Fetotoxicity HI Across Media =	1E-01	**2E+00**	4E-01	2E-01	5E-01	3E-01	**2E+00**	**2E+00**
Total Gastrointestinal HI Across Media =	8E-01	4E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Immune HI Across Media =	1E+00	**2E+00**	5E-01	NA	**2E+00**	1E+00	**2E+00**	**2E+00**
Total Kidney HI Across Media =	**3E+00**	**3E+00**	**7E+00**	8E-01	**1E+01**	**3E+00**	**1E+01**	**4E+00**
Total Liver HI Across Media =	**2E+00**	**4E+00**	**2E+01**	**2E+01**	**2E+01**	**3E+01**	**2E+01**	**3E+01**
Total Respiratory HI Across Media =	NA	9E-01	**1E+01**	NA	**1E+01**	NA	**1E+01**	9E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	3E-01	6E-01	**3E+01**	NA	**3E+01**	3E-01	**3E+01**	6E-01
Total Endocrine HI Across Media =	NA	1E+00	NA	NA	NA	NA	1E+00	1E+00

TABLE 10.5.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Martin Aaron property Surface Soil	Arsenic	3.3E-06	NA	2.0E-07	3.5E-06					
			Barium					Kidney, Circulatory	2.9E-01	NA	8.4E-02	3.8E-01
			Pcb-araclor 1254					Immune	1.2E-01	NA	3.2E-02	1.5E-01
			Benzo(a)pyrene	3.5E-06	NA	9.2E-07	4.4E-06					
		Exposure Point Total		6.8E-06	NA	1.1E-06	8.0E-06		4.1E-01	NA	1.2E-01	5.3E-01
	Exposure Medium Total			6.8E-06	NA	1.1E-06	8.0E-06		4.1E-01	NA	1.2E-01	5.3E-01
Medium Total				6.8E-06	0.0E+00	1.1E-06	8.0E-06		4.1E-01	0.0E+00	1.2E-01	5.3E-01
Subsurface Soil	Subsurface Soil	Martin Aaron property Subsurface Soil	Arsenic	8.5E-06	NA	5.1E-07	9.0E-06					
			Barium					Kidney, Circulatory	1.7E-01	NA	3.3E-03	1.7E-01
			Pcb-araclor 1254					Immune	1.2E-01	NA	3.3E-02	1.5E-01
			Trichloroethylene					Liver, Kidney, Fetotoxicity	2.0E-01	NA	0.0E+00	2.0E-01
		Exposure Point Total		8.5E-06	NA	5.1E-07	9.0E-06		4.9E-01	NA	3.6E-02	5.2E-01
	Exposure Medium Total			8.5E-06	NA	5.1E-07	9.0E-06		4.9E-01	NA	3.6E-02	5.2E-01
	Ambient Air	Emissions from Subsurface Soil	Trichloroethylene	NA	1.2E-05	NA	1.2E-05	CNS, Liver, Endocrine	NA	2.1E-01	NA	2.1E-01
		Exposure Point Total		NA	1.2E-05	NA	1.2E-05		NA	2.1E-01	NA	2.1E-01
	Exposure Medium Total			NA	1.2E-05	NA	1.2E-05		NA	2.1E-01	NA	2.1E-01
Medium Total				8.5E-06	1.2E-05	5.1E-07	2.1E-05		4.9E-01	2.1E-01	3.6E-02	7.3E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	2.6E-06	2.6E-06					
		Exposure Point Total		NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Exposure Medium Total			NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	0.0E+00	2.6E-06	2.6E-06		NA	1.5E+01	0.0E+00	1.5E+01

301507

Table 10.5.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Martin Aaron property								
Surface Soil	6.8E-06	0.0E+00	1.1E-06	8.0E-06	4.1E-01	0.0E+00	1.2E-01	5.3E-01
Subsurface Soil	8.5E-06	1.2E-05	5.1E-07	2.1E-05	4.9E-01	2.1E-01	3.6E-02	7.3E-01
Upper PRM Aquifer	NA	0.0E+00	2.6E-06	2.6E-06	NA	**1.5E+01**	0.0E+00	**1.5E+01**
Surface Soil + Upper PRM Aquifer	6.8E-06	0.0E+00	3.8E-06	1.1E-05	4.1E-01	**1.5E+01**	1.2E-01	**1.6E+01**
Subsurface Soil + Upper PRM Aquifer	8.5E-06	1.2E-05	3.1E-06	2.4E-05	4.9E-01	**1.5E+01**	3.6E-02	**1.6E+01**

301508

Table 10.5.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Martin Aaron property			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Circulatory HI Across Media =	4E-01	2E-01	NA	4E-01	2E-01
Total CNS HI Across Media =	NA	2E-01	**2E+01**	**2E+01**	**2E+01**
Total Fetotoxicity HI Across Media =	NA	2E-01	NA	NA	2E-01
Total Immune HI Across Media =	1E-01	1E-01	NA	1E-01	1E-01
Total Kidney HI Across Media =	4E-01	4E-01	NA	4E-01	4E-01
Total Liver HI Across Media =	NA	4E-01	NA	NA	4E-01
Total Respiratory HI Across Media =	NA	NA	**2E+01**	**2E+01**	**2E+01**
Total Endocrine HI Across Media =	NA	2E-01	NA	NA	2E-01

TABLE 10.6.RME
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	*Inhalation*	*Dermal*	*Exposure Routes Total*	*Primary Target Organ(s)*	*Ingestion*	*Inhalation*	*Dermal*	*Exposure Routes Total*
Surface Soil	Surface Soil	Junkyard Surface Soil	Arsenic	2.4E-06	NA	8.4E-08	2.5E-06					
		Exposure Point Total		2.4E-06	NA	8.4E-08	2.5E-06		1.0E-01	NA	1.7E-02	1.2E-01
	Exposure Medium Total			2.4E-06	NA	8.4E-08	2.5E-06		1.0E-01	NA	1.7E-02	1.2E-01
Medium Total				2.4E-06	0.0E+00	8.4E-08	2.5E-06		1.0E-01	0.0E+00	1.7E-02	1.2E-01
Subsurface Soil	*Subsurface Soil*	*Junkyard Subsurface Soil*	Arsenic	1.1E-04	NA	3.7E-06	1.1E-04	Skin, Circulatory	1.9E+00	NA	6.5E-02	2.0E+00
			Barium					Kidney, Circulatory	1.2E-01	NA	2.0E-02	1.4E-01
		Exposure Point Total		1.1E-04	NA	3.7E-06	1.1E-04		2.0E+00	NA	8.4E-02	2.1E+00
	Exposure Medium Total			1.1E-04	NA	3.7E-06	1.1E-04		2.0E+00	NA	8.4E-02	2.1E+00
Medium Total				1.1E-04	0.0E+00	3.7E-06	1.1E-04		2.0E+00	0.0E+00	8.4E-02	2.1E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony					Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
			Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02
			Barium					Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Cadmium					Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium					N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Manganese					CNS	1.8E-01	NA	5.8E-03	1.9E-01
			Thallium					Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium					Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Cresol-p					CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05					
			Naphthalene					Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Dichloroethylene-1,2 cis					Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05					
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00
Medium Total				9.0E-03	0.0E+00	1.4E-05	9.0E-03		1.6E+02	1.3E+00	4.6E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00

301510

TABLE 10.6.RME
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Manganese					CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium					Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05					
		Chemical Total		3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
	Exposure Medium Total			3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
Medium Total				3.1E-05	0.0E+00	7.0E-07	3.2E-05		9.1E+00	0.0E+00	2.1E-02	9.1E+00

301511

Table 10.6.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Subsurface Soil	1.1E-04	0.0E+00	3.7E-06	1.1E-04	**2.0E+00**	0.0E+00	8.4E-02	**2.1E+00**
Upper PRM Aquifer	**9.0E-03**	0.0E+00	1.4E-05	**9.0E-03**	**1.6E+02**	**1.3E+00**	4.6E-01	**1.7E+02**
Middle PRM Aquifer	3.1E-05	0.0E+00	7.0E-07	3.2E-05	**9.1E+00**	0.0E+00	2.1E-02	**9.1E+00**
Subsurface Soil + Upper PRM Aquifer	**9.1E-03**	0.0E+00	1.7E-05	**9.1E-03**	**1.7E+02**	**1.3E+00**	5.5E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	1.4E-04	0.0E+00	4.4E-06	1.4E-04	**1.1E+01**	0.0E+00	1.1E-01	**1.1E+01**

301512

Table 10.6.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Junkyard			Subsurface soil	
	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	7E-01	NA	7E-01	NA
Total Circulatory HI Across Media =	**2E+00**	**2E+02**	**9E+00**	**2E+02**	**1E+01**
Total CNS HI Across Media =	NA	**2E+00**	3E-01	**2E+00**	3E-01
Total Fetotoxicity HI Across Media =	NA	1E-01	NA	1E-01	NA
Total Gastrointestinal HI Across Media =	NA	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Kidney HI Across Media =	1E-01	**3E+00**	NA	**3E+00**	1E-01
Total Liver HI Across Media =	NA	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Respiratory HI Across Media =	NA	**2E+00**	NA	**2E+00**	NA
Total Skin HI Across Media =	**2E+00**	**2E+02**	1E-01	**2E+02**	**2E+00**

301513

TABLE 10.7.RME
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Arsenic	1.5E-05	NA	5.1E-07	1.6E-05					
			Barium					Kidney, Circulatory	9.8E-01	NA	1.6E-01	1.1E+00
			Iron					Circulatory, Gastrointestinal, Liver	4.7E-01	NA	5.2E-03	4.7E-01
			Benzo(a)pyrene	4.0E-06	NA	5.8E-07	4.6E-06					
		Exposure Point Total		1.9E-05	NA	1.1E-06	2.0E-05		1.4E+00	NA	1.6E-01	1.6E+00
	Exposure Medium Total			1.9E-05	NA	1.1E-06	2.0E-05		1.4E+00	NA	1.6E-01	1.6E+00
Medium Total				1.9E-05	0.0E+00	1.1E-06	2.0E-05		1.4E+00	0.0E+00	1.6E-01	1.6E+00
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Arsenic	6.8E-04	NA	2.3E-05	7.0E-04	Skin, Circulatory	1.1E+00	NA	3.6E-02	1.1E+00
			Barium					Kidney, Circulatory	1.1E+00	NA	1.8E-01	1.3E+00
			Cadmium					Kidney	1.1E-01	NA	2.4E-03	1.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	8.7E-01	NA	9.7E-03	8.8E-01
			Benzo(a)pyrene	4.3E-06	NA	6.2E-07	4.9E-06					
		Exposure Point Total		6.9E-04	NA	2.4E-05	7.1E-04		3.2E+00	NA	2.3E-01	3.4E+00
	Exposure Medium Total			6.9E-04	NA	2.4E-05	7.1E-04		3.2E+00	NA	2.3E-01	3.4E+00
Medium Total				6.9E-04	0.0E+00	2.4E-05	7.1E-04		3.2E+00	0.0E+00	2.3E-01	3.4E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony					Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
			Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
			Barium					Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
			Cadmium					Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Manganese					CNS	6.0E-01	NA	1.4E-02	6.2E-01
			Thallium					Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium					Kidney	3.6E-01	NA	1.3E-02	3.7E-01
			Zinc					Circulatory	1.7E-01	NA	9.2E-05	1.7E-01
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06					
			Cresol-p					CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00
			Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05					
			Naphthalene					Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06					
			Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	1.2E+01	NA	1.2E+01

301514

TABLE 10.7.RME
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
		Upper PRM Aquifer	Benzene	NA	2.2E-06	NA	2.2E-06					
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06					
		Chemical Total		NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.0E-06	2.2E-05	2.0E-02		6.0E+01	1.2E+01	4.5E-01	7.2E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony					Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05					
			Barium					Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium					Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Cobalt					Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper					Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.3E+01	NA	2.1E-02	2.3E+01
			Manganese					CNS	1.1E+00	NA	2.4E-02	1.1E+00
			Thallium					Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06					
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.0E-02	2.6E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.0E-02	2.6E+01
Medium Total				7.3E-05	0.0E+00	1.5E-06	7.4E-05		2.6E+01	0.0E+00	7.0E-02	2.6E+01

301515

Table 10.7.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	1.9E-05	0.0E+00	1.1E-06	2.0E-05	**1.4E+00**	0.0E+00	1.6E-01	**1.6E+00**
Subsurface Soil	**6.9E-04**	0.0E+00	2.4E-05	**7.1E-04**	**3.2E+00**	0.0E+00	2.3E-01	**3.4E+00**
Upper PRM Aquifer	**2.0E-02**	5.0E-06	2.2E-05	**2.0E-02**	**6.0E+01**	**1.2E+01**	4.5E-01	**7.2E+01**
Middle PRM Aquifer	7.3E-05	0.0E+00	1.5E-06	7.4E-05	**2.6E+01**	0.0E+00	7.0E-02	**2.6E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	5.0E-06	2.3E-05	**2.0E-02**	**6.2E+01**	**1.2E+01**	6.1E-01	**7.4E+01**
Surface Soil + Middle PRM Aquifer	9.2E-05	0.0E+00	2.6E-06	9.5E-05	**2.8E+01**	0.0E+00	2.3E-01	**2.8E+01**
Subsurface Soil + Upper PRM Aquifer	**2.1E-02**	5.0E-06	4.5E-05	**2.1E-02**	**6.3E+01**	**1.2E+01**	6.8E-01	**7.6E+01**
Subsurface Soil + Middle PRM Aquifer	**7.6E-04**	0.0E+00	2.5E-05	**7.8E-04**	**3.0E+01**	0.0E+00	3.0E-01	**3.0E+01**

Table 10.7.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	**3E+00**	6E-01	**3E+00**	6E-01	**3E+00**	6E-01
Total Circulatory HI Across Media =	**2E+00**	**3E+00**	**5E+01**	**2E+01**	**6E+01**	**3E+01**	**6E+01**	**3E+01**
Total CNS HI Across Media =	NA	NA	**1E+01**	1E+00	**1E+01**	1E+00	**1E+01**	1E+00
Total Fetotoxicity HI Across Media =	NA	NA	4E-01	2E-01	4E-01	2E-01	4E-01	2E-01
Total Gastrointestinal HI Across Media =	5E-01	9E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Immune HI Across Media =	NA	NA	5E-01	NA	5E-01	NA	5E-01	NA
Total Kidney HI Across Media =	1E+00	1E+00	**7E+00**	8E-01	**8E+00**	**2E+00**	**9E+00**	**2E+00**
Total Liver HI Across Media =	5E-01	9E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Respiratory HI Across Media =	NA	NA	**1E+01**	NA	**1E+01**	NA	**1E+01**	NA
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	NA	1E+00	**3E+01**	NA	**3E+01**	NA	**3E+01**	1E+00

TABLE 10.8.RME
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Arsenic	1.7E-06	NA	4.0E-08	1.7E-06					
			Barium					Kidney, Circulatory	9.8E-02	NA	1.1E-02	1.1E-01
		Exposure Point Total		1.7E-06	NA	4.0E-08	1.7E-06		9.8E-02	NA	1.1E-02	1.1E-01
	Exposure Medium Total			1.7E-06	NA	4.0E-08	1.7E-06		9.8E-02	NA	1.1E-02	1.1E-01
Medium Total				1.7E-06	0.0E+00	4.0E-08	1.7E-06		9.8E-02	0.0E+00	1.1E-02	1.1E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Arsenic	7.5E-05	NA	1.8E-06	7.7E-05	Skin, Circulatory	1.8E+00	NA	4.3E-02	1.8E+00
			Barium					Kidney, Circulatory	1.1E-01	NA	1.3E-02	1.3E-01
		Exposure Point Total		7.5E-05	NA	1.8E-06	7.7E-05		1.9E+00	NA	5.5E-02	1.9E+00
	Exposure Medium Total			7.5E-05	NA	1.8E-06	7.7E-05		1.9E+00	NA	5.5E-02	1.9E+00
Medium Total				7.5E-05	0.0E+00	1.8E-06	7.7E-05		1.9E+00	0.0E+00	5.5E-02	1.9E+00
Groundwater	Groundwater	Upper PRM Aquifer	Antimony					Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
			Arsenic	4.4E-03	NA	7.9E-06	4.4E-03	Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
			Barium					Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
			Cadmium					Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium					N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Manganese					CNS	1.2E-01	NA	5.5E-03	1.3E-01
			Thallium					Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium					Kidney	5.0E-01	NA	3.5E-02	5.3E-01
			Cresol-p					CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05					
			Naphthalene					Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06					
			Dichloroethylene-1,2 cis					Circulatory	1.0E-01	NA	7.5E-03	1.1E-01
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05					
		Exposure Point Total		4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	0.0E+00	9.1E-06	4.4E-03		1.1E+02	1.2E+00	4.1E-01	1.1E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	4.2E-06	NA	7.6E-09	4.3E-06					
			Iron					Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
			Manganese					CNS	2.1E-01	NA	9.5E-03	2.2E-01

301518

TABLE 10.8.RME
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Thallium									
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05	Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
		Chemical Total		1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
	Exposure Medium Total			1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
Medium Total				1.5E-05	0.0E+00	4.8E-07	1.6E-05		6.0E+00	0.0E+00	2.0E-02	6.0E+00

301519

Table 10.8.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	1.7E-06	0.0E+00	4.0E-08	1.7E-06	9.8E-02	0.0E+00	1.1E-02	1.1E-01
Subsurface Soil	7.5E-05	0.0E+00	1.8E-06	7.7E-05	**1.9E+00**	0.0E+00	5.5E-02	**1.9E+00**
Upper PRM Aquifer	**4.4E-03**	0.0E+00	9.1E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.1E-01	**1.1E+02**
Middle PRM Aquifer	1.5E-05	0.0E+00	4.8E-07	1.6E-05	**6.0E+00**	0.0E+00	2.0E-02	**6.0E+00**
Surface Soil + Upper PRM Aquifer	**4.4E-03**	0.0E+00	9.2E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.2E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	1.7E-05	0.0E+00	5.2E-07	1.7E-05	**6.1E+00**	0.0E+00	3.1E-02	**6.1E+00**
Subsurface Soil + Upper PRM Aquifer	**4.5E-03**	0.0E+00	1.1E-05	**4.5E-03**	**1.1E+02**	**1.2E+00**	4.7E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	9.0E-05	0.0E+00	2.3E-06	9.3E-05	**7.9E+00**	0.0E+00	7.5E-02	**8.0E+00**

301520

Table 10.8.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Junkyard				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	5E-01	NA	5E-01	NA	5E-01	NA
Total Circulatory HI Across Media =	1E-01	**2E+00**	**1E+02**	**6E+00**	**1E+02**	**6E+00**	**1E+02**	**8E+00**
Total CNS HI Across Media =	NA	NA	**2E+00**	2E-01	**2E+00**	2E-01	**2E+00**	2E-01
Total Gastrointestinal HI Across Media =	NA	NA	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total Kidney HI Across Media =	1E-01	1E-01	**2E+00**	NA	**2E+00**	1E-01	**2E+00**	1E-01
Total Liver HI Across Media =	NA	NA	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total Respiratory HI Across Media =	NA	NA	1E+00	NA	1E+00	NA	1E+00	NA
Total Skin HI Across Media =	NA	**2E+00**	**1E+02**	NA	**1E+02**	NA	**1E+02**	**2E+00**

301521

TABLE 10.9.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: *Future*
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Junkyard Surface Soil	Barium					Kidney, Circulatory	1.2E-01	NA	3.5E-02	1.6E-01
		Exposure Point Total		0.0E+00	NA	0.0E+00	0.0E+00		1.2E-01	NA	3.5E-02	1.6E-01
	Exposure Medium Total			0.0E+00	NA	0.0E+00	0.0E+00		1.2E-01	NA	3.5E-02	1.6E-01
Medium Total				0.0E+00	0.0E+00	0.0E+00	0.0E+00		1.2E-01	0.0E+00	3.5E-02	1.6E-01
Subsurface Soil	Subsurface Soil	Junkyard Subsurface Soil	Arsenic	1.4E-05	NA	8.6E-07	1.5E-05	Skin, Circulatory	1.3E-01	NA	8.1E-03	1.4E-01
			Barium					Kidney, Circulatory	1.4E-01	NA	2.9E-03	1.5E-01
(cont.)	(cont.)	(cont.)	Iron					Circulatory, Gastrointestinal, Liver	1.1E-01	NA	2.2E-03	1.1E-01
		Exposure Point Total		1.4E-05	NA	8.6E-07	1.5E-05		3.9E-01	NA	1.3E-02	4.0E-01
	Exposure Medium Total			1.4E-05	NA	8.6E-07	1.5E-05		3.9E-01	NA	1.3E-02	4.0E-01
Medium Total				1.4E-05	0.0E+00	8.6E-07	1.5E-05		3.9E-01	0.0E+00	1.3E-02	4.0E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	2.6E-06	2.6E-06					
		Exposure Point Total		NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Exposure Medium Total			NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	0.0E+00	2.6E-06	2.6E-06		NA	1.5E+01	0.0E+00	1.5E+01

301522

Table 10.9.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Junkyard								
Surface Soil	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-01	0.0E+00	3.5E-02	1.6E-01
Subsurface Soil	1.4E-05	0.0E+00	8.6E-07	1.5E-05	3.9E-01	0.0E+00	1.3E-02	4.0E-01
Upper PRM Aquifer	NA	0.0E+00	2.6E-06	2.6E-06	NA	**1.5E+01**	0.0E+00	**1.5E+01**
Surface Soil + Upper PRM Aquifer	0.0E+00	0.0E+00	2.6E-06	2.6E-06	1.2E-01	**1.5E+01**	3.5E-02	**1.5E+01**
Subsurface Soil + Upper PRM Aquifer	1.4E-05	0.0E+00	3.5E-06	1.8E-05	3.9E-01	**1.5E+01**	1.3E-02	**1.6E+01**

301523

Table 10.9.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Junkyard			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Circulatory HI Across Media =	2E-01	4E-01	NA	2E-01	4E-01
Total CNS HI Across Media =	NA	NA	**2E+01**	**2E+01**	**2E+01**
Total Gastrointestinal HI Across Media =	NA	1E-01	NA	NA	1E-01
Total Kidney HI Across Media =	2E-01	1E-01	NA	2E-01	1E-01
Total Liver HI Across Media =	NA	1E-01	NA	NA	1E-01
Total Respiratory HI Across Media =	NA	NA	**2E+01**	**2E+01**	**2E+01**
Total Skin HI Across Media =	NA	1E-01	NA	NA	1E-01

TABLE 10.10.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Arsenic	3.0E-05	NA	1.0E-06	3.1E-05	Skin, Circulatory	5.2E-01	NA	1.8E-02	5.4E-01
			Barium					Kidney, Circulatory	1.5E-01	NA	2.4E-02	1.7E-01
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.9E-06					
		Exposure Point Total		3.8E-05	NA	2.2E-06	4.0E-05		6.7E-01	NA	4.2E-02	7.1E-01
	Exposure Medium Total			3.8E-05	NA	2.2E-06	4.0E-05		6.7E-01	NA	4.2E-02	7.1E-01
Medium Total				3.8E-05	0.0E+00	2.2E-06	4.0E-05		6.7E-01	0.0E+00	4.2E-02	7.1E-01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	3.2E-05	NA	1.1E-06	3.3E-05	Skin, Circulatory	5.6E-01	NA	1.9E-02	5.8E-01
			Barium					Kidney, Circulatory	2.3E-01	NA	3.8E-02	2.7E-01
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.9E-06					
		Exposure Point Total		4.0E-05	NA	2.2E-06	4.2E-05		7.9E-01	NA	5.7E-02	8.4E-01
	Exposure Medium Total			4.0E-05	NA	2.2E-06	4.2E-05		7.9E-01	NA	5.7E-02	8.4E-01
Medium Total				4.0E-05	0.0E+00	2.2E-06	4.2E-05		7.9E-01	0.0E+00	5.7E-02	8.4E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony					Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
			Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02
			Barium					Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Cadmium					Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium					N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Manganese					CNS	1.8E-01	NA	5.8E-03	1.9E-01
			Thallium					Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium					Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Cresol-p					CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05					
			Naphthalene					Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Dichloroethylene-1,2 cis					Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05					
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00

301525

TABLE 10.10.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Medium Total				9.0E-03	0.0E+00	1.4E-05	9.0E-03		1.6E+02	1.3E+00	4.6E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00
			Manganese					CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium					Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05					
		Chemical Total		3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
	Exposure Medium Total			3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
Medium Total				3.1E-05	0.0E+00	7.0E-07	3.2E-05		9.1E+00	0.0E+00	2.1E-02	9.1E+00

301526

TABLE 10.11.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Arsenic	1.9E-04	NA	6.3E-06	1.9E-04	Skin, Circulatory	2.9E-01	NA	9.7E-03	3.0E-01
			Barium					Kidney, Circulatory	1.4E+00	NA	2.2E-01	1.6E+00
			Chromium					N/A	8.8E-02	NA	4.0E-02	1.3E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.9E-01	NA	4.4E-03	4.0E-01
			Pcb-araclor 1254	2.3E-06	NA	3.7E-07	2.7E-06	Immune	2.7E-01	NA	4.3E-02	3.2E-01
			Benzo(a)anthracene	6.4E-06	NA	9.3E-07	7.4E-06					
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05					
			Benzo(b)fluoranthene	4.3E-06	NA	6.2E-07	4.9E-06					
			Dibenzo(a,h)anthracene	5.3E-06	NA	7.8E-07	6.1E-06					
			Indeno(1,2,3-cd)pyrene	1.5E-06	NA	2.2E-07	1.7E-06					
		Exposure Point Total		2.5E-04	NA	1.6E-05	2.7E-04		2.4E+00	NA	3.2E-01	2.7E+00
	Exposure Medium Total			2.5E-04	NA	1.6E-05	2.7E-04		2.4E+00	NA	3.2E-01	2.7E+00
Medium Total				2.5E-04	0.0E+00	1.6E-05	2.7E-04		2.4E+00	0.0E+00	3.2E-01	2.7E+00
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	2.0E-04	NA	6.7E-06	2.1E-04	Skin, Circulatory	3.1E-01	NA	1.0E-02	3.2E-01
			Barium					Kidney, Circulatory	2.2E+00	NA	3.4E-01	2.5E+00
			Iron					Circulatory, Gastrointestinal, Liver	2.9E-01	NA	3.3E-03	2.9E-01
			Chlordane - alpha					Liver	4.5E-01	NA	2.0E-02	4.7E-01
			Chlordane - gamma (technical mixture)					Liver	5.1E-01	NA	2.3E-02	5.4E-01
			Heptachlor Epoxide	1.5E-06	NA	1.6E-07	1.6E-06	Liver	1.4E-01	NA	1.6E-02	1.6E-01
			Pcb-araclor 1254	1.4E-06	NA	2.2E-07	1.6E-06	Immune	1.6E-01	NA	2.6E-02	1.9E-01
			Benzo(a)anthracene	6.4E-06	NA	9.3E-07	7.4E-06					
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05					
			Benzo(b)fluoranthene	4.3E-06	NA	6.2E-07	4.9E-06					
			Dibenzo(a,h)anthracene	6.4E-06	NA	9.3E-07	7.4E-06					
			Indeno(1,2,3-cd)pyrene	1.7E-06	NA	2.5E-07	2.0E-06					
		Exposure Point Total		2.7E-04	NA	1.7E-05	2.9E-04		4.0E+00	NA	4.4E-01	4.5E+00
	Exposure Medium Total			2.7E-04	NA	1.7E-05	2.9E-04		4.0E+00	NA	4.4E-01	4.5E+00
Medium Total				2.7E-04	0.0E+00	1.7E-05	2.9E-04		4.0E+00	0.0E+00	4.4E-01	4.5E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony					Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
			Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
			Barium					Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
			Cadmium					Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Manganese					CNS	6.0E-01	NA	1.4E-02	6.2E-01
			Thallium					Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium					Kidney	3.6E-01	NA	1.3E-02	3.7E-01

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TABLE 10.11.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Zinc					Circulatory	1.7E-01	NA	9.2E-05	1.7E-01
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06					
			Cresol-p					CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00
			Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05					
			Naphthalene					Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06					
			Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	1.2E+01	NA	1.2E+01
		Upper PRM Aquifer	Benzene	NA	2.2E-06	NA	2.2E-06					
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06					
		Chemical Total		NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.0E-06	2.2E-05	2.0E-02		6.0E+01	1.2E+01	4.5E-01	7.2E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony					Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05					
			Barium					Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium					Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Cobalt					Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper					Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.3E+01	NA	2.1E-02	2.3E+01
			Manganese					*CNS*	*1.1E+00*	*NA*	*2.4E-02*	*1.1E+00*
			Thallium					Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06					
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.0E-02	2.6E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.0E-02	2.6E+01
Medium Total				7.3E-05	0.0E+00	1.5E-06	7.4E-05		2.6E+01	0.0E+00	7.0E-02	2.6E+01

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TABLE 10.12.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Arsenic	2.1E-05	NA	8.1E-07	2.1E-05	Skin, Circulatory	4.8E-01	NA	1.9E-02	5.0E-01
			Barium					Kidney, Circulatory	1.4E-01	NA	2.6E-02	1.6E-01
			Benzo(a)pyrene	5.3E-06	NA	9.1E-07	6.2E-06					
		Exposure Point Total		2.6E-05	NA	1.7E-06	2.8E-05		6.2E-01	NA	4.5E-02	6.7E-01
	Exposure Medium Total			2.6E-05	NA	1.7E-06	2.8E-05		6.2E-01	NA	4.5E-02	6.7E-01
Medium Total				2.6E-05	0.0E+00	1.7E-06	2.8E-05		6.2E-01	0.0E+00	4.5E-02	6.7E-01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	2.2E-05	NA	8.8E-07	2.3E-05	Skin, Circulatory	5.2E-01	NA	2.1E-02	5.4E-01
			Barium					Kidney, Circulatory	2.2E-01	NA	4.1E-02	2.6E-01
			Benzo(a)pyrene	5.3E-06	NA	9.1E-07	6.2E-06					
		Exposure Point Total		2.7E-05	NA	1.8E-06	2.9E-05		7.4E-01	NA	6.1E-02	8.0E-01
	Exposure Medium Total			2.7E-05	NA	1.8E-06	2.9E-05		7.4E-01	NA	6.1E-02	8.0E-01
Medium Total				2.7E-05	0.0E+00	1.8E-06	2.9E-05		7.4E-01	0.0E+00	6.1E-02	8.0E-01
Groundwater	Groundwater	Upper PRM Aquifer	Antimony					Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
			Arsenic	4.4E-03	NA	7.9E-06	4.4E-03	Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
			Barium					Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
			Cadmium					Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium					N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Manganese					CNS	1.2E-01	NA	5.5E-03	1.3E-01
			Thallium					Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium					Kidney	5.0E-01	NA	3.5E-02	5.3E-01
			Cresol-p					CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05					
			Naphthalene					Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06					
			Dichloroethylene-1,2 cis					Circulatory	1.0E-01	NA	7.5E-03	1.1E-01
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05					
		Exposure Point Total		4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	0.0E+00	9.1E-06	4.4E-03		1.1E+02	1.2E+00	4.1E-01	1.1E+02

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TABLE 10.12.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	4.2E-06	NA	7.6E-09	4.3E-06					
			Iron					Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
			Manganese					CNS	2.1E-01	NA	9.5E-03	2.2E-01
			Thallium					Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05					
		Chemical Total		1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
	Exposure Medium Total			1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
Medium Total				1.5E-05	0.0E+00	4.8E-07	1.6E-05		6.0E+00	0.0E+00	2.0E-02	6.0E+00

301530

TABLE 10.13.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	Row Homes and Industrial Area Surface Soil	Arsenic	3.9E-06	NA	2.4E-07	4.2E-06	Kidney, Circulatory	1.8E-01	NA	5.0E-02	2.3E-01
			Barium									
		Exposure Point Total		3.9E-06	NA	2.4E-07	4.2E-06		1.8E-01	NA	5.0E-02	2.3E-01
	Exposure Medium Total			3.9E-06	NA	2.4E-07	4.2E-06		1.8E-01	NA	5.0E-02	2.3E-01
Medium Total				3.9E-06	0.0E+00	2.4E-07	4.2E-06		1.8E-01	0.0E+00	5.0E-02	2.3E-01
Subsurface Soil	Subsurface Soil	Row Homes and Industrial Area Subsurface Soil	Arsenic	4.2E-06	NA	2.5E-07	4.5E-06	Kidney, Circulatory	2.7E-01	NA	5.5E-03	2.8E-01
			Barium									
		Exposure Point Total		4.2E-06	NA	2.5E-07	4.5E-06		2.7E-01	NA	5.5E-03	2.8E-01
	Exposure Medium Total			4.2E-06	NA	2.5E-07	4.5E-06		2.7E-01	NA	5.5E-03	2.8E-01
Medium Total				4.2E-06	0.0E+00	2.5E-07	4.5E-06		2.7E-01	0.0E+00	5.5E-03	2.8E-01
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	2.6E-06	2.6E-06					
		Exposure Point Total		NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Exposure Medium Total			NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	0.0E+00	2.6E-06	2.6E-06		NA	1.5E+01	0.0E+00	1.5E+01

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Table 10.10.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	3.8E-05	0.0E+00	2.2E-06	4.0E-05	6.7E-01	0.0E+00	4.2E-02	7.1E-01
Subsurface Soil	4.0E-05	0.0E+00	2.2E-06	4.2E-05	7.9E-01	0.0E+00	5.7E-02	8.4E-01
Upper PRM Aquifer	**9.0E-03**	0.0E+00	1.4E-05	**9.0E-03**	**1.6E+02**	**1.3E+00**	4.6E-01	**1.7E+02**
Middle PRM Aquifer	3.1E-05	0.0E+00	7.0E-07	3.2E-05	**9.1E+00**	0.0E+00	2.1E-02	**9.1E+00**
Surface Soil + Upper PRM Aquifer	**9.0E-03**	0.0E+00	1.6E-05	**9.1E-03**	**1.7E+02**	**1.3E+00**	5.0E-01	**1.7E+02**
Surface Soil + Middle PRM Aquifer	6.9E-05	0.0E+00	2.9E-06	7.1E-05	**9.8E+00**	0.0E+00	6.3E-02	**9.9E+00**
Subsurface Soil + Upper PRM Aquifer	**9.1E-03**	0.0E+00	1.6E-05	**9.1E-03**	**1.7E+02**	**1.3E+00**	5.2E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	7.1E-05	0.0E+00	2.9E-06	7.4E-05	**9.9E+00**	0.0E+00	7.8E-02	**1.0E+01**

Table 10.10.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	7E-01	NA	7E-01	NA	7E-01	NA
Total Circulatory HI Across Media =	7E-01	8E-01	**2E+02**	**9E+00**	**2E+02**	**1E+01**	**2E+02**	**1E+01**
Total CNS HI Across Media =	NA	NA	**2E+00**	3E-01	**2E+00**	3E-01	**2E+00**	3E-01
Total Fetotoxicity HI Across Media =	NA	NA	1E-01	NA	1E-01	NA	1E-01	NA
Total Gastrointestinal HI Across Media =	NA	NA	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Kidney HI Across Media =	2E-01	3E-01	**3E+00**	NA	**3E+00**	2E-01	**3E+00**	3E-01
Total Liver HI Across Media =	NA	NA	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Respiratory HI Across Media =	NA	NA	**2E+00**	NA	**2E+00**	NA	**2E+00**	NA
Total Skin HI Across Media =	5E-01	6E-01	**2E+02**	1E-01	**2E+02**	7E-01	**2E+02**	7E-01

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Table 10.11.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	**2.5E-04**	0.0E+00	1.6E-05	**2.7E-04**	**2.4E+00**	0.0E+00	3.2E-01	**2.7E+00**
Subsurface Soil	**2.7E-04**	0.0E+00	1.7E-05	**2.9E-04**	**4.0E+00**	0.0E+00	4.4E-01	**4.5E+00**
Upper PRM Aquifer	**2.0E-02**	5.0E-06	2.2E-05	**2.0E-02**	**6.0E+01**	**1.2E+01**	4.5E-01	**7.2E+01**
Middle PRM Aquifer	7.3E-05	0.0E+00	1.5E-06	7.4E-05	**2.6E+01**	0.0E+00	7.0E-02	**2.6E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	5.0E-06	3.8E-05	**2.0E-02**	**6.3E+01**	**1.2E+01**	7.7E-01	**7.5E+01**
Surface Soil + Middle PRM Aquifer	**3.3E-04**	0.0E+00	1.8E-05	**3.4E-04**	**2.9E+01**	0.0E+00	3.9E-01	**2.9E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	5.0E-06	3.9E-05	**2.0E-02**	**6.4E+01**	**1.2E+01**	8.9E-01	**7.7E+01**
Subsurface Soil + Middle PRM Aquifer	**3.4E-04**	0.0E+00	1.8E-05	**3.6E-04**	**3.0E+01**	0.0E+00	5.1E-01	**3.1E+01**

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Table 10.11.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	**3E+00**	6E-01	**3E+00**	6E-01	**3E+00**	6E-01
Total Circulatory HI Across Media =	**2E+00**	**3E+00**	**5E+01**	**2E+01**	**6E+01**	**3E+01**	**6E+01**	**3E+01**
Total CNS HI Across Media =	NA	NA	**1E+01**	1E+00	**1E+01**	1E+00	**1E+01**	1E+00
Total Fetotoxicity HI Across Media =	NA	NA	4E-01	2E-01	4E-01	2E-01	4E-01	2E-01
Total Gastrointestinal HI Across Media =	4E-01	3E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Immune HI Across Media =	3E-01	2E-01	5E-01	NA	8E-01	3E-01	7E-01	2E-01
Total Kidney HI Across Media =	**2E+00**	**2E+00**	**7E+00**	8E-01	**9E+00**	**2E+00**	**1E+01**	**3E+00**
Total Liver HI Across Media =	4E-01	1E+00	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**3E+01**
Total Respiratory HI Across Media =	NA	NA	**1E+01**	NA	**1E+01**	NA	**1E+01**	NA
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	3E-01	3E-01	**3E+01**	NA	**3E+01**	3E-01	**3E+01**	3E-01

Table 10.12.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	2.6E-05	0.0E+00	1.7E-06	2.8E-05	6.2E-01	0.0E+00	4.5E-02	6.7E-01
Subsurface Soil	2.7E-05	0.0E+00	1.8E-06	2.9E-05	7.4E-01	0.0E+00	6.1E-02	8.0E-01
Upper PRM Aquifer	**4.4E-03**	0.0E+00	9.1E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.1E-01	**1.1E+02**
Middle PRM Aquifer	1.5E-05	0.0E+00	4.8E-07	1.6E-05	**6.0E+00**	0.0E+00	2.0E-02	**6.0E+00**
Surface Soil + Upper PRM Aquifer	**4.4E-03**	0.0E+00	1.1E-05	**4.5E-03**	**1.1E+02**	**1.2E+00**	4.6E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	4.1E-05	0.0E+00	2.2E-06	4.3E-05	**6.6E+00**	0.0E+00	6.5E-02	**6.7E+00**
Subsurface Soil + Upper PRM Aquifer	**4.4E-03**	0.0E+00	1.1E-05	**4.5E-03**	**1.1E+02**	**1.2E+00**	4.7E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	4.3E-05	0.0E+00	2.3E-06	4.5E-05	**6.7E+00**	0.0E+00	8.1E-02	**6.8E+00**

301536

Table 10.12.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	Row Homes and Industrial Area				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	5E-01	NA	5E-01	NA	5E-01	NA
Total Circulatory HI Across Media =	7E-01	8E-01	**1E+02**	**6E+00**	**1E+02**	**6E+00**	**1E+02**	**7E+00**
Total CNS HI Across Media =	NA	NA	**2E+00**	2E-01	**2E+00**	2E-01	**2E+00**	2E-01
Total Gastrointestinal HI Across Media =	NA	NA	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total Kidney HI Across Media =	2E-01	3E-01	**2E+00**	NA	**2E+00**	2E-01	**2E+00**	3E-01
Total Liver HI Across Media =	NA	NA	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total Respiratory HI Across Media =	NA	NA	1E+00	NA	1E+00	NA	1E+00	NA
Total Skin HI Across Media =	5E-01	5E-01	**1E+02**	NA	**1E+02**	5E-01	**1E+02**	5E-01

301537

Table 10.13.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
Row Homes and Industrial Area								
Surface Soil	3.9E-06	0.0E+00	2.4E-07	4.2E-06	1.8E-01	0.0E+00	5.0E-02	2.3E-01
Subsurface Soil	4.2E-06	0.0E+00	2.5E-07	4.5E-06	2.7E-01	0.0E+00	5.5E-03	2.8E-01
Upper PRM Aquifer	NA	0.0E+00	2.6E-06	2.6E-06	NA	**1.5E+01**	0.0E+00	**1.5E+01**
Surface Soil + Upper PRM Aquifer	3.9E-06	0.0E+00	2.9E-06	6.8E-06	1.8E-01	**1.5E+01**	5.0E-02	**1.5E+01**
Subsurface Soil + Upper PRM Aquifer	4.2E-06	0.0E+00	2.9E-06	7.1E-06	2.7E-01	**1.5E+01**	5.5E-03	**1.5E+01**

Table 10.13.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	Row Homes and Industrial Area			Surface soil	Subsurface soil
	Surface soil	Subsurface soil	Upper PRM Aquifer	Upper PRM Aquifer	Upper PRM Aquifer
Total Circulatory HI Across Media =	2E-01	3E-01	NA	2E-01	3E-01
Total CNS HI Across Media =	NA	NA	**2E+01**	**2E+01**	**2E+01**
Total Kidney HI Across Media =	2E-01	3E-01	NA	2E-01	3E-01
Total Respiratory HI Across Media =	NA	NA	**2E+01**	**2E+01**	**2E+01**

301539

Table 10.14.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	2.9E-06	NA	9.8E-08	3.0E-06					
			Benzo(a)pyrene	1.6E-05	NA	2.4E-06	1.9E-05					
			Benzo(b)fluoranthene	1.5E-06	NA	2.2E-07	1.7E-06					
		Exposure Point Total		2.1E-05	NA	2.7E-06	2.3E-05		0.0E+00	NA	0.0E+00	0.0E+00
	Exposure Medium Total			2.1E-05	NA	2.7E-06	2.3E-05		0.0E+00	NA	0.0E+00	0.0E+00
Medium Total				2.1E-05	0.0E+00	2.7E-06	2.3E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Arsenic	8.5E-06	NA	2.9E-07	8.7E-06	Skin, Circulatory	1.5E-01	NA	5.0E-03	1.5E-01
			Benzo(a)pyrene	7.7E-06	NA	1.1E-06	8.8E-06					
			Dibenzo(a,h)anthracene	5.9E-06	NA	8.7E-07	6.8E-06					
		Exposure Point Total		2.2E-05	NA	2.3E-06	2.4E-05		1.5E-01	NA	5.0E-03	1.5E-01
	Exposure Medium Total			2.2E-05	NA	2.3E-06	2.4E-05		1.5E-01	NA	5.0E-03	1.5E-01
Medium Total				2.2E-05	0.0E+00	2.3E-06	2.4E-05		1.5E-01	0.0E+00	5.0E-03	1.5E-01
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	1.3E-01	NA	1.7E-04	1.3E-01
			Antimony					Circulatory	1.7E-01	NA	1.5E-03	1.7E-01
			Arsenic	8.9E-03	NA	1.2E-05	9.0E-03	Skin, Circulatory	1.5E+02	NA	2.0E-01	1.5E+02
			Barium					Kidney, Circulatory	1.8E+00	NA	3.2E-02	1.8E+00
			Cadmium					Kidney	3.4E-01	NA	1.7E-02	3.6E-01
			Chromium					N/A	1.9E-01	NA	2.0E-02	2.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	5.0E+00	NA	6.5E-03	5.0E+00
			Manganese					CNS	1.8E-01	NA	5.8E-03	1.9E-01
			Thallium					Circulatory	7.7E-01	NA	9.9E-04	7.7E-01
			Vanadium					Kidney	7.5E-01	NA	3.7E-02	7.8E-01
			Cresol-p					CNS, Respiratory, Body Weight	3.6E-01	NA	2.1E-02	3.8E-01
			Ether, bis(2-chloroethyl)	2.7E-05	NA	4.5E-07	2.8E-05	N/A	NA	NA	NA	NA
			Naphthalene					Body Weight	2.3E-01	NA	9.1E-02	3.2E-01
			Benzene	3.1E-06	NA	2.8E-07	3.3E-06	Circulatory	1.1E-01	NA	9.9E-03	1.2E-01
			Dichloroethylene-1,2 cis					Circulatory	1.5E-01	NA	8.1E-03	1.6E-01
			Trichloroethylene	1.9E-06	NA	2.0E-07	2.1E-06	Liver, Kidney, Fetotoxicity	1.2E-01	NA	1.3E-02	1.4E-01
			Vinyl chloride	3.5E-05	NA	1.1E-06	3.6E-05					
		Exposure Point Total		9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Exposure Medium Total			9.0E-03	NA	1.4E-05	9.0E-03		1.6E+02	NA	4.6E-01	1.7E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.3E+00	NA	1.3E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.3E+00	NA	1.3E+00

301540

Table 10.14.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Medium Total				9.0E-03	0.0E+00	1.4E-05	9.0E-03		1.6E+02	1.3E+00	4.6E-01	1.7E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	8.7E-06	NA	1.1E-08	8.7E-06	Skin, Circulatory	1.5E-01	NA	1.9E-04	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	6.9E+00	NA	8.8E-03	6.9E+00
			Manganese					CNS	3.2E-01	NA	1.0E-02	3.3E-01
			Thallium					Circulatory	1.8E+00	NA	2.3E-03	1.8E+00
			Vinyl chloride	2.2E-05	NA	6.9E-07	2.3E-05					
		Chemical Total		3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
	Exposure Medium Total			3.1E-05	NA	7.0E-07	3.2E-05		9.1E+00	NA	2.1E-02	9.1E+00
Medium Total				3.1E-05	0.0E+00	7.0E-07	3.2E-05		9.1E+00	0.0E+00	2.1E-02	9.1E+00

301541

Table 10.14.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	2.1E-05	0.0E+00	2.7E-06	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Subsurface Soil	2.2E-05	0.0E+00	2.3E-06	2.4E-05	1.5E-01	0.0E+00	5.0E-03	1.5E-01
Upper PRM Aquifer	**9.0E-03**	0.0E+00	1.4E-05	**9.0E-03**	**1.6E+02**	**1.3E+00**	4.6E-01	**1.7E+02**
Middle PRM Aquifer	3.1E-05	0.0E+00	7.0E-07	3.2E-05	**9.1E+00**	0.0E+00	2.1E-02	**9.1E+00**
Surface Soil + Upper PRM Aquifer	**9.0E-03**	0.0E+00	1.6E-05	**9.0E-03**	**1.6E+02**	**1.3E+00**	4.6E-01	**1.7E+02**
Surface Soil + Middle PRM Aquifer	5.1E-05	0.0E+00	3.4E-06	5.5E-05	**9.1E+00**	0.0E+00	2.1E-02	**9.1E+00**
Subsurface Soil + Upper PRM Aquifer	**9.0E-03**	0.0E+00	1.6E-05	**9.0E-03**	**1.7E+02**	**1.3E+00**	4.7E-01	**1.7E+02**
Subsurface Soil + Middle PRM Aquifer	5.3E-05	0.0E+00	3.0E-06	5.6E-05	**9.3E+00**	0.0E+00	2.6E-02	**9.3E+00**

Table 10.14.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	7E-01	NA	7E-01	NA	7E-01	NA
Total Circulatory HI Across Media =	NA	2E-01	**2E+02**	**9E+00**	**2E+02**	**9E+00**	**2E+02**	**9E+00**
Total CNS HI Across Media =	NA	NA	**2E+00**	3E-01	**2E+00**	3E-01	**2E+00**	3E-01
Total Fetotoxicity HI Across Media =	NA	NA	1E-01	NA	1E-01	NA	1E-01	NA
Total Gastrointestinal HI Across Media =	NA	NA	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Kidney HI Across Media =	NA	NA	**3E+00**	NA	**3E+00**	NA	**3E+00**	NA
Total Liver HI Across Media =	NA	NA	**5E+00**	**7E+00**	**5E+00**	**7E+00**	**5E+00**	**7E+00**
Total Respiratory HI Across Media =	NA	NA	**2E+00**	NA	**2E+00**	NA	**2E+00**	NA
Total Skin HI Across Media =	NA	2E-01	**2E+02**	1E-01	**2E+02**	1E-01	**2E+02**	3E-01

301543

Table 10.15.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	1.8E-05	NA	6.0E-07	1.8E-05					
			Barium					Kidney, Circulatory	2.6E-01	NA	4.1E-02	3.0E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.7E-01	NA	3.1E-03	2.8E-01
			Benzo(a)pyrene	1.0E-04	NA	1.5E-05	1.2E-04					
			Benzo(b)fluoranthene	9.2E-06	NA	1.3E-06	1.1E-05					
			Dibenzo(a,h)anthracene	2.1E-06	NA	3.1E-07	2.5E-06					
			Indeno(1,2,3-cd)pyrene	5.7E-06	NA	8.4E-07	6.6E-06					
		Exposure Point Total		1.4E-04	NA	1.8E-05	1.5E-04		5.3E-01	NA	4.4E-02	5.7E-01
	Exposure Medium Total			1.4E-04	NA	1.8E-05	1.5E-04		5.3E-01	NA	4.4E-02	5.7E-01
Medium Total				1.4E-04	0.0E+00	1.8E-05	1.5E-04		5.3E-01	0.0E+00	4.4E-02	5.7E-01
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Arsenic	5.3E-05	NA	1.8E-06	5.4E-05					
			Barium					Kidney, Circulatory	3.4E-01	NA	5.4E-02	3.9E-01
			Cadmium					Kidney	3.0E-01	NA	6.8E-03	3.1E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.9E-01	NA	3.2E-03	2.9E-01
			Benzo(a)anthracene	6.0E-06	NA	8.7E-07	6.9E-06					
			Benzo(a)pyrene	4.8E-05	NA	7.0E-06	5.5E-05					
			Benzo(b)fluoranthene	5.7E-06	NA	8.2E-07	6.5E-06					
			Dibenzo(a,h)anthracene	3.7E-05	NA	5.3E-06	4.2E-05					
			Indeno(1,2,3-cd)pyrene	3.6E-06	NA	5.2E-07	4.1E-06					
		Exposure Point Total		1.5E-04	NA	1.6E-05	1.7E-04		9.3E-01	NA	6.4E-02	1.0E+00
	Exposure Medium Total			1.5E-04	NA	1.6E-05	1.7E-04		9.3E-01	NA	6.4E-02	1.0E+00
	Ambient Air	Emissions from Subsurface Soil	Naphthalene					CNS; Respiratory	NA	1.7E-01	NA	1.7E-01
		Exposure Point Total		NA	0.0E+00	NA	0.0E+00		NA	1.7E-01	NA	1.7E-01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.7E-01	NA	1.7E-01
Medium Total				1.5E-04	0.0E+00	1.6E-05	1.7E-04		9.3E-01	1.7E-01	6.4E-02	1.2E+00
Groundwater	Groundwater	Upper PRM Aquifer	Aluminum					CNS	4.4E-01	NA	4.1E-04	4.4E-01
			Antimony					Body Weight	1.2E+00	NA	7.1E-03	1.2E+00
			Arsenic	2.0E-02	NA	1.8E-05	2.0E-02	Skin, Circulatory	3.1E+01	NA	2.9E-02	3.1E+01
			Barium					Kidney, Circulatory	5.9E+00	NA	7.8E-02	6.0E+00
			Cadmium					Kidney	5.6E-01	NA	1.0E-02	5.7E-01
			Iron					Circulatory, Gastrointestinal, Liver	1.7E+01	NA	1.5E-02	1.7E+01
			Manganese					CNS	6.0E-01	NA	1.4E-02	6.2E-01
			Thallium					Liver, Circulatory	2.6E-01	NA	2.4E-04	2.6E-01
			Vanadium					Kidney	3.6E-01	NA	1.3E-02	3.7E-01
			Zinc					Circulatory	1.7E-01	NA	9.2E-05	1.7E-01

301544

Table 10.15.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Dieldrin	1.3E-06	NA	3.2E-07	1.6E-06					
			Cresol-p					CNS, Respiratory, Body Weight	1.2E+00	NA	4.2E-02	1.2E+00
			Ether, bis(2-chloroethyl)	6.0E-05	NA	6.1E-07	6.1E-05					
			Naphthalene					Body Weight	7.7E-01	NA	1.8E-01	9.5E-01
			Benzene	6.8E-06	NA	3.8E-07	7.2E-06	Circulatory, Immune	4.8E-01	NA	2.7E-02	5.1E-01
			Tetrachloroethylene	1.6E-06	NA	3.4E-07	1.9E-06					
			Trichloroethylene	4.2E-06	NA	2.6E-07	4.5E-06	Liver, Kidney, Fetotoxicity	4.1E-01	NA	2.6E-02	4.4E-01
			Vinyl chloride	7.7E-05	NA	1.4E-06	7.9E-05	Liver	2.0E-01	NA	3.8E-03	2.0E-01
		Exposure Point Total		2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Exposure Medium Total			2.0E-02	NA	2.2E-05	2.0E-02		6.0E+01	NA	4.5E-01	6.1E+01
	Air	Emissions from	Naphthalene					CNS; Respiratory	NA	1.2E+01	NA	1.2E+01
		Upper PRM Aquifer	Benzene	NA	2.2E-06	NA	2.2E-06	Circulatory	NA	5.5E-02	NA	5.5E-02
			Trichloroethylene	NA	2.8E-06	NA	2.8E-06	CNS, Liver, Endocrine	NA	8.1E-03	NA	8.1E-03
		Chemical Total		NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
	Exposure Medium Total			NA	5.0E-06	NA	5.0E-06		NA	1.2E+01	NA	1.2E+01
Medium Total				2.0E-02	5.0E-06	2.2E-05	2.0E-02		6.0E+01	1.2E+01	4.5E-01	7.2E+01
Groundwater	Groundwater	Middle PRM Aquifer	Aluminum					CNS	1.6E-01	NA	1.4E-04	1.6E-01
			Antimony					Body Weight	6.2E-01	NA	3.8E-03	6.2E-01
			Arsenic	1.9E-05	NA	1.8E-08	1.9E-05	Skin, Circulatory	3.0E-02	NA	2.8E-05	3.0E-02
			Barium					Kidney, Circulatory	1.8E-01	NA	2.4E-03	1.8E-01
			Cadmium					Kidney	1.2E-01	NA	2.1E-03	1.2E-01
			Cobalt					Sensitizer	1.6E-01	NA	5.9E-05	1.6E-01
			Copper					Kidney, Gastrointestinal	2.6E-01	NA	2.4E-04	2.6E-01
			Iron					Circulatory, Gastrointestinal, Liver	2.3E+01	NA	2.1E-02	2.3E+01
			Manganese					CNS	1.1E+00	NA	2.4E-02	1.1E+00
			Thallium					Liver, Circulatory	5.9E-01	NA	5.5E-04	5.9E-01
			Tetrachloroethylene	2.0E-06	NA	4.3E-07	2.4E-06	Liver	4.3E-04	NA	9.2E-05	5.2E-04
			Trichloroethylene	2.2E-06	NA	1.4E-07	2.3E-06	Liver, Kidney, Fetotoxicity	2.1E-01	NA	1.3E-02	2.3E-01
			Vinyl chloride	4.9E-05	NA	9.3E-07	5.0E-05	Liver	1.3E-01	NA	2.4E-03	1.3E-01
		Chemical Total		7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.1E-02	2.7E+01
	Exposure Medium Total			7.3E-05	NA	1.5E-06	7.4E-05		2.6E+01	NA	7.1E-02	2.7E+01
Medium Total				7.3E-05	0.0E+00	1.5E-06	7.4E-05		2.6E+01	0.0E+00	7.1E-02	2.7E+01

301545

Table 10.15.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.4E-04	0.0E+00	1.8E-05	**1.5E-04**	5.3E-01	0.0E+00	4.4E-02	5.7E-01
Subsurface Soil	**1.5E-04**	0.0E+00	1.6E-05	**1.7E-04**	9.3E-01	1.7E-01	6.4E-02	**1.2E+00**
Upper PRM Aquifer	**2.0E-02**	5.0E-06	2.2E-05	**2.0E-02**	**6.0E+01**	**1.2E+01**	4.5E-01	**7.2E+01**
Middle PRM Aquifer	7.3E-05	0.0E+00	1.5E-06	7.4E-05	**2.6E+01**	0.0E+00	7.1E-02	**2.7E+01**
Surface Soil + Upper PRM Aquifer	**2.0E-02**	5.0E-06	3.9E-05	**2.0E-02**	**6.1E+01**	**1.2E+01**	4.9E-01	**7.3E+01**
Surface Soil + Middle PRM Aquifer	**2.1E-04**	0.0E+00	1.9E-05	**2.3E-04**	**2.7E+01**	0.0E+00	1.1E-01	**2.7E+01**
Subsurface Soil + Upper PRM Aquifer	**2.0E-02**	5.0E-06	3.8E-05	**2.0E-02**	**6.1E+01**	**1.2E+01**	5.1E-01	**7.4E+01**
Subsurface Soil + Middle PRM Aquifer	**2.3E-04**	0.0E+00	1.8E-05	**2.4E-04**	**2.7E+01**	1.7E-01	1.4E-01	**2.8E+01**

301546

Table 10.15.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Residential
Receptor Age: Child

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	**3E+00**	6E-01	**3E+00**	6E-01	**3E+00**	6E-01
Total Circulatory HI Across Media =	6E-01	7E-01	**5E+01**	**2E+01**	**6E+01**	**2E+01**	**6E+01**	**2E+01**
Total CNS HI Across Media =	NA	2E-01	**1E+01**	1E+00	**1E+01**	1E+00	**1E+01**	1E+00
Total Fetotoxicity HI Across Media =	NA	NA	4E-01	2E-01	4E-01	2E-01	4E-01	2E-01
Total Gastrointestinal HI Across Media =	3E-01	3E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Immune HI Across Media =	NA	NA	5E-01	NA	5E-01	NA	5E-01	NA
Total Kidney HI Across Media =	3E-01	7E-01	**7E+00**	8E-01	**8E+00**	1E+00	**8E+00**	1E+00
Total Liver HI Across Media =	3E-01	3E-01	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**	**2E+01**
Total Respiratory HI Across Media =	NA	2E-01	**1E+01**	NA	**1E+01**	NA	**1E+01**	2E-01
Total Sensitizer HI Across Media =	NA	NA	NA	2E-01	NA	2E-01	NA	2E-01
Total Skin HI Across Media =	NA	NA	**3E+01**	3E-02	**3E+01**	3E-02	**3E+01**	3E-02
Total Endocrine HI Across Media =	NA	NA	8E-03	NA	8E-03	NA	8E-03	NA

Table 10.16.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Arsenic	2.0E-06	NA	7.8E-08	2.0E-06					
			Benzo(a)pyrene	1.1E-05	NA	1.9E-06	1.3E-05					
		Exposure Point Total		1.3E-05	NA	2.0E-06	1.5E-05		0.0E+00	NA	0.0E+00	0.0E+00
	Exposure Medium Total			1.3E-05	NA	2.0E-06	1.5E-05		0.0E+00	NA	0.0E+00	0.0E+00
Medium Total				1.3E-05	0.0E+00	2.0E-06	1.5E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00
Subsurface Soil	Subsurface Soil	South Jersey Port property Subsurface Soil	Arsenic	5.8E-06	NA	2.3E-07	6.0E-06	Skin, Circulatory	1.4E-01	NA	5.4E-03	1.4E-01
			Benzo(a)pyrene	5.3E-06	NA	9.1E-07	6.2E-06					
			Dibenzo(a,h)anthracene	4.0E-06	NA	6.9E-07	4.7E-06					
		Exposure Point Total		1.5E-05	NA	1.8E-06	1.7E-05		1.4E-01	NA	5.4E-03	1.4E-01
	Exposure Medium Total			1.5E-05	NA	1.8E-06	1.7E-05		1.4E-01	NA	5.4E-03	1.4E-01
Medium Total				1.5E-05	0.0E+00	1.8E-06	1.7E-05		1.4E-01	0.0E+00	5.4E-03	1.4E-01
Groundwater	Groundwater	Upper PRM Aquifer	Antimony					Circulatory	1.2E-01	NA	1.4E-03	1.2E-01
			Arsenic	4.4E-03	NA	7.9E-06	4.4E-03	Skin, Circulatory	1.0E+02	NA	1.9E-01	1.0E+02
			Barium					Kidney, Circulatory	1.2E+00	NA	3.0E-02	1.2E+00
			Cadmium					Kidney	2.3E-01	NA	1.6E-02	2.4E-01
			Chromium					N/A	1.3E-01	NA	1.8E-02	1.5E-01
			Iron					Circulatory, Gastrointestinal, Liver	3.4E+00	NA	6.0E-03	3.4E+00
			Manganese					CNS	1.2E-01	NA	5.5E-03	1.3E-01
			Thallium					Circulatory	5.2E-01	NA	9.3E-04	5.2E-01
			Vanadium					Kidney	5.0E-01	NA	3.5E-02	5.3E-01
			Cresol-p					CNS, Respiratory, Body Weight	2.4E-01	NA	1.9E-02	2.6E-01
			Ether, bis(2-chloroethyl)	1.3E-05	NA	3.1E-07	1.4E-05					
			Naphthalene					Body Weight	1.5E-01	NA	8.5E-02	2.4E-01
			Benzene	1.5E-06	NA	1.9E-07	1.7E-06					
			Dichloroethylene-1,2 cis					Circulatory	1.0E-01	NA	7.5E-03	1.1E-01
			Vinyl chloride	1.7E-05	NA	7.4E-07	1.8E-05					
		Exposure Point Total		4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Exposure Medium Total			4.4E-03	NA	9.1E-06	4.4E-03		1.1E+02	NA	4.1E-01	1.1E+02
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.2E+00	NA	1.2E+00
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.2E+00	NA	1.2E+00
Medium Total				4.4E-03	0.0E+00	9.1E-06	4.4E-03		1.1E+02	1.2E+00	4.1E-01	1.1E+02
Groundwater	Groundwater	Middle PRM Aquifer	Arsenic	4.2E-06	NA	7.6E-09	4.3E-06					

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Table 10.16.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
			Iron					Circulatory, Gastrointestinal, Liver	4.6E+00	NA	8.3E-03	4.6E+00
			Manganese					CNS	2.1E-01	NA	9.5E-03	2.2E-01
			Thallium					Circulatory	1.2E+00	NA	2.1E-03	1.2E+00
			Vinyl chloride	1.1E-05	NA	4.7E-07	1.1E-05					
		Chemical Total		1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
	Exposure Medium Total			1.5E-05	NA	4.8E-07	1.6E-05		6.0E+00	NA	2.0E-02	6.0E+00
Medium Total				1.5E-05	0.0E+00	4.8E-07	1.6E-05		6.0E+00	0.0E+00	2.0E-02	6.0E+00

301549

Table 10.16.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	1.3E-05	0.0E+00	2.0E-06	1.5E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Subsurface Soil	1.5E-05	0.0E+00	1.8E-06	1.7E-05	1.4E-01	0.0E+00	5.4E-03	1.4E-01
Upper PRM Aquifer	**4.4E-03**	0.0E+00	9.1E-06	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.1E-01	**1.1E+02**
Middle PRM Aquifer	1.5E-05	0.0E+00	4.8E-07	1.6E-05	**6.0E+00**	0.0E+00	2.0E-02	**6.0E+00**
Surface Soil + Upper PRM Aquifer	**4.4E-03**	0.0E+00	1.1E-05	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.1E-01	**1.1E+02**
Surface Soil + Middle PRM Aquifer	2.8E-05	0.0E+00	2.5E-06	3.1E-05	**6.0E+00**	0.0E+00	2.0E-02	**6.0E+00**
Subsurface Soil + Upper PRM Aquifer	**4.4E-03**	0.0E+00	1.1E-05	**4.4E-03**	**1.1E+02**	**1.2E+00**	4.2E-01	**1.1E+02**
Subsurface Soil + Middle PRM Aquifer	3.0E-05	0.0E+00	2.3E-06	3.3E-05	**6.1E+00**	0.0E+00	2.5E-02	**6.2E+00**

Table 10.16.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Current/Future
Receptor Population: Industrial Worker
Receptor Age: Adult

	South Jersey Port property				Surface soil		Subsurface soil	
	Surface soil	Subsurface soil	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer	Upper PRM Aquifer	Middle PRM Aquifer
Total Body Weight HI Across Media =	NA	NA	5E-01	NA	5E-01	NA	5E-01	NA
Total Circulatory HI Across Media =	NA	1E-01	**1E+02**	**6E+00**	**1E+02**	**6E+00**	**1E+02**	**6E+00**
Total CNS HI Across Media =	NA	NA	**2E+00**	2E-01	**2E+00**	2E-01	**2E+00**	2E-01
Total Gastrointestinal HI Across Media =	NA	NA	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total Kidney HI Across Media =	NA	NA	**2E+00**	NA	**2E+00**	NA	**2E+00**	NA
Total Liver HI Across Media =	NA	NA	**3E+00**	**5E+00**	**3E+00**	**5E+00**	**3E+00**	**5E+00**
Total Respiratory HI Across Media =	NA	NA	1E+00	NA	1E+00	NA	1E+00	NA
Total Skin HI Across Media =	NA	1E-01	**1E+02**	NA	**1E+02**	NA	**1E+02**	1E-01

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Table 10.17.CTE
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Soil	Surface Soil	South Jersey Port property Surface Soil	Benzo(a)pyrene	2.1E-06	NA	5.5E-07	2.7E-06					
		Exposure Point Total		*2.1E-06*	NA	*5.5E-07*	*2.7E-06*		*0.0E+00*	NA	*0.0E+00*	*0.0E+00*
	Exposure Medium Total			2.1E-06	NA	5.5E-07	2.7E-06		0.0E+00	NA	0.0E+00	0.0E+00
Medium Total				2.1E-06	0.0E+00	5.5E-07	2.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00
Groundwater	Groundwater	Upper PRM Aquifer	Arsenic	NA	NA	2.6E-06	2.6E-06					
		Exposure Point Total		NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Exposure Medium Total			NA	NA	2.6E-06	2.6E-06		NA	NA	0.0E+00	0.0E+00
	Air	Emissions from Upper PRM Aquifer	Naphthalene					CNS; Respiratory	NA	1.5E+01	NA	1.5E+01
		Chemical Total		NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
	Exposure Medium Total			NA	0.0E+00	NA	0.0E+00		NA	1.5E+01	NA	1.5E+01
Medium Total				NA	0.0E+00	2.6E-06	2.6E-06		NA	1.5E+01	0.0E+00	1.5E+01

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Table 10.17.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Receptor Total	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient			
	Ingestion	Inhalation	Dermal	Exposure Routes Total	Ingestion	Inhalation	Dermal	Exposure Routes Total
South Jersey Port property								
Surface Soil	2.1E-06	0.0E+00	5.5E-07	2.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Subsurface Soil	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Upper PRM Aquifer	NA	0.0E+00	2.6E-06	2.6E-06	NA	**1.5E+01**	0.0E+00	**1.5E+01**
Surface Soil + Upper PRM Aquifer	2.1E-06	0.0E+00	3.2E-06	5.3E-06	0.0E+00	**1.5E+01**	0.0E+00	**1.5E+01**
Subsurface Soil + Upper PRM Aquifer	0.0E+00	0.0E+00	2.6E-06	2.6E-06	0.0E+00	**1.5E+01**	0.0E+00	**1.5E+01**

301553

Table 10.17.CTE Supplement
RISK SUMMARY
CENTRAL TENDENCY EXPOSURE
Martin Aaron, Camden, NJ

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

	South Jersey Port property				
	Surface soil	Subsurface soil	Upper PRM Aquifer	Surface soil	Subsurface soil
				Upper PRM Aquifer	Upper PRM Aquifer
Total CNS HI Across Media =	NA	NA	**2E+01**	**2E+01**	**2E+01**
Total Respiratory HI Across Media =	NA	NA	**2E+01**	**2E+01**	**2E+01**

Appendix B
Data Usability Summaries

301555

DATA USEABILITY WORKSHEET
Site: Martin Aaron
Medium: Soil

Activity	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data useability.	There were no apparent problems that could affect data useability.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Yes, soil samples are representative of receptor exposure for this medium.
Assess the effect of field QC results on data useability.	Overall the trip, field, and rinsate blanks generally did not contain detectable concentrations of VOCs, SVOCs, and metals with the exception of low levels of commonly reported laboratory contaminants.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	There are no field sampling issues that should affect the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Yes. Samples were analyzed for organic compounds according to Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, Multi-Media, Multi-Concentration, OLM04.2. Inorganic soil samples were analyzed according to CLP SOW for Inorganic Analysis, Multi-Media, Multi-Concentration, ILM04.1. Samples analyzed outside of the CLP were analyzed using EPA approved methodologies.
Were detection limits adequate?	Yes.
Summarize the effect of analytical technique issues on the risk assessment, if applicable.	There are no analytical technique issues that should affect the risk assessment.
Data Quality Objectives	
Precision - How were duplicates handled?	Relative percent differences (RPDs) were calculated for one pair of the duplicate samples. The RPDs were less than the EPA-approved RPD of 35%. The highest concentration of a compound detected in the samples was used in the risk assessment.

DATA USEABILITY WORKSHEET (continued)
Site: Martin Aaron
Medium: Soil

Activity	Comment
Data Quality Objectives (continued)	
Accuracy - How were split samples handled?	Split samples were not collected as part of the sampling events.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinsate blank contamination, chain of custody problems, etc.).	Analytes qualified with a "B" due to blank contamination will be considered detected concentration in the risk assessment.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	No problems were associated with data completeness. The data completeness goal stated in the QAPP of 95 percent was met as part of the groundwater sampling activities.
Comparability - Indicate any problems associated with data comparability.	No problems have been associated with data comparability.
Were the DQOs specified in the QAPP satisfied?	Yes, the DQOs identified in the QAPP were satisfied.
Summarize the effect of DQO issues on the risk assessment, if applicable.	There are no DQO issues that should affect the risk assessment.
Data Validation and Interpretation	
What are the data validation requirements?	For organic samples, validators were required to check the following items: holding times, instrument performance checks, initial and continuing calibrations, blanks, system monitoring compounds, matrix spike/matrix spike duplicates, regional QA/QC, internal standards, target compound identification, contract required quantitation limits, tentatively identified compounds, system performance, and overall assessment of data. For inorganic samples, validators were required to check holding times, calibration, blanks, interference checks, laboratory control samples, duplicate samples, matrix spike samples, furnace atomic absorption QC, ICP Serial Dilution, sample result verification, field duplicates, and perform an overall assessment of the data. The non-CLP samples were checked against holding times, blanks, MS/MSDs, calibrations, and other applicable QC checks associated with the specific methods.
What method or guidance was used to validate the data?	USEPA Region II Data Validation SOP for Statement of Work OLM04.2 for evaluating organic data, SOP HW-6 (Revision 12) March 2001.USEPA Evaluation of Metals Data for the Contract Laboratory Program, SOP HW-2 (Revision 11) Jan 1992

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DATA USEABILITY WORKSHEET (continued)
Site: Martin Aaron
Medium: Soil

Activity	Comment
	The samples not analyzed under the CLP were validated by a sub-contractor using the Laboratory *Data Validation Functional Guidelines for Evaluating Data Quality.*
Data Validation and Interpretation (continued)	
Was the data validation method consistent with guidance? Discuss any discrepancies.	Yes. The data validation method was consistent with regional guidance
Were all data qualifiers defined? Discuss those which were not.	Yes. All data qualifiers were defined.
Which qualifiers represent useable data?	B, J, U, and UJ
Which qualifiers represent unuseable data?	R
How are tentatively identified compounds handled?	Only TICs that were determined not to be laboratory or field artifacts were reported. All TICs were reported with an "N" and/or a "J" qualifier. "N" qualified data indicates that the analyte is tentatively identified. "J" qualified data indicates that the analyte is present but reported value is estimated.
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Unusable data qualified with an "R" will not be used in the risk assessment. All other data, both qualified and unqualified, will be used in the risk assessment.
Additional notes:	None

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DATA USEABILITY WORKSHEET
Site: Martin Aaron
Medium: Soil

Activity	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data useability.	There were no apparent problems that could affect data useability.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Yes, soil samples are representative of receptor exposure for this medium.
Assess the effect of field QC results on data useability.	Overall the trip, field, and rinsate blanks generally did not contain detectable concentrations of VOCs, SVOCs, and metals with the exception of low levels of commonly reported laboratory contaminants.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	There are no field sampling issues that should affect the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Yes. Samples were analyzed for organic compounds according to Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, Multi-Media, Multi-Concentration, OLM04.2. Inorganic soil samples were analyzed according to CLP SOW for Inorganic Analysis, Multi-Media, Multi-Concentration, ILM04.1. Samples analyzed outside of the CLP were analyzed using EPA approved methodologies.
Were detection limits adequate?	Yes.
Summarize the effect of analytical technique issues on the risk assessment, if applicable.	There are no analytical technique issues that should affect the risk assessment.
Data Quality Objectives	
Precision - How were duplicates handled?	Relative percent differences (RPDs) were calculated for one pair of the duplicate samples. The RPDs were less than the EPA-approved RPD of 35%. The highest concentration of a compound detected in the samples was used in the risk assessment.

DATA USEABILITY WORKSHEET (continued)
Site: Martin Aaron
Medium: Soil

Activity	Comment
Data Quality Objectives (continued)	
Accuracy - How were split samples handled?	Split samples were not collected as part of the sampling events.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinsate blank contamination, chain of custody problems, etc.).	Analytes qualified with a "B" due to blank contamination will be considered detected concentration in the risk assessment.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	No problems were associated with data completeness. The data completeness goal stated in the QAPP of 95 percent was met as part of the groundwater sampling activities.
Comparability - Indicate any problems associated with data comparability.	No problems have been associated with data comparability.
Were the DQOs specified in the QAPP satisfied?	Yes, the DQOs identified in the QAPP were satisfied.
Summarize the effect of DQO issues on the risk assessment, if applicable.	There are no DQO issues that should affect the risk assessment.
Data Validation and Interpretation	
What are the data validation requirements?	For organic samples, validators were required to check the following items: holding times, instrument performance checks, initial and continuing calibrations, blanks, system monitoring compounds, matrix spike/matrix spike duplicates, regional QA/QC, internal standards, target compound identification, contract required quantitation limits, tentatively identified compounds, system performance, and overall assessment of data. For inorganic samples, validators were required to check holding times, calibration, blanks, interference checks, laboratory control samples, duplicate samples, matrix spike samples, furnace atomic absorption QC, ICP Serial Dilution, sample result verification, field duplicates, and perform an overall assessment of the data. The non-CLP samples were checked against holding times, blanks, MS/MSDs, calibrations, and other applicable QC checks associated with the specific methods.
What method or guidance was used to validate the data?	USEPA Region II Data Validation SOP for Statement of Work OLM04.2 for evaluating organic data, SOP HW-6 (Revision 12) March 2001.USEPA Evaluation of Metals Data for the Contract Laboratory Program, SOP HW-2 (Revision 11) Jan 1992

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DATA USEABILITY WORKSHEET (continued)
Site: Martin Aaron
Medium: Soil

Activity	Comment
	The samples not analyzed under the CLP were validated by a sub-contractor using the Laboratory *Data Validation Functional Guidelines for Evaluating Data Quality.*
Data Validation and Interpretation (continued)	
Was the data validation method consistent with guidance? Discuss any discrepancies.	Yes. The data validation method was consistent with regional guidance
Were all data qualifiers defined? Discuss those which were not.	Yes. All data qualifiers were defined.
Which qualifiers represent useable data?	B, J, U, and UJ
Which qualifiers represent unuseable data?	R
How are tentatively identified compounds handled?	Only TICs that were determined not to be laboratory or field artifacts were reported. All TICs were reported with an "N" and/or a "J" qualifier. "N" qualified data indicates that the analyte is tentatively identified. "J" qualified data indicates that the analyte is present but reported value is estimated.
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Unusable data qualified with an "R" will not be used in the risk assessment. All other data, both qualified and unqualified, will be used in the risk assessment.
Additional notes:	None

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Appendix C
Air Pathway Analysis

APPENDIX C

Air Pathway Analysis

Introduction

This appendix presents an evaluation of potential inhalation exposures associated with emissions of volatile organic compounds (VOCs) from soil and groundwater at the Martin Aaron property in Camden, New Jersey. It describes the processes for estimating emissions of VOCs to the air from analytical data in soil and groundwater, and for estimating the resulting concentrations in ambient air. A qualitative evaluation of the indoor air pathway is also addressed. The air pathway analysis addresses the following topics:

- Identification of air exposure pathways
- Identification of chemicals of potential concern (COPCs) for air exposure pathways
- Qualitative evaluation of indoor air from emissions of chemicals in soil and groundwater
- Estimation of concentrations in outdoor air from emissions of chemicals in soil
- Estimation of concentrations in outdoor air from emissions from VOCs in soil and groundwater during excavation activities

The concentrations in air estimated in this air pathway analysis were used as exposure point concentrations (EPCs) in the baseline human health risk assessment (HHRA).

Identification of Air Exposure Pathways

Potential Chemical Sources

The Martin Aaron property was used for drum reconditioning and recycling and was operated until 1998. The Martin Aaron property is partially paved and there is one building remaining in the southeastern portion of the property. The South Jersey Port Corporation (SJPC) located across the street from the Martin Aaron property, was also included in this investigation because it was used for drum storage by Martin Aaron.

Investigations of COPCs in the soil and groundwater at Martin Aaron consist of a variety of VOCs including aromatic hydrocarbons (including the BTEX compounds), chlorinated aliphatic hydrocarbons (CAHs), and assorted polyaromatic hydrocarbons (PAHs). The primary COPCs are TCE, PCE and related CAHs. These related CAHs include cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, 1,1-DCA, 1,1,1-TCA, vinyl chloride and chloroethane.

At Martin Aaron, contamination in the relatively thin (<10 feet) vadose zone appears to coincide with the contaminant source areas in the fill layer (concrete, asphalt, wood, glass, brick, slag, and fly ash mixed with fine/medium grained sand). The uppermost (anthropogenic) soil layer ranges from approximately 6 to 10 ft bgs throughout the property

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with the thickest layers located the former Martin Aaron Building and the Rhodes Drum Building. Contamination in the soil represents a source of contamination to the shallow groundwater.

Precipitation on the ground surface that does not exit the property as runoff percolates downward to the water table. During this downward infiltration, the water leaches from the contaminated soils those contaminants with sufficient concentrations or solubilities to either be washed downward or to be dissolved directly into the water. Because this process is controlled mainly by gravity, the transport of contaminants in the vadose zone is primarily downward, directly to the water table, with little to no lateral migration from the source areas.

Contaminant concentrations in wells located southeast of Martin Aaron indicate that contaminated groundwater has migrated off the property. The VOC plume is over 1000 feet long and approximately 600 feet wide in the Surficial Upper Potomac-Raritan-Magothy (PRM) Aquifer, but narrows with depth to approximately 400 feet wide in the Intermediate Upper PRM Aquifer.Vertically, the bottom of the plume appears to be defined by the low-permeability aquitard between the Upper PRM and the Middle PRM Aquifers.

The presence of VOCs in surface, subsurface soil, and groundwater are potential sources for the migration of contaminants into ambient (outdoor) air.

Potential Release Mechanisms/Transport Pathways

Volatilization of VOCs in soil or groundwater and the subsequent transport of these vapors groundwater with subsequent emission to outdoor air constitute the principal air exposure pathway at the site. A secondary pathway is volatilization of VOCs from soil or groundwater and the subsequent transport of these vapors into indoor spaces.

The magnitude of potential inhalation exposure to VOCs through these pathways depends upon several factors, including VOC concentrations and masses in the different media (soil or groundwater), chemical properties of the individual VOCs, depths in the subsurface where VOCs may be found, and soil properties. The type of receptor, whether an individual located indoors or outdoors, also influences the exposure concentrations in air and potential magnitude of inhalation exposure.

Volatilization to Outdoor Air from Soil

VOCs in soil gas will migrate and spread out by vapor diffusion. Vapor diffusion followed by volatilization into the air is a primary mechanism through which VOCs (chemicals with high Henry's Law constants) are lost from soil.[1] The VOC flux through soil gas is proportional to the concentration gradient (i.e., the difference in concentration between high-VOC and low-VOC concentration areas). The tendency for a VOC to migrate by vapor diffusion is reflected by its air diffusion coefficient. Air-filled porosity in soil influences VOC-vapor migration; air-filled porosity is, in turn, affected by soil properties, such as total porosity, clay or silt content, and moisture content. Vapor diffusion of a VOC in soil decreases with low air-filled porosity, as well as high moisture content and a low air

[1] Henry's Law constant is the ratio of the air concentration to water concentration of a chemical at equilibrium. It represents the tendency for a chemical to volatilize from water into the air.

diffusion coefficient (Jury 1987). Once a volatile chemical is emitted from the soil, it disperses primarily through the action of winds to produce concentrations in outdoor air.

Volatilization to Soil from Groundwater

VOCs dissolved in groundwater will partition into overlying soil gas. The tendency for a VOC to migrate from groundwater to soil gas is reflected by its Henry's Law coefficient. The larger the Henry's Law coefficient, the more likely a chemical will migrate into soil gas from groundwater. Next, the VOC must diffuse through a capillary zone immediately above the water table. In the lower part of the capillary zone, the soil pores are saturated with water, but the water is under tension and essentially immobile (except during recharge events). Contaminants in groundwater move across the saturated portion of the capillary zone by liquid diffusion, rather than by convective transport with water flux or vapor diffusion. Therefore, the capillary zone limits the migration of VOCs dissolved in groundwater into soil gas in the unsaturated zone (USEPA 2000a).

Concentrations in the uppermost water-bearing layers provide the best indication of the potential for volatilization of VOCs from groundwater to overlying soil gas (USEPA 2002). Liquid diffusion is very slow and limits the vertical migration of concentrations in deeper water-bearing zones to shallow groundwater, where volatilization will occur. Therefore, at the Martin Aaron site, it is assumed that volatilization to overlying soil (and from there to the air) occurs only from groundwater in the shallow overburden.

Vapor Intrusion to Indoor Air

Molecular diffusion moves VOCs in soil toward the soil surface until they reach the zone of influence of the building. Convective air movement within the soil column transports the vapors through cracks between the foundation and the basement slab floor. This convective sweep effect is induced by a negative pressure within the structure caused by a combination of wind effects and stack effects from building heating and mechanical ventilation. The concentration in indoor air resulting from VOC intrusion into a structure resulting from pressure-driven air flow is related to the building volume (length, width, and height) and the building ventilation rate (numbers of air changes per hour) (USEPA 2000a).

These transport processes are evaluated using the Johnson and Ettinger (1991) model, which estimates the concentration in indoor air from a vapor source located some distance below the floor of an enclosed building. The Johnson and Ettinger (1991) model incorporates both convective and diffusive mechanisms for estimating the transport of chemical vapors emanating from either subsurface soils or groundwater into indoor spaces located directly above or near the location of contamination.

Potential Exposure Pathways

The following potential exposure pathways were considered in estimating concentrations in air from VOCs detected in soil and groundwater:

- Qualitative evaluation of indoor air from volatilization from soil and groundwater
- Inhalation of VOCs in ambient air from volatilization of soil and groundwater during excavation activities
- Inhalation of VOCs in outdoor air from volatilization from soil downwind.

Qualitative Evaluation of Indoor Air from Concentrations in Soil and Groundwater

This qualitative evaluation of indoor air is being performed because while VOCs are present in surface soil, subsurface soil, and groundwater at the Martin Aaron site, there are no soil gas data available yet. Soil data are not recommended for evaluation of the indoor air pathway because the uncertainties associated with soil partitioning calculations, as well as the uncertainties associated with soil sampling and soil chemical analyses for volatile organic chemicals, are so great that the use of soil concentrations for assessment of this pathway is not technically defensible (USEPA, 2002). Also since there are detected VOCs in soil and groundwater the indoor air pathway is potentially complete and warrant a qualitative evaluation.

Presented on **Figure 1** is a simplified conceptual diagram of the exposure pathway. The source of contamination is in groundwater at a specified distance below the enclosed space or floor. At the top boundary of contamination, molecular diffusion moves the volatilized contaminant towards the soil surface until it reaches the zone of influence of the building. Here convective air movement within the soil column transports the vapors through cracks between the foundation and the basement slab floor. This convective sweep effect is induced by a negative pressure within the structure caused by a combination of wind effects and stack effects due to building heating and mechanical ventilation.

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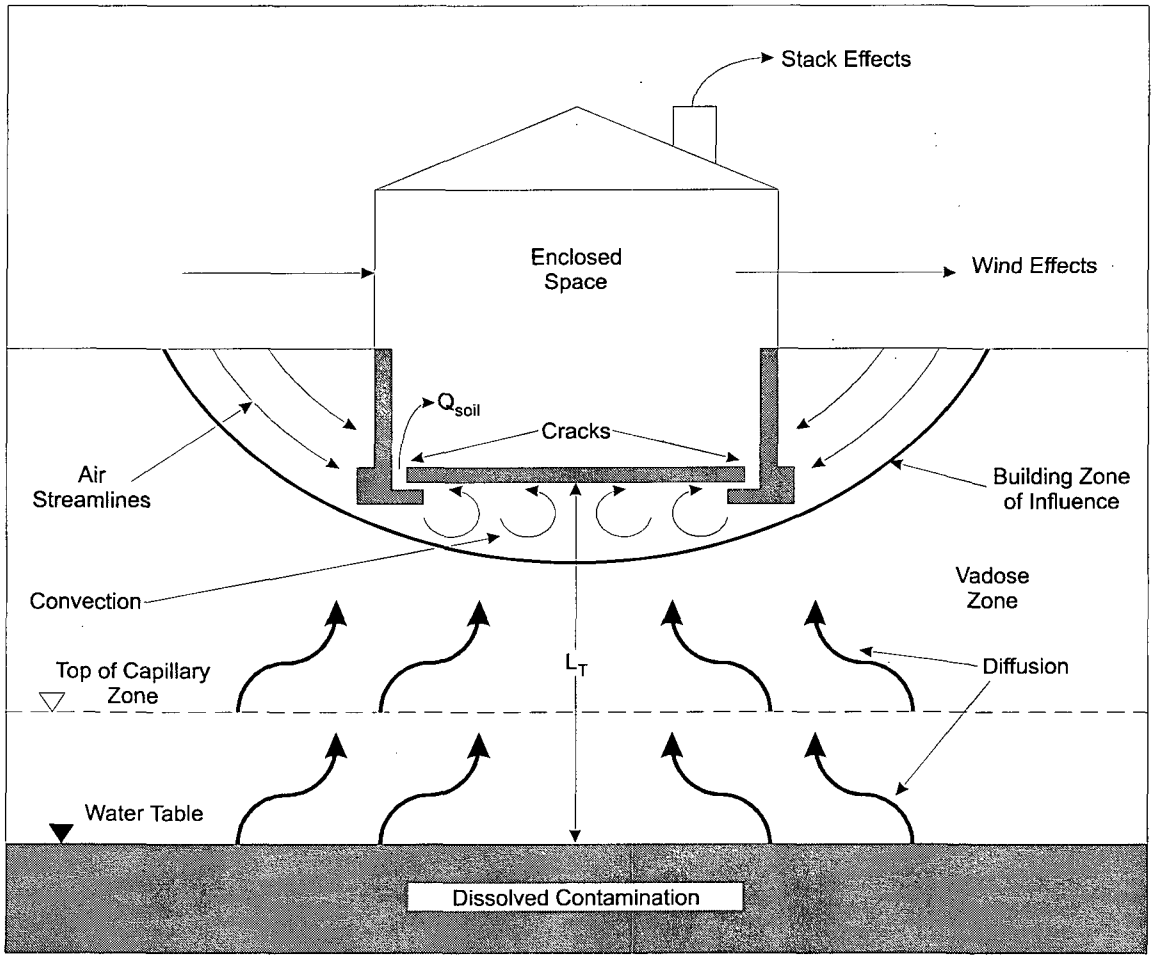
FIGURE 1.



Conceptual Model of Vapor Intrusion Pathway from Groundwater to Indoor Air

Empirical relationships between site conditions and expected impacts

VOCs including TCE, PCE and related CAHs (cis-1,2-DCE, trans-1,2-DCE, 1,1-DCE, 1,1-DCA, 1,1,1-TCA, vinyl chloride and chloroethane) have been detected in soil and groundwater data at the Martin Aaron site. VOCs in surface and subsurface soil are located within 100 feet of the Rhodes Drum building and Comarco Building, located on the southern portion of the Martin Aaron property (is an active meat processing plant). VOC concentrations in subsurface soil were the highest approximately 4.5 feet below ground surface (bgs) and approximately 300 feet north of the Comarco Building. Future land use has not been determined at the Martin Aaron site and it is possible that structures could be built overlying the VOCs in soil and groundwater onsite. Based on these qualitative factors it is possible that there are potential vapor intrusion exposure pathways. However the available data does not allow for the evaluation of potential vapor intrusion from soil.

This process corresponds to a Tier 1 (Primary Screening) in accordance with the USEPA's Draft Vapor Intrusion Guidance (Figure 2; USEPA, 2002).

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Proposed Additional Sampling

EPA recommends that soil gas sampling and analysis results tend to be more reliable at locations and depths where high contaminant concentrations are present and where the soils are relatively permeable. EPA also recommends that soil gas samples should be collected fixed probes and by ensuring that leakage of atmospheric air into the samples is avoided during purging or sampling. . Soil gas samples should be collected at depths below 5 feet unless they are collected immediately below the building foundation several feet in from the edge (e.g., subslab samples). The draft vapor intrusion guidance indicates that reliability of soil gas sampling can be assessed by: a) measuring a vertical profile and inspecting to see if measured concentrations decrease with increasing distance from the vapor source, and b) checking to see if vapor concentrations correlate qualitatively and quantitatively with available groundwater concentration data (USEPA, 2002).

The draft vapor intrusion guidance employs a tiered approach to assist the user in determining whether the exposure pathway is complete (i.e., subsurface vapors intrude into indoor air spaces); and, if so, whether the vapors are present at levels that may pose an unacceptable exposure risk (USEPA, 2002). The tiered approach is presented in Figure 2 of the draft vapor intrusion guidance and includes indoor air sampling as a logical endpoint.

Estimation of Concentrations of VOCs in Air from Soil During Excavation

This methodology for estimating VOC emissions during excavation activities was obtained from (USEPA, 1992).

The following assumptions were made to estimate emission rates.

1. This scenario was designed to estimate emissions and corresponding risk associated with small excavations as described on Table 2 of USEPA (1992). Accordingly, the excavation pit dimensions are 10m x 5m x 1m (emitting surface area of $50m^2$); the storage pile dimensions are 5m x 5m x 2m (emitting surface area of $65m^2$)[2]; and, the rate of soil removal from the excavation pit was $50m^3$ per hour ($0.014m^3/s$).
2. The freshly dumped soil is soon covered by additional excavated soil, which results in longer-term emissions from the deeper layers through diffusion.
3. Total exposed surface area is assumed to remain constant. New material is exposed at the same rate old material is covered.
4. The emissions from the soil in the backhoe bucket are negligible as the soil is transferred from the pit to the storage pile.
5. All soil was assumed to have the same moisture content (0.1), even though wet soils have lower emission rates.

[2] Emitting surface includes the top and side surface of this pile and is calculated as follows: (5m x 5m [top]) + 4(2m x 5m [sides]) = $65m^2$

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6. Maximum measured VOC concentrations in soil were used to represent the concentration throughout the entire volume of soil being excavated.

The k_G is derived to provide the gas-phase mass transfer portion of the entire overall mass transfer coefficient (see above):

$$k_G = 4.82\times10^{-3}\, U^{0.78}\, Sc_G^{-0.67}\, d_e^{-0.11} \qquad \text{Table 1}$$

where: k_G = Gas-phase mass transfer coefficient (m/s)
U = Windspeed (m/s)
SC_G = Schmidt number on gas side
d_e = Effective diameter of source (m)
A = Area of the source (m²)

The effective diameter of the source is calculated as follows:

$$d_e = \left(\frac{4A}{\Pi}\right)^{0.5} \qquad \text{Table 1}$$

where: d_e = Effective diameter of source (m)
A = Area of the source (m²)

The Schmidt number is calculated as follows:

$$Sc_G = \frac{u_G}{p_G\, D_a} \qquad \text{Table 1}$$

where: Sc_G = Schmidt number on gas side
u_G = Viscosity of air (g/cm-s)
p_G = Density of air (g/cm³)
D_a = Diffusion coefficient in air (cm²/s)

Concentrations detected in soil gas were used to estimate concentrations in ambient (outdoor) air. The equilibrium partitioning equation presented in the USEPA Johnson and Ettinger users' guide (USEPA, 2000a) has been rearranged to convert soil gas concentration to total soil concentration (Table 2).

$$C_{soil\,gas} = \frac{H\, C_{soil}\, \rho_s}{\theta_w + K_s\, \rho_s + H\theta_a}$$

The primary emission points are assumed to be the excavation pit, the soil dumped from the excavation bucket (i.e., at the moment it is dumped onto the ground and trapped gas is forced out of the soil pore space), and the storage pile that results from the excavation. To calculate a total emission rate, individual emission rates are derived for each of these three points, depending on the type of release mechanism, and then summed. Emission rates from the pit and storage pile are diffusion-controlled and thus the combined emission rate from these two sources can be estimated using the following equation:

$$ER_{DIFF} = \frac{C_{soil} \cdot 10{,}000 \cdot SA}{\left(\frac{E_a}{K_{eq}K_g}\right) + \left(\frac{\pi t}{D_e K_{eq}}\right)^{\frac{1}{2}}}$$ Table 3

where:

ER_{DIFF}	=	emission rate for diffusion from storage pile and excavation pit (g/s)
C_{soil}	=	concentration of chemical in soil (g/cm³) – calculated as follows: mg/kg x soil bulk density (g/cm³) x 10^{-6}
1×10^4	=	conversion factor (cm²/m²)
SA	=	emitting surface area (m²)
E_a	=	air-filled porosity of soil (dimensionless)
K_{eq}	=	equilibrium coefficient (dimensionless) (Henry's Law constant)
K_g	=	gas-phase mass transfer coefficient (cm/s) (calculated using the methods described in USEPA, 1994) – see Attachment 6
t	=	time at which instantaneous emission rate from pile/pit is calculated (sec)
D_e	=	effective diffusivity in air (cm²/s) – calculated as D_a ($E_a^{3.33}/E_t^2$)
D_a	=	diffusion coefficient in air (cm²/s)
E_t	=	total porosity of soil (dimensionless)

This emissions equation is presented in Attachment 7.

The rate of volatile emissions resulting from the release of soil gas from the pore space, as is likely to occur when the soil is dumped onto the ground from the bucket, is estimated with the following equation:

$$ER_{PS} = \frac{P \cdot MW \cdot 10^6 \cdot E_a \cdot Q \cdot ExC}{R \cdot T}$$ Table 3

where:

ER_{PS}	=	emission rate from the soil pore space (g/s)
P	=	vapor pressure (mmHg)
MW	=	molecular weight (g/mol)
1×10^6	=	conversion factor (cm³/m³)
E_a	=	air-filled porosity of soil (dimensionless)
Q	=	soil excavation rate (m³/s)
ExC	=	soil-gas to atmosphere exchange constant (dimensionless)
R	=	gas constant (mm Hg cm³/g-mol K)
T	=	temperature (degrees K)

Therefore, the total emission rate (ER) is defined by the following equation:

$$ER = ER_{PS} + ER_{DIFF}$$

where:

ER = total emission rate (g/s)

The mass of a chemical that is emitted can sometimes exceed the actual chemical mass available in the impacted soil volume. In order to avoid this, the output of the previous equation is multiplied by the duration of excavation and compared to the total mass of the chemical in the soil calculated using the following equation:

$$M = C \cdot S_v \cdot 10^6 \frac{cm^3}{m^3}$$

where:

M = total mass of chemical in a given volume of soil (g)
SV = volume of soil moved in one hour (m^3)

If the calculated total emissions exceeds one-third of the total mass, then the following equation is substituted to calculate ER_{PS}.

$$ER_{PS} = M\frac{0.33}{t_{SV}} \qquad \text{Table 3}$$

where:

t_{SV} = time to excavate a given volume of soil moved (sec)

Exposure concentrations in ambient air were derived based on the estimated total mass of the chemical expected to be present in air at the excavation area and the total volume of air exchanged through that excavation area (assumed to be a box) during the one-hour excavation event. This approach assumes that the area of exposure for the excavation worker encompasses the excavation pit and the storage pile, and that the volume of the exposure breathing zone is equal to the emitting surface area (i.e., combined area of the excavation pit and storage pile, 115 m^2) multiplied by the height of the breathing zone for the worker within the exposure area (2m).

The total mass of the chemical in the breathing zone air is derived by multiplying the total estimated emission rate by the duration of exposure (one hour) as shown in the following equation.

$$M_{air} = ER \times ET \times 3{,}600 \text{ sec}$$

where:

M_{air} = total mass of chemical in the breathing zone (g)
ER = total estimated emission rate (g/s)
ET = time over which exposure point concentration is calculated (hr)

The ambient outdoor air concentration then is estimated by the following equation:

$$C_{air} = \frac{M_{air}}{V_{ex}} \qquad \text{Table 3}$$

where:

$$V_{ex} = Q_{wind} \times ET \times \frac{3{,}600\,sec}{hr} \qquad \text{Table 3 and Table 6}$$

and

V_{ex} = volume of air that passes through the breathing zone during the exposure period (m^3)

Q_{wind} = volumetric flowrate of air through the breathing zone (m^3/s)

ET = time over which exposure point concentration is calculated (hr)

The volumetric flowrate of air through the breathing zone is calculated by multiplying the wind velocity by the area of the box perpendicular to the wind direction, thus:

$$Q_{wind} = V_{wind} \cdot A \qquad \text{Table 3 and Table 6}$$

and

V_{ex} = average wind velocity (m/s)

A = surface area perpendicular to wind direction, assumed to be equal to the square root of the emitting surface area multiplied by the height of the breathing zone (m^2)

Estimation of Concentrations in Air from VOCs in Groundwater During Excavation

A model presented in the USEPA *Air Emissions Models for Waste and Wastewater* document (USEPA, 1994) was used to estimate emissions of VOCs released through volatilization into ambient air from water in an excavated ditch. The model is used to estimate emissions from the liquid surface is based on an overall mass transfer coefficient that incorporates two resistances to mass transfer in series, the liquid-phase resistance and the gas-phase resistance (USEPA, 1994).

Emission model equations used are derived from standard equations for quiescent surfaces with flow (USEPA, 1994, Section 5.2) to determine the emissions. For aqueous systems, the relationship describing mass transfer of a volatile constituent from the open liquid surface to the air is:

$$E = K \times A \times C_L \qquad \text{Table 4}$$

where: E = Air emissions from the liquid surface (g/s)
K = Overall mass transfer coefficient (m/s)
A = Liquid surface area (m^2)
C_L = Concentration of constituent in the liquid phase (g/m^3)

The overall mass transfer coefficient (K) is estimated from a two-phase resistance model that is based on the liquid-phase mass transfer coefficient (k_L in m/s), the gas-phase mass transfer coefficient (k_G in m/s), and Henry's law constant in the form of (K_{eq}). The two resistances act in series and the overall resistance is expressed as:

$$\frac{1}{K} = \frac{1}{k_L} + \frac{1}{k_G K_{eq}} \qquad \text{Table 4}$$

where: K = Overall mass transfer coefficient (m/s)
k_L = Liquid-phase mass transfer coefficient (m/s)
k_G = Gas-phase mass transfer coefficient (m/s)
K_{eq} = Equilibrium constant (Henry's Law constant)

The k_L is derived to provide the liquid-phase mass transfer portion of the entire overall mass transfer coefficient. The k_L is assumed to be constant for windspeeds below 3.25 m/s (USEPA, 1994). These calculations are documented in Attachments 3 and 4. The liquid mass transfer coefficient is calculated as follows:

$$k_L = 2.78 \times 10^{-6} \left(\frac{D_w}{D_{ether}} \right)^{2/3} \qquad \text{Table 4}$$

where: k_L = Liquid-phase mass transfer coefficient (m/s)
D_w = Diffusion coefficient of ether in water (cm^2/s)
D_{ether} = Diffusion coefficient in water (cm^2/s)

The k_G is derived to provide the gas-phase mass transfer portion of the entire overall mass transfer coefficient:

$$k_G = 4.82 \times 10^{-3} U^{0.78} Sc_G^{-0.67} d_e^{-0.11} \qquad \text{Table 4}$$

where: k_G = Gas-phase mass transfer coefficient (m/s)
U = Windspeed (m/s)
SC_G = Schmidt number on gas side
d_e = Effective diameter of source (m)
A = Area of the source (m^2)

The effective diameter of the source is calculated as follows:

$$d_e = \left(\frac{4A}{\prod} \right)^{0.5} \qquad \text{Table 4}$$

where: d_e = Effective diameter of source (m)
A = Area of the source (m^2)

The Schmidt number is calculated as follows:

$$Sc_G = \frac{u_G}{p_G D_a} \qquad \text{Table 4}$$

where: Sc_G = Schmidt number on gas side
u_G = Viscosity of air (g/cm-s)
p_G = Density of air (g/cm^3)
D_a = Diffusion coefficient in air (cm^2/s)

Estimation of VOC concentrations in air are based on the dispersion model calculations used for emissions from soil (described below in further detail in Section 5). The

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assumptions used to estimate concentrations in air from emissions from water are presented in Attachment 5.

Estimation of Exposure Point Concentrations in Ambient Air from Concentrations in Soil Downwind

The results from soil sampling show variability in VOC concentrations in soil across the site. Therefore, inhalation exposure to VOCs in outdoor air from emissions from soil will also be variable. The highest exposures will occur at locations downwind from areas of the site with the highest concentrations of VOCs in subsurface soil. This variability in potential inhalation exposures was addressed by evaluating a single upper-bound exposure scenario. This scenario was based on the assumption that the highest VOC concentrations detected in soil were presented in a single source area.

Estimation of EPCs in outdoor air from concentrations in soil were based on the following assumptions:

- The maximum concentrations of VOCs detected in soil up to a depth of 15 feet bgs were used to estimate emission rates to air.
- It was assumed that the maximum VOC concentrations were co-located (i.e., within close proximity of each other). Grouping the soil sampling data in this manner will overstate the EPCs in outdoor air.
- The selected concentrations in soil were assumed to be present at an approximate depth of 10 feet bgs. This assumption is based on findings from the conceptual site model that VOCs are present as free product in a 4-foot (approximate) smear zone across about 85 percent of the facility. The VOCs detected in this zone are assumed to be the largest contribution to potential emissions to air from soil.
- The maximum concentrations of VOCs in soil were assumed to be uniformly present across a 0.5-acre area.
- The source area is assumed to not be paved, covered with a building footprint, or otherwise covered with an impermeable surface.

The emission flux from subsurface soil of a VOC in the presence of nonaqueous phase liquid (NAPL) is calculated as follows (USEPA 1995a; Table 7):

$$F = \left(\frac{\beta \times C_o}{t}\right)\left[\left(d^2 + \left(\frac{2 \times C_{veq} \times D_{ei} \times t}{\beta \times C_o}\right)\right)^{0.5} - d\right] \times 0.116$$

where

F = steady-state emission flux (g/m^2-sec)
C_o = initial soil concentration (g/g)

β	=	average soil dry bulk density (g/cm^3)
t	=	time (days)
d	=	depth from soil surface to top of contamination (cm)
$C_{v,eq}$	=	equilibrium vapor concentration when NAPL is present in soil (g/cm^3)
D_{ei}	=	maximum effective diffusion coefficient when NAPL is present (cm^2/day)
0.116	=	factor to convert g/cm^2 -day to g/m^2-sec

Calculation of the equilibrium vapor concentration is as follows (Table 7):

$$C_{veq} = \frac{X\,P\,MW}{R\,Temp}$$

Where

X	=	mole fraction of constituent in the residual mixture
P	=	pure component vapor pressure (mm Hg)
MW	=	molecular weight (g/mole)
R	=	universal gas constant, 62,361 mm Hg-cm^3/mole-K
T	=	average soil temperature, degrees K

These calculations are presented in Attachment 3, Table 1.

Calculation of Diffusion Coefficients

The maximum effective diffusion coefficients (D_{ei} – cm^2/day) for the emissions equation presented in Table 10 are based on guidance presented in USEPA 1995a, and are calculated as follows:

$$D_{ei} = \left(\frac{P_a^{3.33}}{P_t^2} D_a\right) + \frac{1}{H}\left(\frac{P_w^{3.33}}{P_t^2} D_w\right)$$

Where,

P_a	=	Air-filled porosity
D_a	=	Diffusion coefficient in air (cm^2/day)
H	=	Henry's Law coefficient (dimensionless)
P_w	=	Water-filled porosity
D_w	=	Diffusion coefficient in water (cm^2/day)
β	=	soil bulk density (g/cm^3)
P_t	=	Total porosity

Air Dispersion Modeling

The SCREEN3 model (USEPA 1995b) was used to calculate concentrations in air from VOC emissions from soil. SCREEN3 is a Gaussian plume-based, screening-level air dispersion model used to provide conservative estimates of air quality impacts associated with a specific emissions source. The SCREEN3 model provides an easy-to-use method of obtaining pollutant concentration estimates based on the screening procedures document, *Screening*

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Procedures for Estimating the Air Quality Impact of Stationary Sources. The USEPA recommends using SCREEN3 as a screening-level model for air quality impact analyses. SCREEN3 combines emissions estimates and source characteristics with windspeed and atmospheric stability data to provide estimates of chemical concentrations downwind from a source.

For purposes of calculating concentrations in air, the SCREEN3 model was used to estimate annual average concentrations in ambient air corresponding to a unit emissions flux (1 g/m^2-s) of VOCs emitted from the soil. The modeling was based on the following assumptions:

- The emissions source area is a square 3.5-acre area (14,400 square meters). The length and width are the same (120 meters).
- Maximum concentrations in the soil are present throughout the 3.5-acre portion of the site.
- SCREEN3 was run in an area source mode.
- Emissions are assumed to be released at ground level; ambient concentrations at the receptor are modeled at an elevation of 0 meters (ground level concentration).
- Dispersion of emissions is modeled using rural dispersion options, and worst-case meteorological conditions ("F" stability class and windspeed of 1 m/s).
- The worst-case 1-hour average concentrations in air were converted to long-term, 8-hour average concentrations using a scaling factor of 0.7, as described in *Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised*, EPA-454/R-92-019, October 1992.

The dispersion modeling output from SCREEN3 is presented in Table 9.

The highest concentrations associated with emissions from this 3.5-acre source were assumed to fall 110 meters (about 361 feet) downwind. These highest concentrations were used as the EPCs for evaluating potential inhalation exposure from emissions of VOCs in soil.

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APPENDIX C-1
Calculation of Exposure Point Concentrations in Ambient Air from Emissions from Soil - Excavation Scenario
Martin Aaron, Camden, New Jersey

TABLE 1 - Gas-phase mass transfer coefficient - emissions from excavation
TABLE 2 - Calculation for Conversion from Total Concentration to Soil Gas Concentration
TABLE 3 - Equations for Estimating Emissions and Concentrations in Air During Excavation

Appendix C-1 - Table 1
Gas-phase mass transfer coefficient - emissions from excavation
Martin Aaron, Camden, New Jersey

$$k_G = 4.82\times10^{-3}\, U^{0.78}\, Sc_G^{-0.67}\, d_e^{-0.11}$$

U	Windspeed (m/s)	1
Sc_G	Schmidt number on gas side	chem specific
d_e	Effective diameter of source (m)	8.0
A	Area of the source (m^2)	50

$$d_e = \left(\frac{4\,A}{\Pi}\right)^{0.5}$$

Schmidt Number Calculation

$$Sc_G = \frac{u_G}{p_G\, D_a}$$

u_G	viscosity of air (g/cm-s)	1.81E-04
p_G	density of air (g/cm^3)	1.20E-03
D_a	Diffusion coefficient in air (cm^2/s)	chem specific

Chemical	Diffusion coefficient in air (cm^2/s)	Diffusion coefficient in water (cm^2/s)	Sc_g	k_G (m/s)
Martin Aaron Surface Soil				
Acetophenone	6.00E-02	8.70E-06	2.51	0.00206824
Benzene	8.80E-02	9.80E-06	1.71	0.00267328
Chloroform	1.04E-01	1.00E-05	1.45	0.00298987
Dichloroethylene-1,2 cis	7.36E-02	1.13E-05	2.05	0.00237164
Naphthalene	5.90E-02	7.50E-06	2.56	0.00204508
Tetrachloroethylene	7.20E-02	8.20E-06	2.09	0.00233697
Toluene	8.70E-02	8.60E-06	1.73	0.00265288
Trichloroethylene	7.90E-02	9.10E-06	1.91	0.00248686
Vinyl chloride	1.06E-01	1.23E-06	1.42	0.00302828
Xylenes, total	7.00E-02	7.80E-06	2.15	0.00229328
Row Homes/Industrial Area Surface Soil				
Naphthalene	5.90E-02	7.50E-06	2.56	0.00204508
South Jersey Port Surface Soil				
Phenanthrene	3.33E-02	7.47E-06	4.53	0.00139405
Martin Aaron Subsurface Soil				
Acetophenone	6.00E-02	8.70E-06	2.51	0.00206824
Benzene	8.80E-02	9.80E-06	1.71	0.00267328
Bromomethane	7.28E-02	1.21E-05	2.07	0.00235434
Chloroform	1.04E-01	1.00E-05	1.45	0.00298987
Dichloroethylene-1,2 cis	7.36E-02	1.13E-05	2.05	0.00237164
Ethylbenzene	7.50E-02	7.80E-06	2.01	0.00240177
Naphthalene	5.90E-02	7.50E-06	2.56	0.00204508
Tetrachloroethylene	7.20E-02	8.20E-06	2.09	0.00233697
Toluene	8.70E-02	8.60E-06	1.73	0.00265288
Trichloroethylene	7.90E-02	9.10E-06	1.91	0.00248686
Vinyl chloride	1.06E-01	1.23E-06	1.42	0.00302828
Xylenes, total	7.00E-02	7.80E-06	2.15	0.00229328
Row Homes/Industrial Area Subsurface Soil				
Acetophenone	6.00E-02	8.70E-06	2.51	0.00206824
Naphthalene	5.90E-02	7.50E-06	2.56	0.00204508
South Jersey Port Subsurface Soil				
Benzene	8.80E-02	9.80E-06	1.71	0.00267328
Dibenzofuran	6.01E-02	1.00E-05	2.51	0.00207055
Naphthalene	5.90E-02	7.50E-06	2.56	0.00204508
Phenanthrene	3.33E-02	7.47E-06	4.53	0.00139405

Appendix C-1 - Table 2
Calculation for Conversion from Total Concentration to Soil Gas Concentration
Martin Aaron, Camden, New Jersey

Parameter	Symbol	Value
Henry's Law Constant	H	chem-specific
Soil density (g/cm3)	ps	1.38
Soil moisture content	theta_w	0.12
Soil organic carbon partition coefficient (cm3/g)	koc	chem-specific
Fraction organic carbon in soil	foc	0.0039
Soil-water partition coefficient	ks	koc x foc
Air-filled porosity in soil	theta_a	0.25
Molar volume of gas		24.45

$$C_{soil\,gas} = \frac{H\,C_{soil}\,\rho_s}{\theta_w + K_s\,\rho_s + H\,\theta_a}$$

Chemical	Concentration in Soil (mg/kg)	Concentration in soil (g/g)	Henry's Law Constant	Organic carbon partition coefficient	Molecular Weight	Soil-water partition coefficient	Concentration in Soil Gas (g/cm^3)	Concentration in Soil Gas (ug/L)	Concentration in Soil Gas (ppb)
Martin Aaron Surface Soil									
Acetophenone	2.90E+00	2.90E-06	1.10E-05	3.09E+01	1.20E+02	1.21E-01	1.54E-10	1.54E-01	3.13E+01
Benzene	3.87E+00	3.87E-06	5.55E-03	6.20E+01	7.81E+01	2.42E-01	6.51E-08	6.51E+01	2.04E+04
Chloroform	1.40E+00	1.40E-06	3.67E-03	5.30E+01	1.19E+02	2.07E-01	1.75E-08	1.75E+01	3.59E+03
Dichloroethylene-1,2 cis	1.11E+01	1.11E-05	4.08E-03	3.55E+01	9.70E+01	1.38E-01	2.01E-07	2.01E+02	5.07E+04
Naphthalene	7.24E+00	7.24E-06	4.83E-04	1.19E+03	1.28E+02	4.64E+00	7.39E-10	7.39E-01	1.41E+02
Tetrachloroethylene	1.21E+01	1.21E-05	1.84E-02	2.65E+02	1.66E+02	1.03E+00	1.98E-07	1.98E+02	2.92E+04
Toluene	7.34E+01	7.34E-05	6.64E-03	1.40E+02	9.20E+01	5.46E-01	7.69E-07	7.69E+02	2.04E+05
Trichloroethylene	3.24E+00	3.24E-06	1.03E-02	1.66E+02	1.31E+02	6.47E-01	4.53E-08	4.53E+01	8.45E+03
Vinyl chloride	3.20E-01	3.20E-07	2.70E-02	1.86E+01	6.30E+01	7.25E-02	5.26E-08	5.26E+01	2.04E+04
Xylenes, total	2.93E+01	2.93E-05	7.34E-03	1.96E+02	1.06E+02	7.64E-01	2.52E-07	2.52E+02	5.82E+04
Row Homes/Industrial Area Surface Soil									
Naphthalene	5.90E+00	5.90E-06	4.83E-04	1.19E+03	1.28E+02	4.64E+00	6.02E-10	6.02E-01	1.15E+02
South Jersey Port Surface Soil									
Phenanthrene	6.58E+01	6.58E-05	4.23E-05	1.41E+04	1.78E+02	5.51E+01	5.05E-11	5.05E-02	6.92E+00
Martin Aaron Subsurface Soil									
Acetophenone	2.90E+00	2.90E-06	1.10E-05	3.09E+01	1.20E+02	1.21E-01	1.54E-10	1.54E-01	3.13E+01
Benzene	5.89E+00	5.89E-06	5.55E-03	6.20E+01	7.81E+01	2.42E-01	9.91E-08	9.91E+01	3.10E+04
Bromomethane	5.20E-01	5.20E-07	6.24E-03	9.00E+00	9.50E+01	3.51E-02	2.63E-08	2.63E+01	6.78E+03
Chloroform	2.23E+00	2.23E-06	3.67E-03	5.30E+01	1.19E+02	2.07E-01	2.78E-08	2.78E+01	5.72E+03
Dichloroethylene-1,2 cis	5.62E+00	5.62E-06	4.08E-03	3.55E+01	9.70E+01	1.38E-01	1.01E-07	1.01E+02	2.56E+04
Ethylbenzene	6.36E+00	6.36E-06	7.88E-03	2.04E+02	1.06E+02	7.96E-01	5.67E-08	5.67E+01	1.31E+04
Naphthalene	3.24E+01	3.24E-05	4.83E-04	1.19E+03	1.28E+02	4.64E+00	3.30E-09	3.30E+00	6.30E+02
Tetrachloroethylene	2.28E+01	2.28E-05	1.84E-02	2.65E+02	1.66E+02	1.03E+00	3.74E-07	3.74E+02	5.51E+04
Toluene	3.04E+01	3.04E-05	6.64E-03	1.40E+02	9.20E+01	5.46E-01	3.18E-07	3.18E+02	8.46E+04
Trichloroethylene	1.13E+02	1.13E-04	1.03E-02	1.66E+02	1.31E+02	6.47E-01	1.58E-06	1.58E+03	2.96E+05
Vinyl chloride	4.80E-01	4.80E-07	2.70E-02	1.86E+01	6.30E+01	7.25E-02	7.88E-08	7.88E+01	3.06E+04
Xylenes, total	4.45E+01	4.45E-05	7.34E-03	1.96E+02	1.06E+02	7.64E-01	3.83E-07	3.83E+02	8.84E+04
Row Homes/Industrial Area Subsurface Soil									
Acetophenone	5.20E-02	5.20E-08	1.10E-05	3.09E+01	1.20E+02	1.21E-01	2.76E-12	2.76E-03	5.62E-01
Naphthalene	4.43E+00	4.43E-06	4.83E-04	1.19E+03	1.28E+02	4.64E+00	4.52E-10	4.52E-01	8.62E+01
South Jersey Port Subsurface Soil									
Benzene	3.00E-03	3.00E-09	5.55E-03	6.20E+01	7.81E+01	2.42E-01	5.05E-11	5.05E-02	1.58E+01
Dibenzofuran	1.42E+01	1.42E-05	1.30E-05	7.76E+03	1.70E+02	3.03E+01	6.10E-12	6.10E-03	8.78E-01
Naphthalene	1.48E+01	1.48E-05	4.83E-04	1.19E+03	1.28E+02	4.64E+00	1.51E-09	1.51E+00	2.89E+02
Phenanthrene	6.58E+01	6.58E-05	4.23E-05	1.41E+04	1.78E+02	5.51E+01	5.05E-11	5.05E-02	6.92E+00

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Appendix C-1 - Table 3
Equations for Estimating Emissions and Concentrations in Air During Excavation
Martin Aaron, Camden, New Jersey

Emission rate from diffusion from storage pile and excavation pit:

$$ER_{DIFF} = \frac{C_{soil} \times 10,000 \times SA}{\left(\frac{E_a}{K_{eq} \times K_g}\right) + \left(\frac{\pi t}{D_e \times K_{eq}}\right)^{\frac{1}{2}}}$$

Emission rate from release of soil gas from pore space:

$$ER_{PS} = \frac{P \times MW \times 10^6 \times E_a \times Q \times ExC}{R \times T}$$

Estimation of concentration in air

$$C_{air} = \frac{M_{air}}{V_{ex}}$$

$$V_{ex} = Q_{wind} \times ET \times \frac{3,600 \text{sec}}{hr}$$

$$Q_{wind} = V_{wind} \cdot A$$

Description	Symbol	Value	Units	Comments
Emission rate for diffusion from storage pile and excavation pit	ER_{DIFF}	Calculated	g/s	
Emission rate from the soil pore space	ER_{PS}	Calculated	g/s	
Initial concentration in soil gas	C_{soil}	Site-specific	g/cm^3	
Conversion factor		10000	cm^2/m^2	
Combined emitting surface area, excavation pit and storage pile	SA	115	m^2	Batelle, 2001
Air-filled porosity of soil	E_a	0.28	unitless	
Total Soil Porosity		0.43	unitless	
Equilibrium coefficient	K_{eq}	Chemical-specific	unitless	Based on Henry's Law constant (Table C-2)
Gas-phase mass transfer coefficient	K_g	Chemical-specific	cm/s	Calculated value as described in USEPA, 1994.
Time at which instantaneous emission rate from pile is calculated	t	60	seconds	Batelle, 2001
Effective diffusion coefficient	D_e	Chemical-specific	cm^2/s	Calculated value as described in USEPA, 1994.
Vapor pressure	P	Chemical-specific	mm Hg	Value will be obtained from Syracuse Research Corporation Physical Properties Database http://esc.syrres.com/interkow/PhysProp.htm or the National Library of Medicine Hazardous Substances Data Bank (HSDB) http://toxnet.nlm.nih.gov/
Molecular weight	MW	Chemical-specific	g/mol	Value will be obtained from Syracuse Research Corporation Physical Properties Database http://esc.syrres.com/interkow/PhysProp.htm or the National Library of Medicine Hazardous Substances Data Bank (HSDB) http://toxnet.nlm.nih.gov/
Conversion factor		1000000	cm^3/m^3	
Soil excavation rate	Q	0.014	m^3/s	Batelle, 2001
Soil-gas to atmosphere exchange constant	ExC	0.1	unitless	Batelle, 2001
Universal gas constant	R	62361	mm Hg cm^3/g-mole K	
Temperature	T	286	degrees K	http://www.ncdc.noaa.gov/oa/climate/online/ccd/meantemp.html, Annual Average Mean Normal Temperature for Philadelphia, PA.
Volume of soil moved in one hour	SV	50	m^3	Batelle, 2001
Time to excavate a given volume of soil moved	tsv	3600	s	Batelle, 2001
Height of breathing zone	Z	2	m	Batelle, 2001
Average wind speed in breathing zone	Vwind	2.25	m/s	Batelle, 2001
Exposure time	ET	8	hr	
Area of breathing zone perpendicular to wind	A	21.44	m^2	Batelle, 2001
Volumetric flow rate of air through breathing zone	Qwind	48.24	m^3/s	Batelle, 2001
Volume of air passing through the breathing zone	Vex	1389312	m^3	Batelle, 2001

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Chemical	Soil Concentration (g/cm^3)	Equilibrium constant (Henry's Law constant)	Gas-phase mass transfer coefficient (cm/s)	Effective diffusion coefficient (cm^2/s)	Vapor pressure (mm Hg)	Molecular weight (g/mol)	Emission Rate Calculation								
							Emission Rate from Excavation Pit & Storage Pile (g/s)	Emission Rate from Release of Soil Gas from Pore Space (g/s)	Total emission rate (g/s)	Total mass of chemical in soil (g)	Calculated mass of chemical released (g)	Total Mass Emitted Exceeds Total Mass in Soil?	Emission Rate Used to Calculate Air Concentration (g/s)	Mass Used to Calculate Concentration in Air (g)	Concentration in Air during Exposure Time (mg/m^3)
Martin Aaron Surface Soil															
Acetophenone	1.54E-10	1.10E-05	2.07E-03	4.68E-03	3.95E-01	1.20E+02	1.43E-11	1.04E-03	1.04E-03	7.69E-03	3.75E+00	yes	7.05E-07	2.03E-02	1.46E-05
Benzene	6.51E-08	5.55E-03	2.67E-03	6.86E-03	9.50E+01	7.81E+01	3.55E-06	1.63E-01	1.63E-01	3.26E+00	5.87E+02	yes	2.99E-04	8.60E+00	6.19E-03
Chloroform	1.75E-08	3.67E-03	2.99E-03	8.11E-03	2.04E+02	1.19E+02	7.16E-07	5.35E-01	5.35E-01	8.73E-01	1.92E+03	yes	8.00E-05	2.30E+00	1.66E-03
Dichloroethylene-1,2 cis	2.01E-07	4.08E-03	2.37E-03	5.74E-03	3.52E+02	9.70E+01	7.28E-06	7.50E-01	7.50E-01	1.01E+01	2.70E+03	yes	9.21E-04	2.65E+01	1.91E-02
Naphthalene	7.39E-10	4.83E-04	2.05E-03	4.60E-03	8.89E-02	1.28E+02	2.90E-09	2.50E-04	2.50E-04	3.69E-02	9.01E-01	yes	3.39E-06	9.75E-02	7.02E-05
Tetrachloroethylene	1.98E-07	1.84E-02	2.34E-03	5.62E-03	1.84E+01	1.66E+02	2.90E-05	6.70E-02	6.70E-02	9.91E+00	2.41E+02	yes	9.08E-04	2.62E+01	1.88E-02
Toluene	7.69E-07	6.64E-03	2.65E-03	6.79E-03	2.82E+01	9.20E+01	4.93E-05	5.70E-02	5.70E-02	3.84E+01	2.05E+02	yes	3.52E-03	1.01E+02	7.31E-02
Trichloroethylene	4.53E-08	1.03E-02	2.49E-03	6.16E-03	7.20E+01	1.31E+02	4.11E-06	2.07E-01	2.07E-01	2.26E+00	7.47E+02	yes	2.07E-04	5.98E+00	4.30E-03
Vinyl chloride	5.26E-08	2.70E-02	3.03E-03	8.27E-03	2.80E+03	6.30E+01	1.39E-05	3.87E+00	3.87E+00	2.63E+00	1.39E+04	yes	2.41E-04	6.94E+00	4.99E-03
Xylenes, total	2.52E-07	7.34E-03	2.29E-03	5.46E-03	7.99E+00	1.06E+02	1.54E-05	1.86E-02	1.86E-02	1.26E+01	6.70E+01	yes	1.16E-03	3.33E+01	2.40E-02
Row Homes/Industrial Area Surface Soil															
Naphthalene	6.02E-10	4.83E-04	2.05E-03	4.60E-03	8.89E-02	1.28E+02	2.37E-09	2.50E-04	2.50E-04	3.01E-02	9.01E-01	yes	2.76E-06	7.95E-02	5.72E-05
South Jersey Port Surface Soil															
Phenanthrene	5.05E-11	4.23E-05	1.39E-03	2.60E-03	6.80E-04	1.78E+02	1.21E-11	2.66E-06	2.66E-06	2.52E-03	9.59E-03	yes	2.31E-07	6.66E-03	4.79E-06
Martin Aaron Subsurface Soil															
Acetophenone	1.54E-10	1.10E-05	2.07E-03	4.68E-03	3.95E-01	1.20E+02	1.43E-11	1.04E-03	1.04E-03	7.69E-03	3.75E+00	yes	7.05E-07	2.03E-02	1.46E-05
Benzene	9.91E-08	5.55E-03	2.67E-03	6.86E-03	9.50E+01	7.81E+01	5.40E-06	1.63E-01	1.63E-01	4.96E+00	5.87E+02	yes	4.54E-04	1.31E+01	9.42E-03
Bromomethane	2.63E-08	6.24E-03	2.35E-03	5.68E-03	1.64E+03	9.50E+01	1.42E-06	3.41E+00	3.41E+00	1.32E+00	1.23E+04	yes	1.21E-04	3.48E+00	2.50E-03
Chloroform	2.78E-08	3.67E-03	2.99E-03	8.11E-03	2.04E+02	1.19E+02	1.14E-06	5.35E-01	5.35E-01	1.39E+00	1.92E+03	yes	1.28E-04	3.67E+00	2.64E-03
Dichloroethylene-1,2 cis	1.01E-07	4.08E-03	2.37E-03	5.74E-03	3.52E+02	9.70E+01	3.67E-06	7.50E-01	7.50E-01	5.07E+00	2.70E+03	yes	4.65E-04	1.34E+01	9.64E-03
Ethylbenzene	5.67E-08	7.88E-03	2.40E-03	5.85E-03	9.58E+00	1.06E+02	3.88E-06	2.23E-02	2.23E-02	2.84E+00	8.05E+01	yes	2.60E-04	7.49E+00	5.39E-03
Naphthalene	3.30E-09	4.83E-04	2.05E-03	4.60E-03	8.89E-02	1.28E+02	1.30E-08	2.50E-04	2.50E-04	1.65E-01	9.01E-01	yes	1.51E-05	4.36E-01	3.14E-04
Tetrachloroethylene	3.74E-07	1.84E-02	2.34E-03	5.62E-03	1.84E+01	1.66E+02	5.47E-05	6.70E-02	6.71E-02	1.87E+01	2.41E+02	yes	1.71E-03	4.93E+01	3.55E-02
Toluene	3.18E-07	6.64E-03	2.65E-03	6.79E-03	2.82E+01	9.20E+01	2.04E-05	5.70E-02	5.70E-02	1.59E+01	2.05E+02	yes	1.46E-03	4.20E+01	3.03E-02
Trichloroethylene	1.58E-06	1.03E-02	2.49E-03	6.16E-03	7.20E+01	1.31E+02	1.44E-04	2.07E-01	2.08E-01	7.92E+01	7.47E+02	yes	7.26E-03	2.09E+02	1.51E-01
Vinyl chloride	7.88E-08	2.70E-02	3.03E-03	8.27E-03	2.80E+03	6.30E+01	2.09E-05	3.87E+00	3.87E+00	3.94E+00	1.39E+04	yes	3.61E-04	1.04E+01	7.49E-03
Xylenes, total	3.83E-07	7.34E-03	2.29E-03	5.46E-03	7.99E+00	1.06E+02	2.34E-05	1.86E-02	1.86E-02	1.92E+01	6.71E+01	yes	1.76E-03	5.06E+01	3.64E-02
Row Homes/Industrial Area Subsurface Soil															
Acetophenone	2.76E-12	1.10E-05	2.07E-03	4.68E-03	3.95E-01	1.20E+02	2.56E-13	1.04E-03	1.04E-03	1.38E-04	3.75E+00	yes	1.26E-08	3.64E-04	2.62E-07
Naphthalene	4.52E-10	4.83E-04	2.05E-03	4.60E-03	8.89E-02	1.28E+02	1.77E-09	2.50E-04	2.50E-04	2.26E-02	9.01E-01	yes	2.07E-06	5.96E-02	4.29E-05
South Jersey Port Subsurface Soil															
Benzene	5.05E-11	5.55E-03	2.67E-03	6.86E-03	9.50E+01	7.81E+01	2.75E-09	1.63E-01	1.63E-01	2.52E-03	5.87E+02	yes	2.31E-07	6.66E-03	4.80E-06
Dibenzofuran	6.10E-12	1.30E-05	2.07E-03	4.69E-03	1.64E-03	1.70E+02	6.71E-13	6.14E-06	6.14E-06	3.05E-04	2.21E-02	yes	2.80E-08	8.06E-04	5.80E-07
Naphthalene	1.51E-09	4.83E-04	2.05E-03	4.60E-03	8.89E-02	1.28E+02	5.95E-09	2.50E-04	2.50E-04	7.57E-02	9.01E-01	yes	6.94E-06	2.00E-01	1.44E-04
Phenanthrene	5.05E-11	4.23E-05	1.39E-03	2.60E-03	6.80E-04	1.78E+02	1.21E-11	2.66E-06	2.66E-06	2.52E-03	9.59E-03	yes	2.31E-07	6.66E-03	4.79E-06

APPENDIX C-2
Calculation of Exposure Point Concentrations in Air from VOCs in Groundwater During Excavation
Martin Aaron, Camden, New Jersey

TABLE 4 - Emissions to Air from Standing Water
TABLE 5 - Mass Transfer Coefficient Calculations - Water to Air
TABLE 6 - Calculation of Concentration in Air from Emissions from Water

Appendix C-2 - Table 4
Emissions to Air from Standing Water
Martin Aaron, Camden, New Jersey

Emissions equation:

$$E = K \times A \times C_L$$

E	Emissions from liquid surface (g/s)	
K	Overall mass transfer coefficient (m/s)	
C_L	Concentration in liquid phase (g/m^3)	

Overall mass transfer coefficient:

$$\frac{1}{K} = \frac{1}{k_L} + \frac{1}{k_G K_{eq}}$$

K	overall mass transfer coefficient (m/s)	
k_L	liquid-phase mass transfer coefficient (m/s)	
k_G	gas-phase mass transfer coefficient (m/s)	
K_{eq}	Equilibrium constant (Henry's Law constant)	

Chemical	Concentration in Water (mg/L)	Concentration in Water (g/m^3)	Dimensionless Henry's Law Constant	k_L	k_G	1/K	K (m/s)	A (m^2)	E (g/s)
Upper PRM									
Benzene	3.39E+01	3.39E+01	2.28E-01	3.06E-06	2.67E-03	3.29E+05	3.04E-06	50	5.15E-03
Chloroethane	1.32E+00	1.32E+00	2.12E-01	3.46E-06	2.99E-03	2.91E+05	3.44E-06	50	2.26E-04
Dichlorobenzene-1,3	6.60E-01	6.60E-01	7.79E-02	2.65E-06	2.27E-03	3.83E+05	2.61E-06	50	8.61E-05
Dichlorobenzene-1,4	9.21E-01	9.21E-01	9.96E-02	2.65E-06	2.27E-03	3.82E+05	2.62E-06	50	1.21E-04
Dichloroethane-1,1	1.95E+01	1.95E+01	2.30E-01	3.20E-06	2.38E-03	3.14E+05	3.18E-06	50	3.11E-03
Dichloroethane-1,2	9.51E-01	9.51E-01	4.01E-02	3.08E-06	2.99E-03	3.33E+05	3.00E-06	50	1.43E-04
Dichloroethene-1,2 trans	4.97E+00	4.97E+00	3.85E-01	3.48E-06	2.31E-03	2.89E+05	3.47E-06	50	8.62E-04
Dichloroethylene-1,2 cis	1.19E+02	1.19E+02	1.67E-01	3.36E-06	2.37E-03	3.00E+05	3.33E-06	50	1.99E-02
Dichloropropane-1,2	8.64E-01	8.64E-01	1.15E-01	2.83E-06	2.47E-03	3.57E+05	2.80E-06	50	1.21E-04
Ethylbenzene	1.18E+01	1.18E+01	3.23E-01	2.63E-06	2.40E-03	3.82E+05	2.62E-06	50	1.54E-03
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.22E+01	3.22E+01	5.74E-03	2.63E-06	2.40E-03	4.53E+05	2.21E-06	50	3.56E-03
Methyl tertiary butyl ether (MTBE)	2.33E+01	2.33E+01	2.40E-02	3.20E-06	2.96E-03	3.27E+05	3.06E-06	50	3.56E-03
Naphthalene	3.60E+02	3.60E+02	1.98E-02	2.56E-06	2.05E-03	4.16E+05	2.41E-06	50	4.33E-02
Nitrosodiphenylamine-n	1.09E+01	1.09E+01	2.08E-04	2.29E-06	1.33E-03	4.04E+06	2.47E-07	50	1.34E-04
Tetrachloroethylene	8.05E-01	8.05E-01	7.54E-01	2.71E-06	2.34E-03	3.69E+05	2.71E-06	50	1.09E-04
Trichloroethane-1,1,2	4.30E-01	4.30E-01	3.74E-02	2.85E-06	2.47E-03	3.62E+05	2.76E-06	50	5.93E-05
Trichloroethylene	2.89E+00	2.89E+00	4.22E-01	2.91E-06	2.49E-03	3.45E+05	2.90E-06	50	4.20E-04
Vinyl chloride	1.41E+01	1.41E+01	1.11E+00	7.66E-07	3.03E-03	1.31E+06	7.66E-07	50	5.39E-04
Xylenes, total	1.88E+01	1.88E+01	2.13E-01	3.10E-06	2.65E-03	3.25E+05	3.08E-06	50	2.90E-03

Appendix C-2 - Table 5
Mass Transfer Coefficient Calculations - Water to Air
Martin Aaron, Camden, New Jersey

Liquid-phase mass transfer coefficient

$$k_L = 2.78 \times 10^{-6} \left(\frac{D_w}{D_{ether}} \right)^{2/3}$$

D_{ether}	Diffusion coefficient of ether in water (cm^2/s)	8.50E-06
D_w	Diffusion coefficient in water (cm^2/s)	chemical specific

Gas-phase mass transfer coefficient

$$k_G = 4.82 \times 10^{-3} U^{0.78} Sc_G^{-0.67} d_e^{-0.11}$$

U	Windspeed (m/s)	1
Sc_G	Schmidt number on gas side	chem specific
d_e	Effective diameter of source (m)	8.0
A	Area of the source (m^2)	50

$$d_e = \left(\frac{4A}{\Pi} \right)^{0.5}$$

Schmidt Number Calculation

$$Sc_G = \frac{u_G}{p_G D_a}$$

u_G	viscosity of air (g/cm s)	1.81E-04
p_G	density of air (g/cm^3)	1.20E-03
D_a	Diffusion coefficient in air (cm^2/s)	chem specific

Chemical	Diffusion coefficient in air (cm^2/s)	Diffusion coefficient in water (cm^2/s)	k_L (m/s)	Sc_g	k_G (m/s)
Upper PRM					
Benzene	0.088	0.0000098	3.06E-06	1.71	0.00267328
Chloroethane	0.1041	0.0000118	3.46E-06	1.45	0.0029918
Dichlorobenzene-1,3	0.069	0.0000079	2.65E-06	2.19	0.00227127
Dichlorobenzene-1,4	0.069	0.0000079	2.65E-06	2.19	0.00227127
Dichloroethane-1,1	0.0742	0.0000105	3.20E-06	2.03	0.00238458
Dichloroethane-1,2	0.104	0.0000099	3.08E-06	1.45	0.00298987
Dichloroethene-1,2 trans	0.0707	0.0000119	3.48E-06	2.13	0.00230861
Dichloroethylene-1,2 cis	0.0736	0.0000113	3.36E-06	2.05	0.00237164
Dichloropropane-1,2	0.0782	0.00000873	2.83E-06	1.93	0.00246995
Ethylbenzene	0.075	0.0000078	2.63E-06	2.01	0.00240177
Methyl isobutyl ketone (4-methyl-2	0.075	0.0000078	2.63E-06	2.01	0.00240177
Methyl tertiary butyl ether (MTBE)	0.1024	0.0000105	3.20E-06	1.47	0.00295898
Naphthalene	0.059	0.0000075	2.56E-06	2.56	0.00204508
Nitrosodiphenylamine-n	0.0312	0.00000635	2.29E-06	4.83	0.00133452
Tetrachloroethylene	0.072	0.0000082	2.71E-06	2.09	0.00233697
Trichloroethane-1,1,2	0.078	0.0000088	2.85E-06	1.93	0.00246572
Trichloroethylene	0.079	0.0000091	2.91E-06	1.91	0.00248686
Vinyl chloride	0.106	0.00000123	7.66E-07	1.42	0.00302828
Xylenes, total	0.087	0.00001	3.10E-06	1.73	0.00265288

Appendix C-2 - Table 6
Calculation of Concentration in Air from Emissions from Water
Martin Aaron, Camden, New Jersey

$$V_{ex} = Q_{wind} \times ET \times \frac{3{,}600\,\text{sec}}{hr}$$

$$Q_{wind} = V_{wind} \cdot A$$

Description	Symbol	Value	Units	Comments
Height of breathing zone	Z	2	m	Battelle, 2001
Average wind speed in breathing zone	Vwind	2.25	m/s	Battelle, 2001
Exposure time	ET_air	720	hr	Assumes excavation is open for 30 days (30 days x 24 hours/day = 720 hours)
Area of breathing zone perpendicular to wind	A	21.44	m^2	Battelle, 2001
Volumetric flow rate of air through breathing zone	Qwind	48.24	m^3/s	Battelle, 2001
Volume of air passing through the breathing zone	Vex	125038080	m^3	Battelle, 2001

Chemical	Total emission rate (g/s)	Calculated mass of chemical released (g)	Concentration in Air (mg/m^3)
Upper PRM			
Benzene	5.15E-03	1.33E+04	1.07E-01
Chloroethane	2.26E-04	5.87E+02	4.69E-03
Dichlorobenzene-1,3	8.61E-05	2.23E+02	1.78E-03
Dichlorobenzene-1,4	1.21E-04	3.12E+02	2.50E-03
Dichloroethane-1,1	3.11E-03	8.06E+03	6.44E-02
Dichloroethane-1,2	1.43E-04	3.70E+02	2.96E-03
Dichloroethene-1,2 trans	8.62E-04	2.23E+03	1.79E-02
Dichloroethylene-1,2 cis	1.99E-02	5.16E+04	4.12E-01
Dichloropropane-1,2	1.21E-04	3.14E+02	2.51E-03
Ethylbenzene	1.54E-03	3.99E+03	3.19E-02
Methyl isobutyl ketone (4-methyl-2-pentanone)	3.56E-03	9.22E+03	7.37E-02
Methyl tertiary butyl ether (MTBE)	3.56E-03	9.24E+03	7.39E-02
Naphthalene	4.33E-02	1.12E+05	8.97E-01
Nitrosodiphenylamine-n	1.34E-04	3.48E+02	2.79E-03
Tetrachloroethylene	1.09E-04	2.83E+02	2.26E-03
Trichloroethane-1,1,2	5.93E-05	1.54E+02	1.23E-03
Trichloroethylene	4.20E-04	1.09E+03	8.71E-03
Vinyl chloride	5.39E-04	1.40E+03	1.12E-02
Xylenes, total	2.90E-03	7.51E+03	6.01E-02

APPENDIX C-3
Calculation of Exposure Point Concentrations in Ambient from Emissions from Soil Downwind
Martin Aaron, Camden, New Jersey

TABLE 7 - Volatile Emissions from Subsurface Soil with NAPL Present
TABLE 8 - Calculation of Mole Fraction in Soil
TABLE 9 - SCREEN3 Model Output
TABLE 10 - Calculation of Diffusion Coefficients
TABLE 11 - Air Dispersion Modeling Output from SCREEN

Appendix C-3 - Table 7

Volatile Emissions from Subsurface Soil with NAPL Present

Martin Aaron, Camden, New Jersey

$$F = \left(\frac{\beta \times C_o}{t}\right)\left[\left(d^2 + \left(\frac{2 \times C_{veq} \times D_{ei} \times t}{\beta \times C_o}\right)\right)^{0.5} - d\right] \times 0.116$$

$$C_{veq} = \frac{X\,P\,MW}{R\,Temp}$$

Description	Symbol	Value	Units	Comments
Emission flux	F	Calculated	g/m^2-s	
Initial concentration in soi	Co	Site-specific	g/g	
Equilibrium vapor concentration in soil when NAPL is present	Cv eq	Calculated	g/cm^3	
Maximum Effective Diffusion Coefficient	Dei	Calculated	cm^2/s	Input from another spreadsheet
Averaging time	T	10950	days	Set equivalent to exposure duration
Soil bulk density	B	1.5	g/cm^3	
Depth from soil surface to top of contamination	d	305	cm	
Factor of 0.116				10000 cm^2/m^2 x 1 day/86400 sec
Mole Fraction	X	Chem-specific		
Vapor pressure	P	Chem-specific	mm Hg	
Molecular Weight	MW	Chem-specific	g/mole	
Universal Gas Constant	R_g	62361	mm Hg-cm^3/mole-K	
Soil temperature	Temp	286	degrees K	http://www.ncdc.noaa.gov/oa/climate/online/ccd/meantemp.html, Annual Average Mean Normal Temperature for Philadelphia, PA.

Chemical	Vapor Pressure (mm Hg)	Molecular Weight (g/mole)	Mole Fraction	Equilibrium Vapor Concentration (g/cm^3)	Maximum Effective Diffusion Coefficient (cm2/day)	Initial Concentration in Soil (g/g)	Emissions Flux (g/m^2-s)
Acetophenone	0.40	120	7.48E-03	1.99E-08	1.81E+02	2.90E-06	1.30E-09
Benzene	95	78	2.33E-02	9.70E-06	7.45E+01	5.89E-06	9.99E-08
Bromomethane	1,635	95	1.69E-03	1.47E-05	6.17E+01	5.20E-07	3.93E-08
Chloroform	204	119	5.80E-03	7.91E-06	8.81E+01	2.23E-06	6.57E-08
Dibenzofuran	0.0016	170	2.59E-02	4.06E-10	1.77E+02	1.42E-05	2.73E-11
Dichloroethylene-1,2 cis	352	97	3.55E-02	6.80E-05	6.25E+01	1.11E-05	3.67E-07
Ethylbenzene	9.6	106	1.85E-02	1.06E-06	6.34E+01	6.36E-06	1.94E-08
Naphthalene	0.089	128	7.81E-02	4.99E-08	5.23E+01	3.24E-05	9.90E-10
Phenanthrene	0.00068	178	1.14E-01	7.76E-10	3.74E+01	6.58E-05	1.10E-11
Tetrachloroethylene	18	166	4.26E-02	7.28E-06	6.08E+01	2.28E-05	1.12E-07
Toluene	28	92	2.47E-01	3.59E-05	7.36E+01	7.34E-05	5.62E-07
Trichloroethylene	72	131	2.68E-01	1.42E-04	6.68E+01	1.13E-04	1.51E-06
Vinyl chloride	2,797	63	2.36E-03	2.33E-05	8.94E+01	4.80E-07	5.84E-08
Xylenes, total	8.0	106	1.30E-01	6.17E-06	5.92E+01	4.45E-05	1.11E-07

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Appendix C-3 - Table 8
Calculation of Mole Fraction in Soil
Martin Aaron, Camden, New Jersey

Source Area (m^2)	14400
Source Thickness (m)	1.22
Bulk Density (kg/m^3)	1500
Source Volume	17568
Soil Mass in Source Area	26352000

Chemical	Concentrations (mg/kg)	MW	Contaminant Mass (g)	Contaminant Mass (Moles)	Mole Fraction
Acetophenone	2.90E+00	120	7.64E+04	6.37E+02	7.48E-03
Benzene	5.89E+00	78	1.55E+05	1.99E+03	2.33E-02
Bromomethane	5.20E-01	95	1.37E+04	1.44E+02	1.69E-03
Chloroform	2.23E+00	119	5.88E+04	4.94E+02	5.80E-03
Dibenzofuran	1.42E+01	170	3.76E+05	2.21E+03	2.59E-02
Dichloroethylene-1,2 cis	1.11E+01	97	2.94E+05	3.03E+03	3.55E-02
Ethylbenzene	6.36E+00	106	1.68E+05	1.58E+03	1.85E-02
Naphthalene	3.24E+01	128	8.53E+05	6.66E+03	7.81E-02
Phenanthrene	6.58E+01	178	1.73E+06	9.73E+03	1.14E-01
Tetrachloroethylene	2.28E+01	166	6.01E+05	3.63E+03	4.26E-02
Toluene	7.34E+01	92	1.94E+06	2.10E+04	2.47E-01
Trichloroethylene	1.13E+02	131	2.98E+06	2.28E+04	2.68E-01
Vinyl chloride	4.80E-01	63	1.26E+04	2.01E+02	2.36E-03
Xylenes, total	4.45E+01	106	1.17E+06	1.11E+04	1.30E-01
			Total	8.52E+04	

Appendix C-3 - Table 9
SCREEN3 Model Output
Martin Aaron, Camden, New Jersey

04/07/04
10:36:43

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

Martin Aaron Site, Soil VOC Emission to Ambient Air

SIMPLE TERRAIN INPUTS:
SOURCE TYPE = AREA
EMISSION RATE (G/(S-M**2)) = 1.00000
SOURCE HEIGHT (M) = .0000
LENGTH OF LARGER SIDE (M) = 120.0000
LENGTH OF SMALLER SIDE (M) = 120.0000
RECEPTOR HEIGHT (M) = 1.5000
URBAN/RURAL OPTION = RURAL
THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = .000 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
10.	.2097E+08	5	1.0	1.0	10000.0	.00	45.
20.	.2304E+08	6	1.0	1.0	10000.0	.00	45.
30.	.2568E+08	6	1.0	1.0	10000.0	.00	45.
40.	.2820E+08	6	1.0	1.0	10000.0	.00	45.
50.	.3061E+08	6	1.0	1.0	10000.0	.00	45.
60.	.3291E+08	6	1.0	1.0	10000.0	.00	45.
70.	.3511E+08	6	1.0	1.0	10000.0	.00	45.
80.	.3722E+08	6	1.0	1.0	10000.0	.00	45.
90.	.3912E+08	6	1.0	1.0	10000.0	.00	45.
100.	.4119E+08	6	1.0	1.0	10000.0	.00	45.
110.	.4206E+08	6	1.0	1.0	10000.0	.00	45.
120.	.4161E+08	6	1.0	1.0	10000.0	.00	45.
130.	.4034E+08	6	1.0	1.0	10000.0	.00	45.

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	.4206E+08	110.	0.

****
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
****

Appendix C-3 - Table 10
Calculation of Diffusion Coefficients
Martin Aaron, Camden, New Jersey

Maximum effective diffusion coefficient when NAPL is present in soil (Dei)

$$D_{ei} = \left(\frac{P_a^{3.33}}{P_t^2} D_a\right) + \frac{1}{H}\left(\frac{P_w^{3.33}}{P_t^2} D_w\right)$$

Apparent diffusion coefficient (NAPL is not present in soil) (DA)

$$D_A = \frac{\left(\frac{P_a^{3.33} D_a H + P_w^{3.33} D_w}{P_t^2}\right)}{(\beta K_d + P_w + P_a H)}$$

Description	Symbol	Value	Units	Comments
Solubility	S	chem specific	mg/L	
Soil bulk density	B	1.5	kg/L	USEPA, 1996
Soil moisture content	Pw	0.28		USEPA, 1996
Air-filled porosity of soil	Pa	0.15		USEPA, 1996
Total porosity in soil	Pt	0.43		USEPA, 1996
Dimensionless Henry's Law Constant	H	chem specific		
Organic carbon partition coefficient	Koc	chem specific	L/kg	
Fraction of organic carbon in soil	foc	0.006		USEPA, 1996
Diffusion coefficient in air	Da	chem specific	cm^2/s	
Diffusion coefficient in water	Dw	chem specific	cm^2/s	

Chemical	Diffusion coefficient in air (cm^2/s)	Diffusion coefficient in water (cm^2/s)	Henry's Law Constant	K_{oc}	Calculated K_d	Maximum Effective Diffusion Coefficient		Apparent Diffusion Coefficient	
						cm^2/s	cm^2/day	cm^2/s	cm^2/day
Acetophenone	0.06	0.0000087	0.000451	30.9	0.1854	2.09E-03	1.81E+02	1.69E-06	1.46E-01
Benzene	0.088	0.0000098	0.22755	62	0.372	8.62E-04	7.45E+01	2.25E-04	1.94E+01
Bromomethane	0.0728	0.0000121	0.25584	9	0.054	7.14E-04	6.17E+01	4.58E-04	3.95E+01
Chloroform	0.104	0.00001	0.15047	53	0.318	1.02E-03	8.81E+01	1.97E-04	1.70E+01
Dibenzofuran	0.0601	0.00001	0.000533	7760	46.56	2.05E-03	1.77E+02	1.56E-08	1.35E-03
Dichloroethylene-1,2 cis	0.0736	0.0000113	0.16728	35.5	0.213	7.24E-04	6.25E+01	1.94E-04	1.67E+01
Ethylbenzene	0.075	0.0000078	0.32308	204	1.224	7.34E-04	6.34E+01	1.10E-04	9.46E+00
Naphthalene	0.059	0.0000075	0.019803	1191	7.146	6.05E-04	5.23E+01	1.09E-06	9.41E-02
Phenanthrene	0.0333	0.00000747	0.0054041	14125	84.7522527	4.33E-04	3.74E+01	1.84E-08	1.59E-03
Tetrachloroethylene	0.072	0.0000082	0.7544	265	1.59	7.04E-04	6.08E+01	1.91E-04	1.65E+01
Toluene	0.087	0.0000086	0.27224	140	0.84	8.52E-04	7.36E+01	1.47E-04	1.27E+01
Trichloroethylene	0.079	0.0000091	0.4223	166	0.996	7.73E-04	6.68E+01	1.78E-04	1.53E+01
Vinyl chloride	0.106	0.00000123	1.107	18.6	0.1116	1.03E-03	8.94E+01	1.87E-03	1.61E+02
Xylenes, total	0.07	0.0000078	0.30094	196	1.176	6.85E-04	5.92E+01	9.87E-05	8.53E+00

Appendix C-3 - Table 11
Air Dispersion Modeling Output from SCREEN
Martin Aaron, Camden, New Jersey

	Scaling Factor:	0.7													
Distance downwind (m)	1 hr Concentration ($\mu g/m^3$)	8-hour Concentration ($\mu g/m^3$ per g/m^2-s)	8-Hour Average Concentration in Outdoor ($\mu g/m^3$)												
			Acetophenone	Benzene	Bromomethane	Chloroform	Dibenzofuran	Dichloroethylene-1,2 cis	Ethylbenzene	Naphthalene	Phenanthrene	Tetrachloroethylene	Toluene	Trichloroethylene	Vinyl chloride	Xylenes, total
10	2.10E+07	1.47E+07	1.91E-02	1.47E+00	5.77E-01	9.64E-01	4.01E-04	5.39E+00	2.85E-01	1.45E-02	1.62E-04	1.64E+00	8.24E+00	2.22E+01	8.57E-01	1.62E+00
20	2.30E+07	1.61E+07	2.10E-02	1.61E+00	6.34E-01	1.06E+00	4.41E-04	5.92E+00	3.13E-01	1.60E-02	1.78E-04	1.80E+00	9.06E+00	2.44E+01	9.42E-01	1.78E+00
30	2.57E+07	1.80E+07	2.34E-02	1.80E+00	7.07E-01	1.18E+00	4.91E-04	6.60E+00	3.48E-01	1.78E-02	1.98E-04	2.01E+00	1.01E+01	2.72E+01	1.05E+00	1.99E+00
40	2.82E+07	1.97E+07	2.57E-02	1.97E+00	7.76E-01	1.30E+00	5.40E-04	7.25E+00	3.83E-01	1.95E-02	2.18E-04	2.21E+00	1.11E+01	2.98E+01	1.15E+00	2.18E+00
50	3.06E+07	2.14E+07	2.79E-02	2.14E+00	8.42E-01	1.41E+00	5.86E-04	7.87E+00	4.15E-01	2.12E-02	2.37E-04	2.40E+00	1.20E+01	3.24E+01	1.25E+00	2.37E+00
60	3.29E+07	2.30E+07	3.00E-02	2.30E+00	9.06E-01	1.51E+00	6.30E-04	8.46E+00	4.47E-01	2.28E-02	2.54E-04	2.58E+00	1.29E+01	3.48E+01	1.35E+00	2.55E+00
70	3.51E+07	2.46E+07	3.20E-02	2.46E+00	9.66E-01	1.61E+00	6.72E-04	9.03E+00	4.76E-01	2.43E-02	2.71E-04	2.75E+00	1.38E+01	3.72E+01	1.44E+00	2.72E+00
80	3.72E+07	2.61E+07	3.40E-02	2.60E+00	1.02E+00	1.71E+00	7.12E-04	9.57E+00	5.05E-01	2.58E-02	2.88E-04	2.91E+00	1.46E+01	3.94E+01	1.52E+00	2.88E+00
90	3.91E+07	2.74E+07	3.57E-02	2.74E+00	1.08E+00	1.80E+00	7.49E-04	1.01E+01	5.31E-01	2.71E-02	3.02E-04	3.06E+00	1.54E+01	4.14E+01	1.60E+00	3.03E+00
100	4.12E+07	2.88E+07	3.76E-02	2.88E+00	1.13E+00	1.89E+00	7.88E-04	1.06E+01	5.59E-01	2.85E-02	3.18E-04	3.22E+00	1.62E+01	4.36E+01	1.68E+00	3.19E+00
110	***4.21E+07***	***2.94E+07***	***3.84E-02***	***2.94E+00***	***1.16E+00***	***1.93E+00***	***8.05E-04***	***1.08E+01***	***5.71E-01***	***2.91E-02***	***3.25E-04***	***3.29E+00***	***1.65E+01***	***4.45E+01***	***1.72E+00***	***3.25E+00***
120	4.16E+07	2.91E+07	3.80E-02	2.91E+00	1.15E+00	1.91E+00	7.96E-04	1.07E+01	5.65E-01	2.88E-02	3.22E-04	3.26E+00	1.64E+01	4.40E+01	1.70E+00	3.22E+00
130	4.03E+07	2.82E+07	3.68E-02	2.82E+00	1.11E+00	1.86E+00	7.72E-04	1.04E+01	5.47E-01	2.79E-02	3.12E-04	3.16E+00	1.59E+01	4.27E+01	1.65E+00	3.12E+00
		Emissions (g/m^2-s)	1.30E-09	9.99E-08	3.93E-08	6.57E-08	2.73E-11	3.67E-07	1.94E-08	9.90E-10	1.10E-11	1.12E-07	5.62E-07	1.51E-06	5.84E-08	1.11E-07

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Appendix D
Lead Modeling

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/21/2004
Site Name: Martin Aaron
Operable Unit: Martin Aaron property surface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 396.400 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	552.000	396.400
1-2	552.000	396.400
2-3	552.000	396.400
3-4	552.000	396.400
4-5	552.000	396.400
5-6	552.000	396.400
6-7	552.000	396.400

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.380	0.000	0.344
1-2	0.034	2.434	0.000	0.842
2-3	0.062	2.790	0.000	0.894
3-4	0.067	2.738	0.000	0.930
4-5	0.067	2.743	0.000	1.004
5-6	0.093	2.936	0.000	1.074
6-7	0.093	3.266	0.000	1.101

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	10.236	12.981	6.9
1-2	15.909	19.219	7.9
2-3	16.240	19.986	7.4
3-4	16.575	20.310	7.0
4-5	12.771	16.584	5.9
5-6	11.663	15.767	5.0
6-7	11.097	15.557	4.5

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: MA Subsurface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: MA Subsurface
Run Mode: Site Risk Assessment

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 1918.200 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	2726.000	1918.200
1-2	2726.000	1918.200
2-3	2726.000	1918.200
3-4	2726.000	1918.200
4-5	2726.000	1918.200
5-6	2726.000	1918.200
6-7	2726.000	1918.200

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: MA Subsurface
Run Mode: Site Risk Assessment

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	1.744	0.000	0.252
1-2	0.034	1.712	0.000	0.593
2-3	0.062	2.025	0.000	0.649
3-4	0.067	2.045	0.000	0.695
4-5	0.067	2.213	0.000	0.810
5-6	0.093	2.450	0.000	0.897
6-7	0.093	2.779	0.000	0.937

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	36.704	38.721	19.6
1-2	54.756	57.096	22.6
2-3	57.669	60.405	21.5
3-4	60.561	63.367	21.1
4-5	50.415	53.505	18.2
5-6	47.621	51.061	15.7
6-7	46.201	50.011	14.1

	(ug/day)	(ug/day)	(ug/dL)
.5-1	36.529	39.124	19.8
1-2	54.314	58.007	22.9
2-3	57.212	61.431	21.8
3-4	60.101	64.496	21.4
4-5	49.992	54.933	18.6
5-6	47.214	52.702	16.2
6-7	45.816	51.764	14.6

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: Junk Surface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:
Age Water (L/day)

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: Junk Surface
Run Mode: Site Risk Assessment

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 1014.500 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	1435.000	1014.500
1-2	1435.000	1014.500
2-3	1435.000	1014.500
3-4	1435.000	1014.500
4-5	1435.000	1014.500
5-6	1435.000	1014.500
6-7	1435.000	1014.500

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: Junk Surface
Run Mode: Site Risk Assessment

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.054	0.000	0.297
1-2	0.034	2.053	0.000	0.710
2-3	0.062	2.396	0.000	0.768
3-4	0.067	2.388	0.000	0.811
4-5	0.067	2.491	0.000	0.912
5-6	0.093	2.710	0.000	0.992
6-7	0.093	3.043	0.000	1.026

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	22.802	25.174	13.1
1-2	34.629	37.426	15.1
2-3	35.989	39.214	14.2
3-4	37.315	40.581	13.8
4-5	29.929	33.398	11.6
5-6	27.789	31.584	9.9
6-7	26.686	30.849	8.8

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/21/2004
Site Name: Martin Aaron
Operable Unit: Junkyard subsurface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 357.900 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	497.000	357.900
1-2	497.000	357.900
2-3	497.000	357.900
3-4	497.000	357.900
4-5	497.000	357.900
5-6	497.000	357.900
6-7	497.000	357.900

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.405	0.000	0.348
1-2	0.034	2.464	0.000	0.853
2-3	0.062	2.820	0.000	0.904
3-4	0.067	2.764	0.000	0.939
4-5	0.067	2.761	0.000	1.011
5-6	0.093	2.952	0.000	1.080
6-7	0.093	3.281	0.000	1.106

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	9.325	12.099	6.5
1-2	14.521	17.873	7.3
2-3	14.802	18.588	6.9
3-4	15.087	18.857	6.6
4-5	11.589	15.426	5.5
5-6	10.571	14.696	4.7
6-7	10.051	14.531	4.2

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: Row Homes/Industrial Area Surface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: Row Homes/Industrial Area Surface
Run Mode: Site Risk Assessment

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 324.300 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	449.000	324.300
1-2	449.000	324.300
2-3	449.000	324.300
3-4	449.000	324.300
4-5	449.000	324.300
5-6	449.000	324.300
6-7	449.000	324.300

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: Row Homes/Industrial Area Surface
Run Mode: Site Risk Assessment

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.427	0.000	0.351
1-2	0.034	2.492	0.000	0.862
2-3	0.062	2.848	0.000	0.913
3-4	0.067	2.788	0.000	0.947
4-5	0.067	2.776	0.000	1.016
5-6	0.093	2.965	0.000	1.085
6-7	0.093	3.294	0.000	1.111

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	8.515	11.314	6.1
1-2	13.283	16.671	6.9
2-3	13.521	17.343	6.4
3-4	13.766	17.567	6.1
4-5	10.544	14.404	5.1
5-6	9.608	13.752	4.4
6-7	9.130	13.629	3.9

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/21/2004
Site Name: Martin Aaron
Operable Unit: Row Homes/Industrial Area subsurface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 245.900 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	337.000	245.900
1-2	337.000	245.900
2-3	337.000	245.900
3-4	337.000	245.900
4-5	337.000	245.900
5-6	337.000	245.900
6-7	337.000	245.900

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.482	0.000	0.359
1-2	0.034	2.559	0.000	0.885
2-3	0.062	2.914	0.000	0.934
3-4	0.067	2.845	0.000	0.967
4-5	0.067	2.814	0.000	1.030
5-6	0.093	2.998	0.000	1.097
6-7	0.093	3.326	0.000	1.121

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	6.566	9.428	5.1
1-2	10.287	13.765	5.7
2-3	10.436	14.346	5.3
3-4	10.595	14.473	5.1
4-5	8.061	11.973	4.2
5-6	7.327	11.516	3.6
6-7	6.953	11.494	3.3

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/21/2004
Site Name: Martin Aaron
Operable Unit: SJPC surface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)
.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 359.300 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	499.000	359.300
1-2	499.000	359.300
2-3	499.000	359.300
3-4	499.000	359.300
4-5	499.000	359.300
5-6	499.000	359.300
6-7	499.000	359.300

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.404	0.000	0.348
1-2	0.034	2.463	0.000	0.852
2-3	0.062	2.819	0.000	0.904
3-4	0.067	2.763	0.000	0.939
4-5	0.067	2.760	0.000	1.010
5-6	0.093	2.951	0.000	1.080
6-7	0.093	3.280	0.000	1.106

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	9.358	12.131	6.5
1-2	14.572	17.922	7.4
2-3	14.855	18.639	6.9
3-4	15.142	18.911	6.6
4-5	11.632	15.469	5.5
5-6	10.611	14.735	4.7
6-7	10.089	14.569	4.2

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/21/2004
Site Name: Martin Aaron
Operable Unit: SJPC subsurface
Run Mode: Site Risk Assessment

Soil/Dust Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/21/2004
Site Name: Martin Aaron
Operable Unit: SJPC subsurface
Run Mode: Site Risk Assessment

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 4.000 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 397.100 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	553.000	397.100
1-2	553.000	397.100
2-3	553.000	397.100
3-4	553.000	397.100
4-5	553.000	397.100
5-6	553.000	397.100
6-7	553.000	397.100

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/21/2004
Site Name: Martin Aaron
Operable Unit: SJPC subsurface
Run Mode: Site Risk Assessment

Maternal Blood Concentration: 2.500 ug Pb/dL

****
CALCULATED BLOOD LEAD AND LEAD UPTAKES:
****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.379	0.000	0.344
1-2	0.034	2.433	0.000	0.842
2-3	0.062	2.789	0.000	0.894
3-4	0.067	2.737	0.000	0.930
4-5	0.067	2.742	0.000	1.004
5-6	0.093	2.936	0.000	1.074
6-7	0.093	3.265	0.000	1.101

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	10.252	12.996	6.9
1-2	15.934	19.243	7.9
2-3	16.266	20.012	7.4
3-4	16.602	20.336	7.1
4-5	12.792	16.605	5.9
5-6	11.683	15.786	5.0
6-7	11.116	15.575	4.5

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: South Jersey Port Corporation Area Subsurface
Run Mode: Site Risk Assessment

Water Data

Run the Model

==========

The time step used in this model run: 3 - Hourly (24 times a day).

****** Air ******

Indoor Air Pb Concentration: 30.000 percent of outdoor.
Other Air Parameters:

Age	Time Outdoors (hours)	Ventilation Rate (m^3/day)	Lung Absorption (%)	Outdoor Air Pb Conc (ug Pb/m^3)
.5-1	1.000	2.000	32.000	0.100
1-2	2.000	3.000	32.000	0.100
2-3	3.000	5.000	32.000	0.100
3-4	4.000	5.000	32.000	0.100
4-5	4.000	5.000	32.000	0.100
5-6	4.000	7.000	32.000	0.100
6-7	4.000	7.000	32.000	0.100

****** Diet ******

Age	Diet Intake(ug/day)
.5-1	5.530
1-2	5.780
2-3	6.490
3-4	6.240
4-5	6.010
5-6	6.340
6-7	7.000

****** Drinking Water ******

Water Consumption:

Age	Water (L/day)

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: South Jersey Port Corporation Area Subsurface
Run Mode: Site Risk Assessment

.5-1	0.200
1-2	0.500
2-3	0.520
3-4	0.530
4-5	0.550
5-6	0.580
6-7	0.590

Drinking Water Concentration: 13.340 ug Pb/L

****** Soil & Dust ******

Multiple Source Analysis Used
Average multiple source concentration: 150.000 ug/g

Mass fraction of outdoor soil to indoor dust conversion factor: 0.700
Outdoor airborne lead to indoor household dust lead concentration: 100.000
Use alternate indoor dust Pb sources? No

Age	Soil (ug Pb/g)	House Dust (ug Pb/g)
.5-1	200.000	150.000
1-2	200.000	150.000
2-3	200.000	150.000
3-4	200.000	150.000
4-5	200.000	150.000
5-6	200.000	150.000
6-7	200.000	150.000

****** Alternate Intake ******

Age	Alternate (ug Pb/day)
.5-1	0.000
1-2	0.000
2-3	0.000
3-4	0.000
4-5	0.000
5-6	0.000
6-7	0.000

****** Maternal Contribution: Infant Model ******

LEAD MODEL FOR WINDOWS Version 1.0

==========

Model Version: 1.0 Build 259
User Name: Craig Klein
Date: 4/12/2004
Site Name: Martin Aaron
Operable Unit: South Jersey Port Corporation Area Subsurface
Run Mode: Site Risk Assessment

Maternal Blood Concentration: 2.500 ug Pb/dL

****

CALCULATED BLOOD LEAD AND LEAD UPTAKES:

****

Year	Air (ug/dL)	Diet (ug/day)	Alternate (ug/day)	Water (ug/day)
.5-1	0.021	2.529	0.000	1.220
1-2	0.034	2.602	0.000	3.002
2-3	0.062	2.955	0.000	3.159
3-4	0.067	2.879	0.000	3.262
4-5	0.067	2.826	0.000	3.451
5-6	0.093	3.003	0.000	3.665
6-7	0.093	3.328	0.000	3.742

Year	Soil+Dust (ug/day)	Total (ug/day)	Blood (ug/dL)
.5-1	4.024	7.795	4.2
1-2	6.289	11.927	4.9
2-3	6.362	12.538	4.6
3-4	6.446	12.653	4.4
4-5	4.868	11.211	3.9
5-6	4.413	11.175	3.5
6-7	4.183	11.347	3.2

Calculations of Preliminary Remediation Goals (PRGs)

Surface Soil at Martin Aaron property

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	552	552	552	552
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**2.3**	**2.5**	**2.3**	**2.5**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**7.0**	**8.8**	**7.0**	**8.8**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**1.7%**	**3.6%**	**1.7%**	**3.6%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301621

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Subsurface Soil at Martin Aaron property

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1 GSDi = Hom	Using Equation 1 GSDi = Het	Using Equation 2 GSDi = Hom	Using Equation 2 GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	2726	2726	2726	2726
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**5.4**	**5.6**	**5.4**	**5.6**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**16.5**	**19.9**	**16.5**	**19.9**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**16.7%**	**20.7%**	**16.7%**	**20.7%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301622

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Surface Soil at Junkyard

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	1435	1435	1435	1435
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**3.6**	**3.8**	**3.6**	**3.8**
$PbB_{fetal,0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**10.9**	**13.3**	**10.9**	**13.3**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**6.3%**	**9.7%**	**6.3%**	**9.7%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

Equation 1, based on Eq. 1, 2 in USEPA (1996).

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301623

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Subsurface Soil at Junkyard

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1 GSDi = Hom	Using Equation 1 GSDi = Het	Using Equation 2 GSDi = Hom	Using Equation 2 GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	497	497	497	497
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**2.2**	**2.4**	**2.2**	**2.4**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**6.8**	**8.6**	**6.8**	**8.6**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**1.5%**	**3.3%**	**1.5%**	**3.3%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301624

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Surface Soil at Row Homes/Industrial Area

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	449	449	449	449
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**2.1**	**2.3**	**2.1**	**2.3**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**6.5**	**8.3**	**6.5**	**8.3**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**1.3%**	**3.1%**	**1.3%**	**3.1%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301625

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Subsurface Soil at Row Homes/Industrial Area

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	337	337	337	337
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**2.0**	**2.2**	**2.0**	**2.2**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**6.1**	**7.7**	**6.1**	**7.7**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**1.0%**	**2.5%**	**1.0%**	**2.5%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301626

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Surface Soil at South Jersey Port

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	449	449	449	449
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**2.1**	**2.3**	**2.1**	**2.3**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**6.5**	**8.3**	**6.5**	**8.3**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**1.3%**	**3.1%**	**1.3%**	**3.1%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301627

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Subsurface Soil at South Jersey Port

Calculations of Blood Lead Concentrations (PbBs)

U.S. EPA Technical Review Workgroup for Lead, Adult Lead Committee

Version date 05/19/03

Exposure Variable	PbB Equation[1] 1*	PbB Equation[1] 2**	Description of Exposure Variable	Units	Values for Non-Residential Exposure Scenario: Using Equation 1, GSDi = Hom	Using Equation 1, GSDi = Het	Using Equation 2, GSDi = Hom	Using Equation 2, GSDi = Het
PbS	X	X	Soil lead concentration	ug/g or ppm	553	553	553	553
$R_{fetal/maternal}$	X	X	Fetal/maternal PbB ratio	--	0.9	0.9	0.9	0.9
BKSF	X	X	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4	0.4
GSD_i	X	X	Geometric standard deviation PbB	--	2.1	2.3	2.1	2.3
PbB_0	X	X	Baseline PbB	ug/dL	1.5	1.7	1.5	1.7
IR_S	X		Soil ingestion rate (including soil-derived indoor dust)	g/day	0.050	0.050	--	--
IR_{S+D}		X	Total ingestion rate of outdoor soil and indoor dust	g/day	--	--	0.050	0.050
W_S		X	Weighting factor; fraction of IR_{S+D} ingested as outdoor soil	--	--	--	1.0	1.0
K_{SD}		X	Mass fraction of soil in dust	--	--	--	0.7	0.7
$AF_{S,D}$	X	X	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12	0.12
$EF_{S,D}$	X	X	Exposure frequency (same for soil and dust)	days/yr	219	219	219	219
$AT_{S,D}$	X	X	Averaging time (same for soil and dust)	days/yr	365	365	365	365
PbB_{adult}	**PbB of adult worker, geometric mean**			**ug/dL**	**2.3**	**2.5**	**2.3**	**2.5**
$PbB_{fetal,\ 0.95}$	**95th percentile PbB among fetuses of adult workers**			**ug/dL**	**7.0**	**8.8**	**7.0**	**8.8**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**			**ug/dL**	**10.0**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**			**%**	**1.7%**	**3.7%**	**1.7%**	**3.7%**

[1] Equation 1 does not apportion exposure between soil and dust ingestion (excludes W_S, K_{SD}).
When $IR_S = IR_{S+D}$ and $W_S = 1.0$, the equations yield the same $PbB_{fetal,0.95}$.

***Equation 1, based on Eq. 1, 2 in USEPA (1996).**

PbB_{adult} =	$(PbS*BKSF*IR_{S+D}*AF_{S,D}*EF_S/AT_{S,D}) + PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

****Equation 2, alternate approach based on Eq. 1, 2, and A-19 in USEPA (1996).**

PbB_{adult} =	$PbS*BKSF*([(IR_{S+D})*AF_S*EF_S*W_S]+[K_{SD}*(IR_{S+D})*(1-W_S)*AF_D*EF_D])/365+PbB_0$
$PbB_{fetal,\ 0.95}$ =	$PbB_{adult} * (GSD_i^{1.645} * R)$

301628

Source: U.S. EPA (1996). Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil

Appendix E
ProUCL Calculations

Martin Aaron Property - Surface Soil

From File P:\US Environmental Protection Agency\164453MartinAaron\HHRA\Backup Tables\surf_MA ProUCL_rev.xls

Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	24	2460	12200	5475.625	5115	2260.968	0.412915	1.171822	5111977
Antimony	24	0.385	7.6	2.226771	1.95	1.950882	0.876104	1.460024	3.805942
Arsenic	24	2.1	766	108.6333	38.05	176.32	1.623075	2.787845	31088.76
Barium	24	18.5	34350	6032.521	2360	8889.287	1.473561	2.035266	79019429
Cadmium	24	0.0415	110	8.146938	2.05	22.65936	2.781334	4.348589	513.4465
Chromium	24	9.8	1080	137.9729	41.95	235.1528	1.70434	3.169736	55296.82
Copper	24	4	1400	203.9229	70.175	318.1631	1.560212	2.701896	101227.7
Iron	24	7880	103000	28797.92	18650	26522.67	0.920993	1.921778	7.03E+08
Lead	24	8.3	3310	552.2208	395	686.6527	1.243439	3.096762	471491.9
Manganese	24	21.3	744	281.6458	222	204.1411	0.724815	0.846097	41673.61
Mercury	22	0.03	1.83	0.720409	0.61	0.519303	0.720845	0.712003	0.269676
Nickel	24	1.5	576	44.77083	15.25	115.6741	2.583694	4.580736	13380.51
Silver	24	0.105	45.7	2.831354	0.2325	9.488505	3.351225	4.412186	90.03174
Zinc	24	9.9	6085	785.0667	431.5	1246.015	1.587146	3.672381	1552554
Aldrin	23	0.0009	1.3	0.065326	0.00105	0.270417	4.139492	4.726248	0.073125
Chlordane - alpha	23	0.0009	8.1	0.499848	0.034	1.687833	3.376694	4.531988	2.848781
Chlordane - gamma (t	23	0.0009	8.9	0.559726	0.021	1.859643	3.322417	4.477902	3.458274
DDE-4,4'	22	0.00175	15	0.830881	0.049	3.172913	3.818734	4.651246	10.06737
DDT-4,4'	19	0.00175	2.6	0.193701	0.0185	0.605869	3.127851	3.90608	0.367077
Dieldrin	22	0.00175	0.97	0.063969	0.00395	0.208362	3.257219	4.311537	0.043415
Heptachlor	23	0.0009	0.26	0.019552	0.00105	0.057965	2.964645	3.785027	0.00336
Pcb-araclor 1248	23	0.0175	0.43025	0.076304	0.0205	0.118077	1.547447	2.418817	0.013942
Pcb-araclor 1254	23	0.0175	19	1.522402	0.0345	4.421263	2.904136	3.408748	19.54757
Pcb-araclor 1260	24	0.0175	7.2	0.359229	0.0275	1.459679	4.063366	4.871113	2.130664
Acetophenone	24	0.011	5.5	1.212521	0.2775	1.560255	1.286786	1.654819	2.434395
Benzo(a)anthracene	24	0.028	120	8.810542	1.2	24.42443	2.772182	4.457874	596.5527
Benzo(a)pyrene	24	0.04	110	8.299979	1.2	22.36816	2.694965	4.438869	500.3345
Benzo(b)fluoranthene	24	0.065	110	9.286	1.5	22.54946	2.428329	4.211287	508.4783
Benzo(k)fluoranthene	24	0.023	71	5.197208	1.09	14.36883	2.76472	4.535531	206.4631
Chrysene	24	0.038	120	9.025875	1.5	24.3856	2.701744	4.450291	594.6576
Dibenzo(a,h)anthracer	24	0.012	19	1.655917	0.25	3.919987	2.367261	4.116892	15.3663
Fluoranthene	24	0.043	290	19.35754	2.8	58.8566	3.0405	4.595775	3464.099
Indeno(1,2,3-cd)pyren	24	0.035	59	4.815167	0.81	12.01458	2.495153	4.331455	144.3501
Naphthalene	24	0.017	34	3.227229	0.335	7.71015	2.389093	3.335673	59.44641
Phthalate, bis(2-ethylh	24	0.082	59	5.642271	1.0775	13.40617	2.376024	3.448495	179.7254
Benzene	24	0.001	7	0.498802	0.0055	1.659718	3.327407	3.489462	2.754663
Chloroform	24	0.005	7	0.383406	0.0065	1.442459	3.76222	4.577004	2.080687
Dichloroethylene-1,2 c	24	0.002	24	1.17799	0.007375	4.905709	4.164476	4.765485	24.06599
Tetrachloroethylene	24	0.002	26	1.302646	0.008	5.317814	4.082317	4.741572	28.27914
Toluene	24	0.002	160	7.239583	0.00775	32.59192	4.501905	4.873055	1062.233
Trichloroethylene	24	0.002	60	2.867198	0.0065	12.27514	4.281232	4.772757	150.6791
Vinyl chloride	24	0.005	7	0.339615	0.007375	1.425837	4.198398	4.822485	2.033011
Xylenes, total	24	0.001	48	4.00024	0.007125	12.46953	3.117196	3.193896	155.4892

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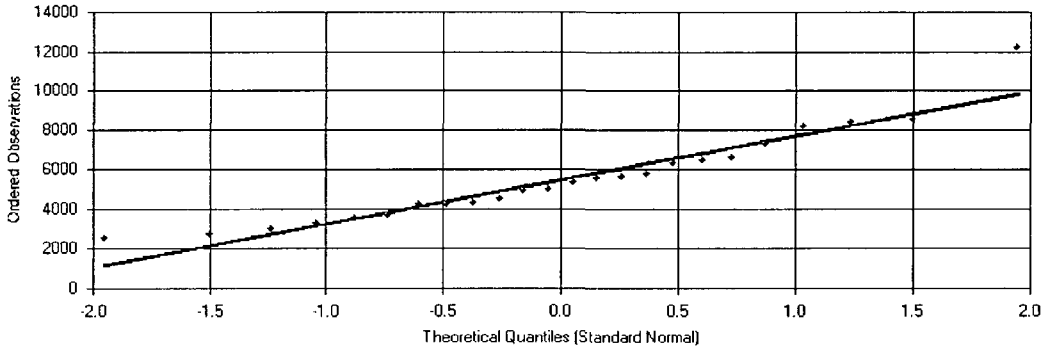
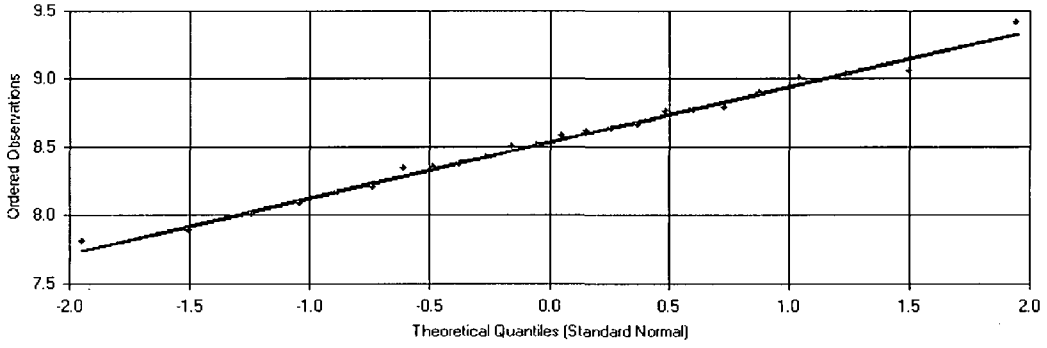
Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	24	7.807917	9.409191	8.531926	8.539347	0.397259	0.046562	0.099869	0.157815
Antimony	24	-0.95451	2.028148	0.384615	0.664862	1.00132	2.603431	-0.22293	1.002641
Arsenic	24	0.741937	6.641182	3.714459	3.637842	1.463595	0.394027	0.127735	2.142111
Barium	24	2.917771	10.44436	7.377912	7.765842	2.066316	0.280068	-0.61025	4.26966
Cadmium	24	-3.18206	4.70048	0.639684	0.717542	1.697831	2.654173	-0.18729	2.882631
Chromium	24	2.282382	6.984716	4.025144	3.694899	1.309311	0.325283	0.619775	1.714296
Copper	24	1.386294	7.244228	4.368589	4.248266	1.488531	0.340735	-0.11414	2.215726
Iron	24	8.972083	11.54248	9.984754	9.833569	0.709015	0.07101	0.958656	0.502702
Lead	24	2.116256	8.104703	5.632165	5.978164	1.449558	0.257371	-1.16754	2.101218
Manganese	24	3.058707	6.612041	5.30932	5.401855	0.946945	0.178355	-0.91562	0.896705
Mercury	22	-3.50656	0.604316	-0.74132	-0.4943	1.160672	-1.56569	-1.38965	1.34716
Nickel	24	0.405465	6.356108	2.785281	2.724531	1.235179	0.443467	0.726145	1.525667
Silver	24	-2.25379	3.822098	-0.97085	-1.57913	1.608134	-1.65643	1.593672	2.586094
Zinc	24	2.292535	8.713582	5.881985	6.066971	1.427742	0.242731	-0.81896	2.038447
Aldrin	23	-7.01312	0.262364	-5.87784	-6.85897	1.862082	-0.3168	2.247886	3.467348
Chlordane - alpha	23	-7.01312	2.091864	-3.76737	-3.38139	2.734578	-0.72586	0.300825	7.477919
Chlordane - gamma (t	23	-7.01312	2.186051	-3.67733	-3.86323	2.636711	-0.71702	0.502233	6.952246
DDE-4,4'	22	-6.34814	2.70805	-3.22151	-3.0974	2.52832	-0.78482	0.422537	6.392405
DDT-4,4'	19	-6.34814	0.955511	-4.28868	-3.98998	2.119653	-0.49424	1.081021	4.492927
Dieldrin	22	-6.34814	-0.03046	-4.93024	-5.53476	1.746085	-0.35416	1.529567	3.048813
Heptachlor	23	-7.01312	-1.34707	-5.91674	-6.85897	1.624183	-0.27451	1.733747	2.637969
Pcb-araclor 1248	23	-4.04555	-0.84339	-3.2534	-3.88733	1.031119	-0.31694	1.400119	1.063207
Pcb-araclor 1254	23	-4.04555	2.944439	-2.57322	-3.3668	2.118849	-0.82342	1.729005	4.489523
Pcb-araclor 1260	24	-4.04555	1.974081	-3.09218	-3.62706	1.398708	-0.45234	2.400735	1.956384
Acetophenone	24	-4.50986	1.704748	-0.74146	-1.31728	1.566204	-2.11233	-0.32719	2.452996
Benzo(a)anthracene	24	-3.57555	4.787492	0.178877	0.168236	2.17867	12.1797	0.112982	4.746604
Benzo(a)pyrene	24	-3.21888	4.70048	0.195851	0.182322	2.14555	10.955	0.099372	4.603386
Benzo(b)fluoranthene	24	-2.73337	4.70048	0.459234	0.405465	2.078249	4.525472	0.100413	4.319118
Benzo(k)fluoranthene	24	-3.77226	4.26268	-0.14825	0.067265	2.034794	-13.7257	0.051983	4.140388
Chrysene	24	-3.27017	4.787492	0.30595	0.368582	2.110634	6.898635	0.12747	4.454776
Dibenzo(a,h)anthracer	24	-4.42285	2.944439	-0.90481	-1.39926	1.686243	-1.86364	0.293855	2.843417
Fluoranthene	24	-3.14656	5.669881	0.751815	1.006116	2.285656	3.040183	0.120329	5.224222
Indeno(1,2,3-cd)pyren	24	-3.35241	4.077537	-0.10119	-0.2108	1.969396	-19.4618	0.125807	3.878521
Naphthalene	24	-4.07454	3.526361	-0.56616	-1.11281	1.783982	-3.15104	0.72561	3.18259
Phthalate, bis(2-ethylh	24	-2.50104	4.077537	0.104741	0.074318	1.813956	17.31852	0.454638	3.290436
Benzene	24	-6.90776	1.94591	-4.52243	-5.20301	2.272185	-0.50243	1.984833	5.162825
Dichloroethylene-1,2 c	24	-6.21461	3.178054	-4.06577	-4.9098	2.294859	-0.56443	2.203987	5.266377
Tetrachloroethylene	24	-6.21461	3.258097	-3.84824	-4.82831	2.350384	-0.61077	1.891357	5.524307
Trichloroethylene	24	-6.21461	4.094345	-4.08895	-5.03595	2.507121	-0.61314	2.413229	6.285656
Vinyl chloride	24	-5.29832	1.94591	-4.27473	-4.9098	1.819355	-0.42561	2.51074	3.310053
Xylenes, total	24	-6.90776	3.871201	-3.64817	-4.94801	2.891654	-0.79263	1.822307	8.361661

Normal Q-Q Plot for Aluminum



N = 24, Mean = 5475.6250, Stdv = 2260.9681
Slope = 2235.5540, Intercept = 5475.6250, Correlation, R = 0.95704177
Shapiro-Wilk Statistic = 0.922, Critical Value(0.05) = 0.916, Data are Normal

Lognormal Q-Q Plot for Aluminum



N = 24, Mean = 8.5319, Stdv = 0.3973
Slope = 0.4084, Intercept = 8.5319, Correlation, R = 0.99495423
Shapiro-Wilk Statistic = 0.987, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Aluminum
Number of Samples	24
Minimum	2460
Maximum	12200
Mean	5475.625
Median	5115
Standard Deviation	2260.968
Variance	5111977
Coefficient of Variation	0.412915
Skewness	1.171822

95 % UCL (Assuming Normal Data)	
Student's-t	6266.608

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6352.712
Modified-t	6285.007

95 % Non-parametric UCL	
CLT	6234.755
Jackknife	6266.608
Standard Bootstrap	6228.402
Bootstrap-t	6401.713
Chebyshev (Mean, Std)	7487.336

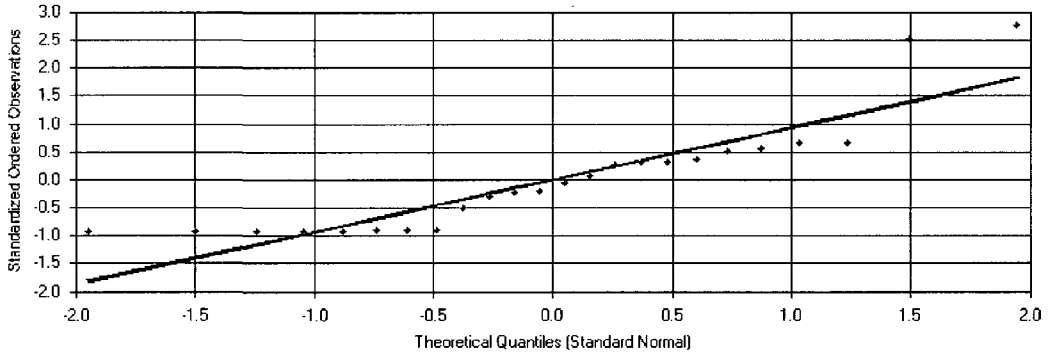
Summary Statistics for	ln(Aluminum)
Minimum	7.807917
Maximum	9.409191
Mean	8.531926
Standard Deviation	0.397259
Variance	0.157815
Shapiro-Wilk Test Statisitic	0.987484
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5490.821
MLE Standard Deviation	2270.237
MLE Coefficient of Variation	0.41346
MLE Skewness	1.311062
MLE Median	5074.208
MLE 80% Quantile	7098.294
MLE 90% Quantile	8454.075
MLE 95% Quantile	9753.849
MLE 99% Quantile	12784.02
MVU Estimate of Median	5057.55
MVU Estimate of Mean	5471.556
MVU Estimate of Std. Dev.	2233.285
MVU Estimate of SE of Mean	455.2529

UCL Assuming Lognormal Distribution	
95% H-UCL	6420.465
95% Chebyshev (MVUE) UCL	7455.957
99% Chebyshev (MVUE) UCL	10001.27

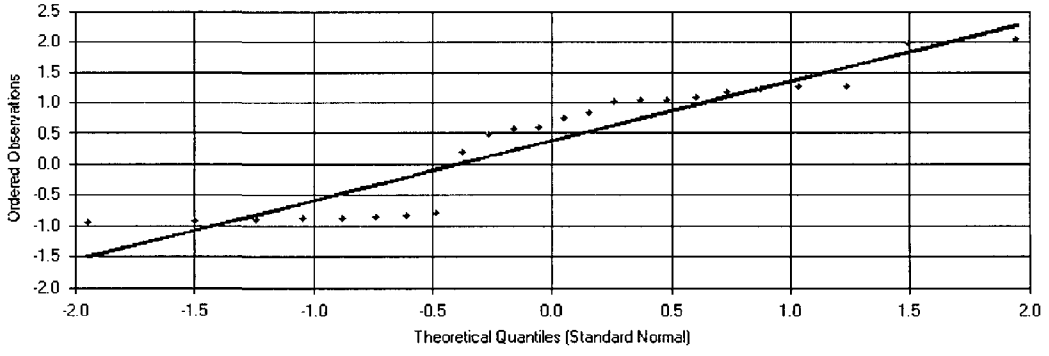
Recommended UCL to use:
Student's-t or H-UCL

Normal Q-Q Plot for Antimony



N = 24, Mean = 2.2268, Stdv = 1.9509
Slope = 0.9352, Intercept = 0.0000, Correlation, R = 0.90522831
Shapiro-Wilk Statistic = 0.818, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Antimony



N = 24, Mean = 0.3846, Stdv = 1.0013
Slope = 0.9705, Intercept = 0.3846, Correlation, R = 0.93815358
Shapiro-Wilk Statistic = 0.863, Critical Value(0.05) = 0.916, Data not Lognormal

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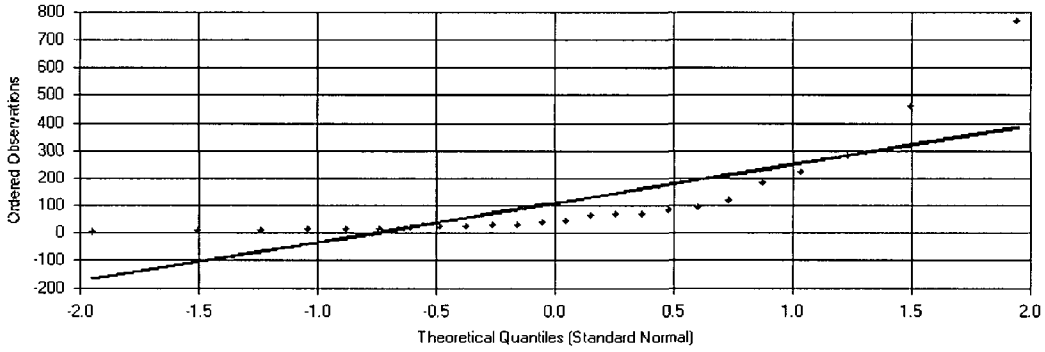
Summary Statistics for	Antimony
Number of Samples	24
Minimum	0.385
Maximum	7.6
Mean	2.226771
Median	1.95
Standard Deviation	1.950882
Variance	3.805942
Coefficient of Variation	0.876104
Skewness	1.460024
95 % UCL (Assuming Normal Data)	
Student's-t	2.909272
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.0086
Modified-t	2.929052
95 % Non-parametric UCL	
CLT	2.881788
Jackknife	2.909272
Standard Bootstrap	2.871605
Bootstrap-t	3.046133
Chebyshev (Mean, Std)	3.962581
97.5 % Non-parametric UCL	
CLT	3.007272
Jackknife	3.050556
Standard Bootstrap	2.966193
Bootstrap-t	3.370249
Chebyshev (Mean, Std)	4.713668

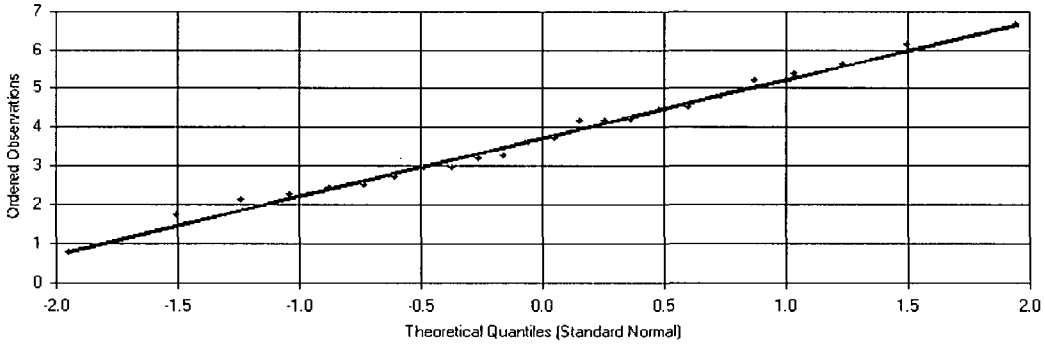
Summary Statistics for	ln(Antimony)
Minimum	-0.954512
Maximum	2.028148
Mean	0.384615
Standard Deviation	1.00132
Variance	1.002641
Shapiro-Wilk Test Statisitic	0.862764
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	2.425253
MLE Standard Deviation	3.185744
MLE Coefficient of Variation	1.313572
MLE Skewness	6.207243
MLE Median	1.469049
MLE 80% Quantile	3.42373
MLE 90% Quantile	5.319138
MLE 95% Quantile	7.627699
MLE 99% Quantile	15.08476
MVU Estimate of Median	1.438656
MVU Estimate of Mean	2.354262
MVU Estimate of Std. Dev.	2.786678
MVU Estimate of SE of Mean	0.545501
UCL Assuming Lognormal Distribution	
95% H-UCL	4.107432
95% Chebyshev (MVUE) UCL	4.732047
99% Chebyshev (MVUE) UCL	7.781932

Normal Q-Q Plot for Arsenic



N = 24, Mean = 108.6333, Stdv = 176.3200
Slope = 141.3459, Intercept = 108.6333, Correlation, R = 0.77592854
Shapiro-Wilk Statistic = 0.619, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Arsenic



N = 24, Mean = 3.7145, Stdv = 1.4636
Slope = 1.5052, Intercept = 3.7145, Correlation, R = 0.99541926
Shapiro-Wilk Statistic = 0.988, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Arsenic
Number of Samples	24
Minimum	2.1
Maximum	766
Mean	108.6333
Median	38.05
Standard Deviation	176.32
Variance	31088.76
Coefficient of Variation	1.623075
Skewness	2.787845

95 % UCL (Assuming Normal Data)	
Student's-t	170.3176

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	189.7182
Modified-t	173.7311

95 % Non-parametric UCL	
CLT	167.8336
Jackknife	170.3176
Standard Bootstrap	167.1956
Bootstrap-t	240.9935
Chebyshev (Mean, Std)	265.5152

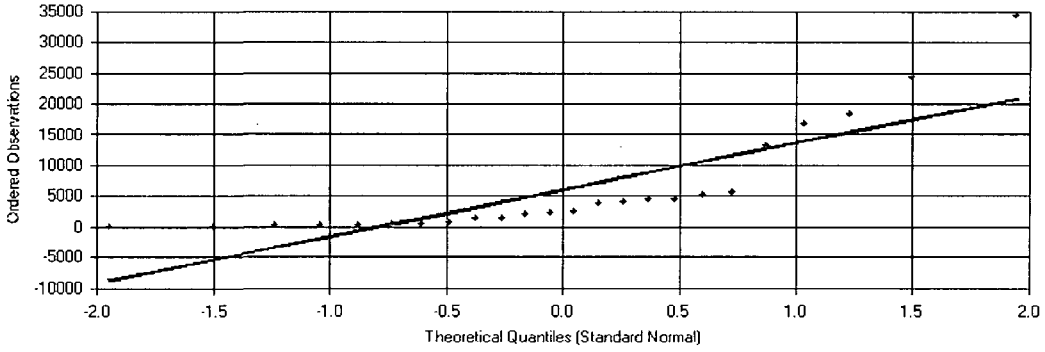
Summary Statistics for	ln(Arsenic)
Minimum	0.741937
Maximum	6.641182
Mean	3.714459
Standard Deviation	1.463595
Variance	2.142111
Shapiro-Wilk Test Statisitic	0.988344
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	119.763
MLE Standard Deviation	328.3647
MLE Coefficient of Variation	2.741788
MLE Skewness	28.83648
MLE Median	41.03638
MLE 80% Quantile	141.344
MLE 90% Quantile	269.1258
MLE 95% Quantile	455.8087
MLE 99% Quantile	1234.945
MVU Estimate of Median	39.24216
MVU Estimate of Mean	110.2243
MVU Estimate of Std. Dev.	227.7581
MVU Estimate of SE of Mean	40.21104

UCL Assuming Lognormal Distribution	
95% H-UCL	316.5268
95% Chebyshev (MVUE) UCL	285.5002
99% Chebyshev (MVUE) UCL	510.3191

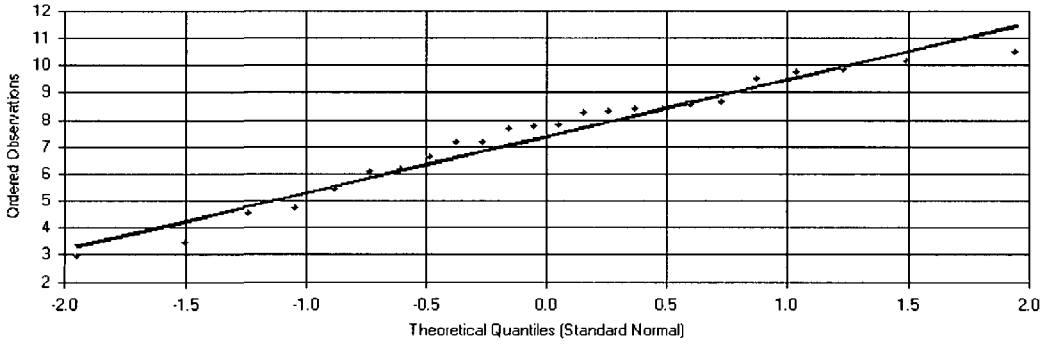
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Barium



N = 24, Mean = 6032.5208, Stdv = 8889.2873
Slope = 7626.5186, Intercept = 6032.5208, Correlation, R = 0.83042335
Shapiro-Wilk Statistic = 0.696, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Barium



N = 24, Mean = 7.3779, Stdv = 2.0663
Slope = 2.0898, Intercept = 7.3779, Correlation, R = 0.97892633
Shapiro-Wilk Statistic = 0.950, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Barium
Number of Samples	24
Minimum	18.5
Maximum	37900
Mean	6612.938
Median	2360
Standard Deviation	10294.67
Variance	1.06E+08
Coefficient of Variation	1.556746
Skewness	2.173836

95 % UCL (Assuming Normal Data)	
Student's-t	10214.45

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	11065.76
Modified-t	10369.86

95 % Non-parametric UCL	
CLT	10069.42
Jackknife	10214.45
Standard Bootstrap	10026.34
Bootstrap-t	13201.25
Chebyshev (Mean, Std)	15772.68

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	27521.5

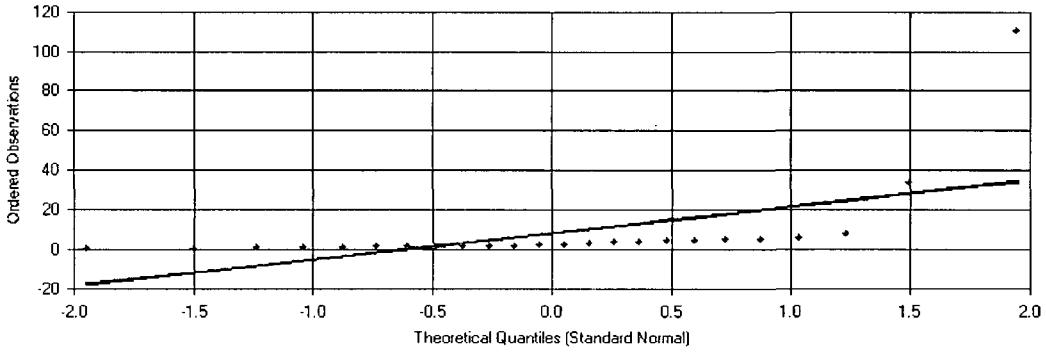
Summary Statistics for	ln(Barium)
Minimum	2.917771
Maximum	10.54271
Mean	7.405683
Standard Deviation	2.09761
Variance	4.399967
Shapiro-Wilk Test Statisitic	0.954635
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	14848.68
MLE Standard Deviation	133182.2
MLE Coefficient of Variation	8.969291
MLE Skewness	748.4711
MLE Median	1645.308
MLE 80% Quantile	9683.351
MLE 90% Quantile	24370.08
MLE 95% Quantile	51857.31
MLE 99% Quantile	216365.3
MVU Estimate of Median	1500.686
MVU Estimate of Mean	11677.27
MVU Estimate of Std. Dev.	47480.75
MVU Estimate of SE of Mean	6451.54

UCL Assuming Lognormal Distribution	
95% H-UCL	93380.44
95% Chebyshev (MVUE) UCL	39798.88
99% Chebyshev (MVUE) UCL	75869.28

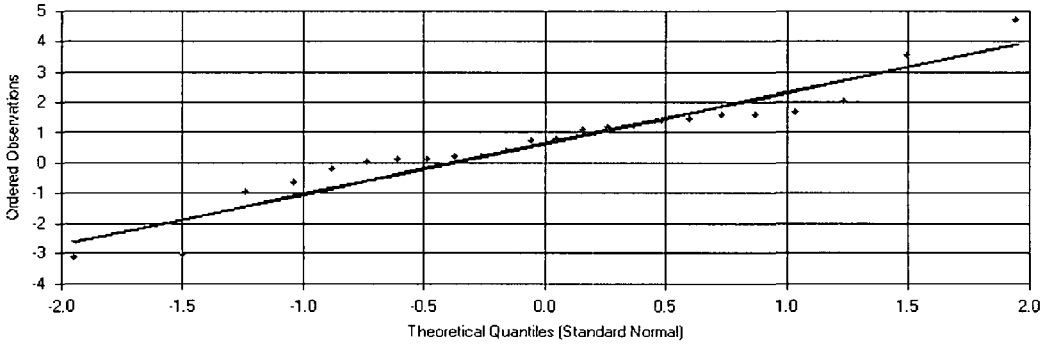
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Cadmium



N = 24, Mean = 8.1469, Stdv = 22.6594
Slope = 13.3698, Intercept = 8.1469, Correlation, R = 0.57110638
Shapiro-Wilk Statistic = 0.354, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Cadmium



N = 24, Mean = 0.6397, Stdv = 1.6978
Slope = 1.6789, Intercept = 0.6397, Correlation, R = 0.95715686
Shapiro-Wilk Statistic = 0.928, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Cadmium
Number of Samples	24
Minimum	0.0415
Maximum	110
Mean	8.146938
Median	2.05
Standard Deviation	22.65936
Variance	513.4465
Coefficient of Variation	2.781334
Skewness	4.348589

95 % UCL (Assuming Normal Data)	
Student's-t	16.07414

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	20.14189
Modified-t	16.75842

95 % Non-parametric UCL	
CLT	15.75491
Jackknife	16.07414
Standard Bootstrap	15.48947
Bootstrap-t	79.6671
Chebyshev (Mean, Std)	28.30825

Summary Statistics for	ln(Cadmium)
Minimum	-3.182062
Maximum	4.70048
Mean	0.639684
Standard Deviation	1.697831
Variance	2.882631
Shapiro-Wilk Test Statisitic	0.928482
Shapiro-Wilk 5% Critical Value	0.916

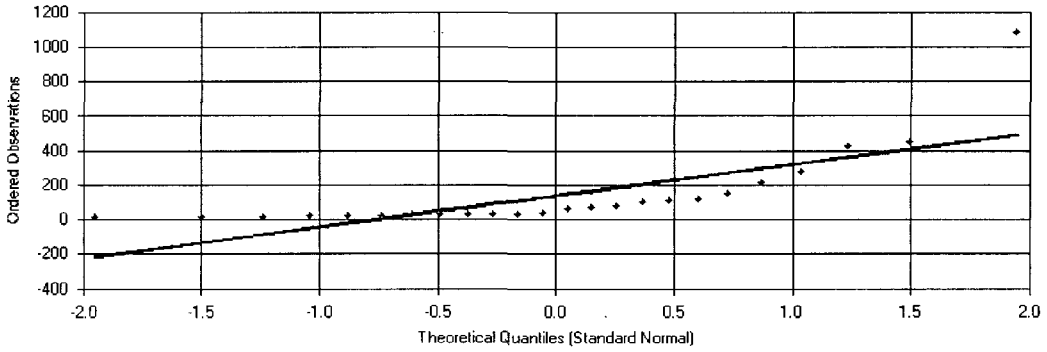
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	8.012471
MLE Standard Deviation	32.90112
MLE Coefficient of Variation	4.106239
MLE Skewness	81.55484
MLE Median	1.895881
MLE 80% Quantile	7.95938
MLE 90% Quantile	16.8003
MLE 95% Quantile	30.95753
MLE 99% Quantile	98.38016
MVU Estimate of Median	1.785117
MVU Estimate of Mean	7.053134
MVU Estimate of Std. Dev.	18.85022
MVU Estimate of SE of Mean	3.068357

UCL Assuming Lognormal Distribution	
95% H-UCL	28.16262
95% Chebyshev (MVUE) UCL	20.42779
99% Chebyshev (MVUE) UCL	37.5829

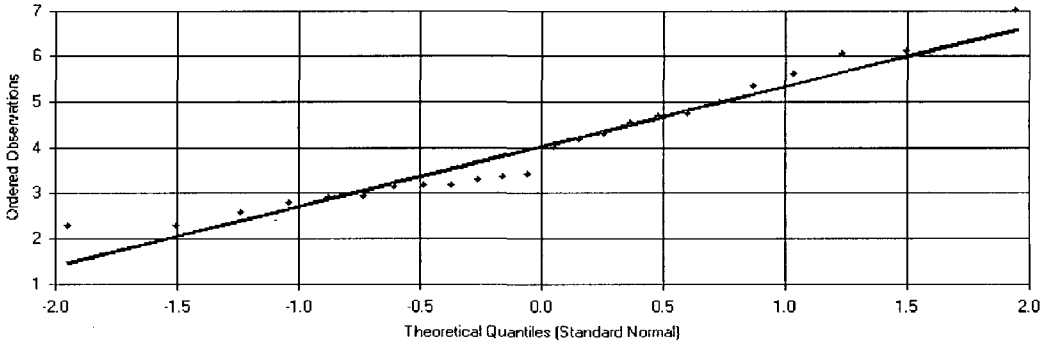
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Chromium



N = 24, Mean = 137.9729, Stdv = 235.1528
Slope = 180.9689, Intercept = 137.9729, Correlation, R = 0.74489342
Shapiro-Wilk Statistic = 0.576, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Chromium



N = 24, Mean = 4.0251, Stdv = 1.3093
Slope = 1.3160, Intercept = 4.0251, Correlation, R = 0.97286984
Shapiro-Wilk Statistic = 0.937, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Chromium
Number of Samples	24
Minimum	9.8
Maximum	1080
Mean	137.9729
Median	41.95
Standard Deviation	235.1528
Variance	55296.82
Coefficient of Variation	1.70434
Skewness	3.169736

95 % UCL (Assuming Normal Data)	
Student's-t	220.2393

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	250.1115
Modified-t	225.4155

95 % Non-parametric UCL	
CLT	216.9265
Jackknife	220.2393
Standard Bootstrap	214.5102
Bootstrap-t	308.85
Chebyshev (Mean, Std)	347.2016

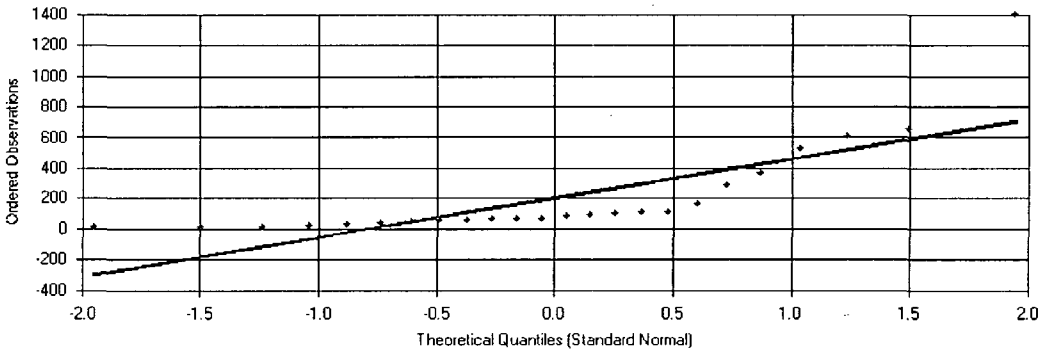
Summary Statistics for	ln(Chromium)
Minimum	2.282382
Maximum	6.984716
Mean	4.025144
Standard Deviation	1.309311
Variance	1.714296
Shapiro-Wilk Test Statisitic	0.937432
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	131.9327
MLE Standard Deviation	281.5076
MLE Coefficient of Variation	2.133721
MLE Skewness	16.11549
MLE Median	55.98837
MLE 80% Quantile	169.2729
MLE 90% Quantile	301.1501
MLE 95% Quantile	482.4904
MLE 99% Quantile	1176.856
MVU Estimate of Median	54.02129
MVU Estimate of Mean	124.1594
MVU Estimate of Std. Dev.	215.0244
MVU Estimate of SE of Mean	39.62468

UCL Assuming Lognormal Distribution	
95% H-UCL	295.4711
95% Chebyshev (MVUE) UCL	296.8794
99% Chebyshev (MVUE) UCL	518.42

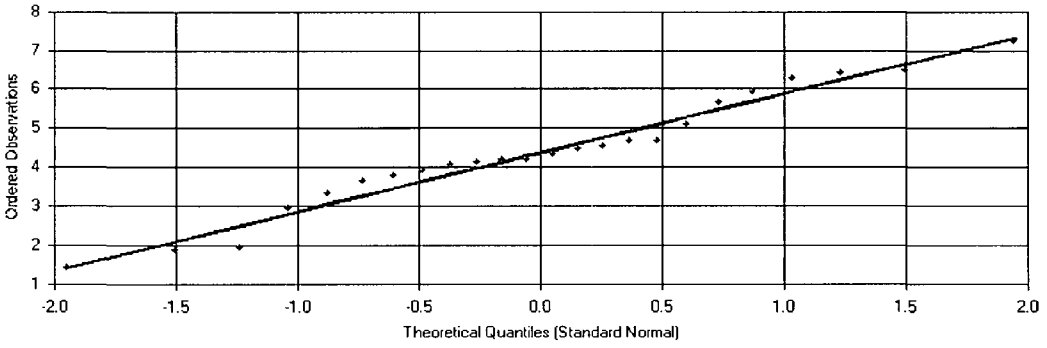
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Copper



N = 24, Mean = 203.9229, Stdv = 318.1631
Slope = 257.4002, Intercept = 203.9229, Correlation, R = 0.78306753
Shapiro-Wilk Statistic = 0.631, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Copper



N = 24, Mean = 4.3686, Stdv = 1.4885
Slope = 1.5147, Intercept = 4.3686, Correlation, R = 0.98495136
Shapiro-Wilk Statistic = 0.967, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Copper
Number of Samples	24
Minimum	4
Maximum	1400
Mean	203.9229
Median	70.175
Standard Deviation	318.1631
Variance	101227.7
Coefficient of Variation	1.560212
Skewness	2.701896

95 % UCL (Assuming Normal Data)	
Student's-t	315.2299

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	349.0201
Modified-t	321.1996

95 % Non-parametric UCL	
CLT	310.7475
Jackknife	315.2299
Standard Bootstrap	310.2193
Bootstrap-t	416.0036
Chebyshev (Mean, Std)	487.0106

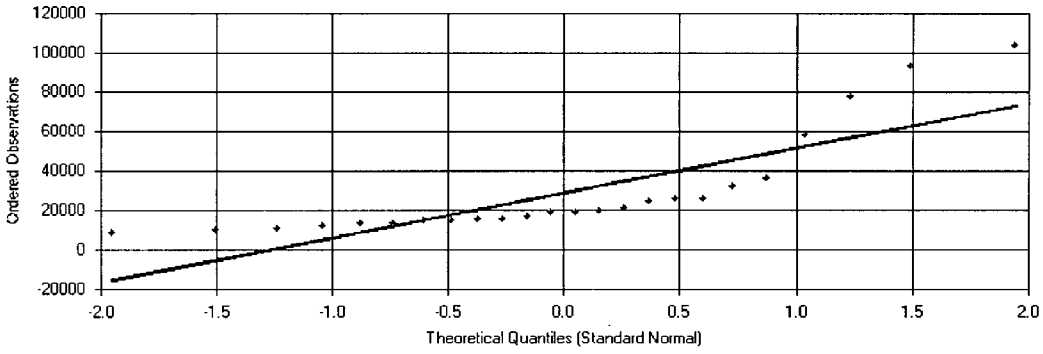
Summary Statistics for	ln(Copper)
Minimum	1.386294
Maximum	7.244228
Mean	4.368589
Standard Deviation	1.488531
Variance	2.215726
Shapiro-Wilk Test Statisitic	0.96677
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	238.9973
MLE Standard Deviation	683.0501
MLE Coefficient of Variation	2.857982
MLE Skewness	31.91812
MLE Median	78.93221
MLE 80% Quantile	277.6603
MLE 90% Quantile	534.511
MLE 95% Quantile	913.4455
MLE 99% Quantile	2517.228
MVU Estimate of Median	75.36499
MVU Estimate of Mean	219.0634
MVU Estimate of Std. Dev.	465.4781
MVU Estimate of SE of Mean	81.54834

UCL Assuming Lognormal Distribution	
95% H-UCL	649.9025
95% Chebyshev (MVUE) UCL	574.5244
99% Chebyshev (MVUE) UCL	1030.459

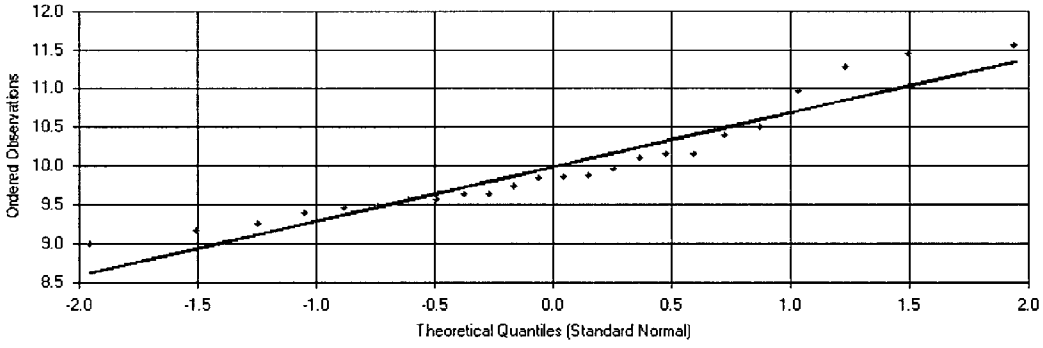
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Iron



N = 24, Mean = 28797.9167, Stdv = 26522.6738
Slope = 22863.5196, Intercept = 28797.9167, Correlation, R = 0.83438396
Shapiro-Wilk Statistic = 0.698, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Iron



N = 24, Mean = 9.9848, Stdv = 0.7090
Slope = 0.6996, Intercept = 9.9848, Correlation, R = 0.95508100
Shapiro-Wilk Statistic = 0.905, Critical Value(0.05) = 0.916, Data not Lognormal

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Summary Statistics for	Iron
Number of Samples	24
Minimum	7880
Maximum	103000
Mean	28797.92
Median	18650
Standard Deviation	26522.67
Variance	7.03E+08
Coefficient of Variation	0.920993
Skewness	1.921778

95 % UCL (Assuming Normal Data)

Student's-t	38076.68

95 % UCL (Adjusted for Skewness)

Adjusted-CLT	39972.31
Modified-t	38430.64

95 % Non-parametric UCL

CLT	37703.02
Jackknife	38076.68
Standard Bootstrap	37510.64
Bootstrap-t	42518.48
Chebyshev (Mean, Std)	52396.64

Summary Statistics for	ln(Iron)
Minimum	8.972083
Maximum	11.54248
Mean	9.984754
Standard Deviation	0.709015
Variance	0.502702
Shapiro-Wilk Test Statisitic	0.905449
Shapiro-Wilk 5% Critical Value	0.916

Data not Lognormal at 5% Significance Level
Data not Normal: Try Non-parametric UCL

Estimates Assuming Lognormal Distribution

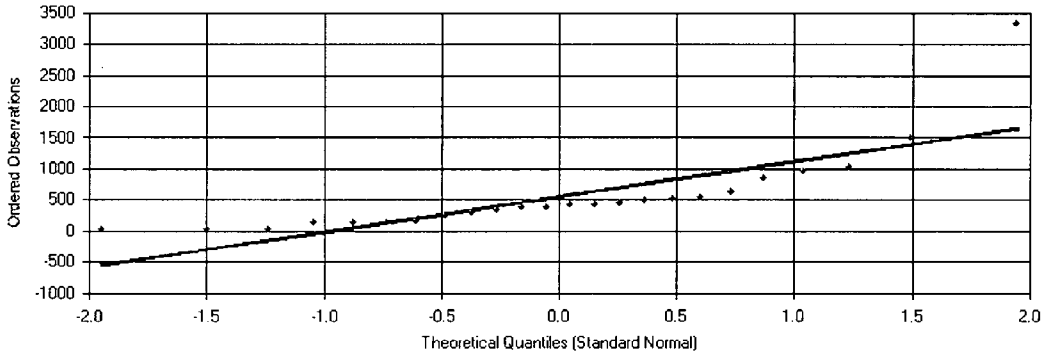
MLE Mean	27892.28
MLE Standard Deviation	22542.45
MLE Coefficient of Variation	0.808197
MLE Skewness	2.95249
MLE Median	21693.2
MLE 80% Quantile	39492.72
MLE 90% Quantile	53951.36
MLE 95% Quantile	69639.24
MLE 99% Quantile	112862.2
MVU Estimate of Median	21467.1
MVU Estimate of Mean	27539.18
MVU Estimate of Std. Dev.	21263.45
MVU Estimate of SE of Mean	4287.779

UCL Assuming Lognormal Distribution

95% H-UCL	38464.84
95% Chebyshev (MVUE) UCL	46229.17
99% Chebyshev (MVUE) UCL	70202.04

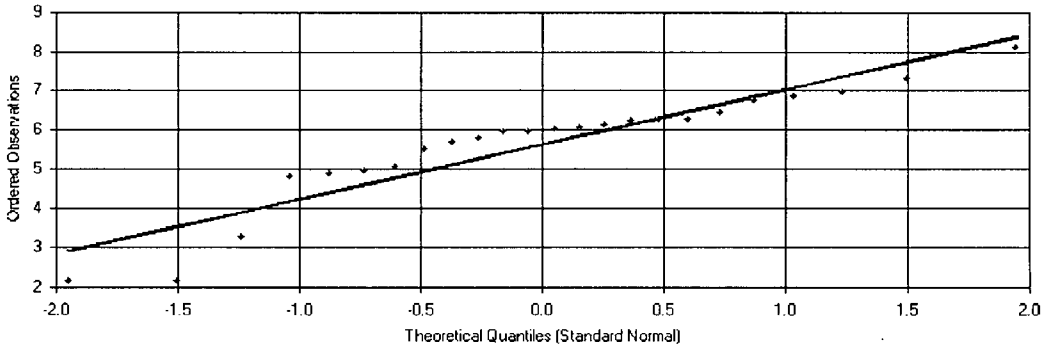
H-UCL

Normal Q-Q Plot for Lead



N = 24, Mean = 552.2208, Stdv = 686.6527
Slope = 565.9779, Intercept = 552.2208, Correlation, R = 0.79781560
Shapiro-Wilk Statistic = 0.660, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Lead



N = 24, Mean = 5.6322, Stdv = 1.4496
Slope = 1.4048, Intercept = 5.6322, Correlation, R = 0.93804987
Shapiro-Wilk Statistic = 0.884, Critical Value(0.05) = 0.916, Data not Lognormal

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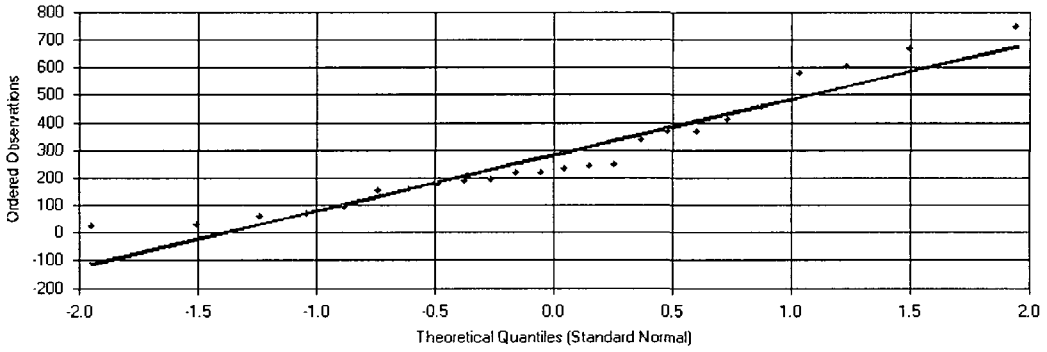
Summary Statistics for	Lead
Number of Samples	24
Minimum	8.3
Maximum	3310
Mean	552.2208
Median	395
Standard Deviation	686.6527
Variance	471491.9
Coefficient of Variation	1.243439
Skewness	3.096762
95 % UCL (Assuming Normal Data)	
Student's-t	792.4411
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	877.4378
Modified-t	807.2078
95 % Non-parametric UCL	
CLT	782.7674
Jackknife	792.4411
Standard Bootstrap	780.0288
Bootstrap-t	1041.219
Chebyshev (Mean, Std)	1163.175
97.5 % Non-parametric UCL	
CLT	826.9341
Jackknife	842.1688
Standard Bootstrap	820.7107
Bootstrap-t	1174.608
Chebyshev (Mean, Std)	1427.535

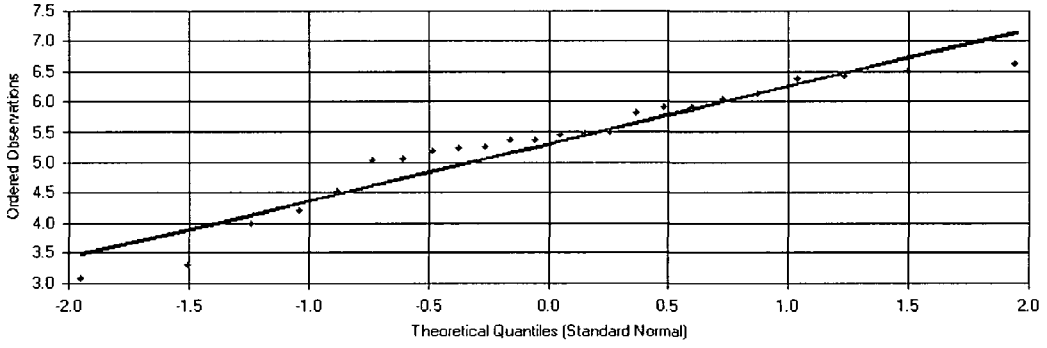
Summary Statistics for	ln(Lead)
Minimum	2.116256
Maximum	8.104703
Mean	5.632165
Standard Deviation	1.449558
Variance	2.101218
Shapiro-Wilk Test Statisitic	0.884048
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	798.5307
MLE Standard Deviation	2139.127
MLE Coefficient of Variation	2.678828
MLE Skewness	27.26008
MLE Median	279.266
MLE 80% Quantile	950.5501
MLE 90% Quantile	1798.748
MLE 95% Quantile	3031.119
MLE 99% Quantile	8134.227
MVU Estimate of Median	267.2841
MVU Estimate of Mean	736.58
MVU Estimate of Std. Dev.	1498.156
MVU Estimate of SE of Mean	265.6288
UCL Assuming Lognormal Distribution	
95% H-UCL	2077.352
95% Chebyshev (MVUE) UCL	1894.429
99% Chebyshev (MVUE) UCL	3379.554

Normal Q-Q Plot for Manganese



N = 24, Mean = 281.6458, Stdv = 204.1411
Slope = 202.7258, Intercept = 281.6458, Correlation, R = 0.96121094
Shapiro-Wilk Statistic = 0.915, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Manganese



N = 24, Mean = 5.3093, Stdv = 0.9469
Slope = 0.9418, Intercept = 5.3093, Correlation, R = 0.96269894
Shapiro-Wilk Statistic = 0.922, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Manganese
Number of Samples	24
Minimum	21.3
Maximum	744
Mean	281.6458
Median	222
Standard Deviation	204.1411
Variance	41673.61
Coefficient of Variation	0.724815
Skewness	0.846097

95 % UCL (Assuming Normal Data)	
Student's-t	353.0631

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	357.877
Modified-t	354.2626

95 % Non-parametric UCL	
CLT	350.1871
Jackknife	353.0631
Standard Bootstrap	348.2467
Bootstrap-t	364.7452
Chebyshev (Mean, Std)	463.2818

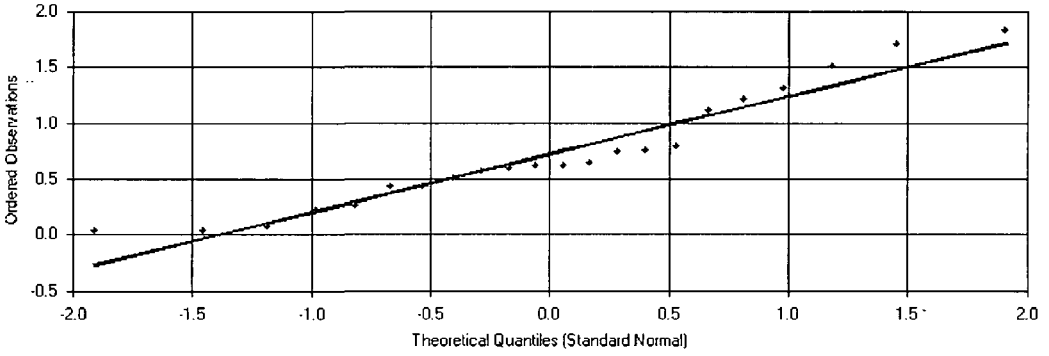
Summary Statistics for	ln(Manganese)
Minimum	3.058707
Maximum	6.612041
Mean	5.30932
Standard Deviation	0.946945
Variance	0.896705
Shapiro-Wilk Test Statisitic	0.921819
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	316.6105
MLE Standard Deviation	381.4483
MLE Coefficient of Variation	1.204787
MLE Skewness	5.363125
MLE Median	202.2126
MLE 80% Quantile	450.1083
MLE 90% Quantile	682.7605
MLE 95% Quantile	960.1067
MLE 99% Quantile	1829.712
MVU Estimate of Median	198.4673
MVU Estimate of Mean	308.5559
MVU Estimate of Std. Dev.	339.5181
MVU Estimate of SE of Mean	66.954

UCL Assuming Lognormal Distribution	
95% H-UCL	513.987
95% Chebyshev (MVUE) UCL	600.4016
99% Chebyshev (MVUE) UCL	974.7397

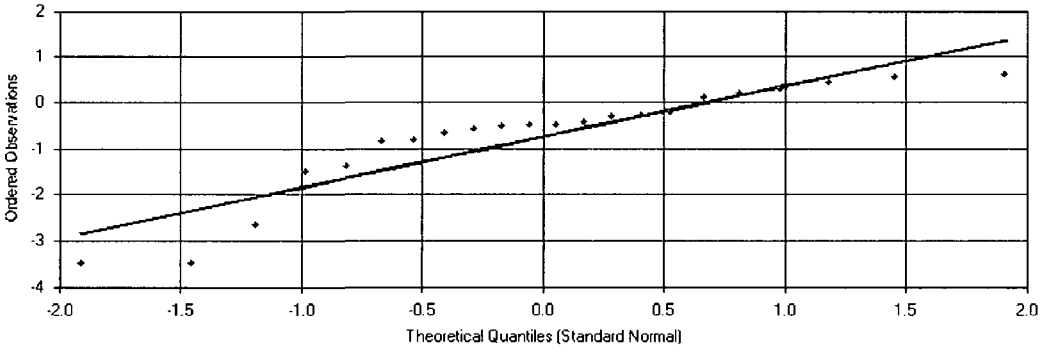
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Mercury



N = 22, Mean = 0.7204, Stdv = 0.5193
Slope = 0.5206, Intercept = 0.7204, Correlation, R = 0.96830914
Shapiro-Wilk Statistic = 0.928, Critical Value(0.05) = 0.911, Data are Normal

Lognormal Q-Q Plot for Mercury



N = 22, Mean = -0.7413, Stdv = 1.1607
Slope = 1.1032, Intercept = -0.7413, Correlation, R = 0.91799025
Shapiro-Wilk Statistic = 0.839, Critical Value(0.05) = 0.911, Data not Lognormal

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Summary Statistics for	Mercury
Number of Samples	22
Minimum	0.03
Maximum	1.83
Mean	0.720409
Median	0.61
Standard Deviation	0.519303
Variance	0.269676
Coefficient of Variation	0.720845
Skewness	0.712003

95 % UCL (Assuming Normal Data)

Student's-t	0.910923

95 % UCL (Adjusted for Skewness)

Adjusted-CLT	0.920479
Modified-t	0.913724

95 % Non-parametric UCL

CLT	0.90252
Jackknife	0.910923
Standard Bootstrap	0.897305
Bootstrap-t	0.928973
Chebyshev (Mean, Std)	1.203008

97.5 % Non-parametric UCL

CLT	0.937408
Jackknife	0.950655
Standard Bootstrap	0.93503
Bootstrap-t	0.995386
Chebyshev (Mean, Std)	1.411829

Summary Statistics for	ln(Mercury)
Minimum	-3.506558
Maximum	0.604316
Mean	-0.741315
Standard Deviation	1.160672
Variance	1.34716
Shapiro-Wilk Test Statisitic	0.839175
Shapiro-Wilk 5% Critical Value	0.911

Data not Lognormal at 5% Significance Level
Data are Normal: Use Student's-t UCL

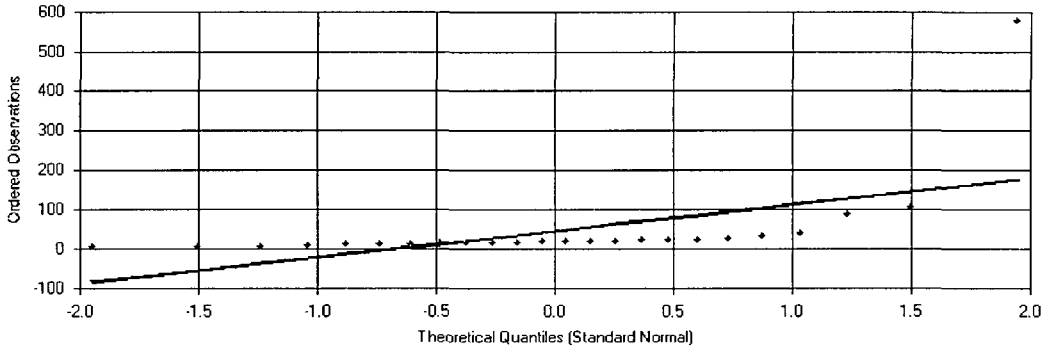
Estimates Assuming Lognormal Distribution

MLE Mean	0.934508
MLE Standard Deviation	1.576657
MLE Coefficient of Variation	1.687153
MLE Skewness	9.863917
MLE Median	0.476487
MLE 80% Quantile	1.270553
MLE 90% Quantile	2.117314
MLE 95% Quantile	3.215524
MLE 99% Quantile	7.088034
MVU Estimate of Median	0.4621
MVU Estimate of Mean	0.891192
MVU Estimate of Std. Dev.	1.278392
MVU Estimate of SE of Mean	0.255081

UCL Assuming Lognormal Distribution

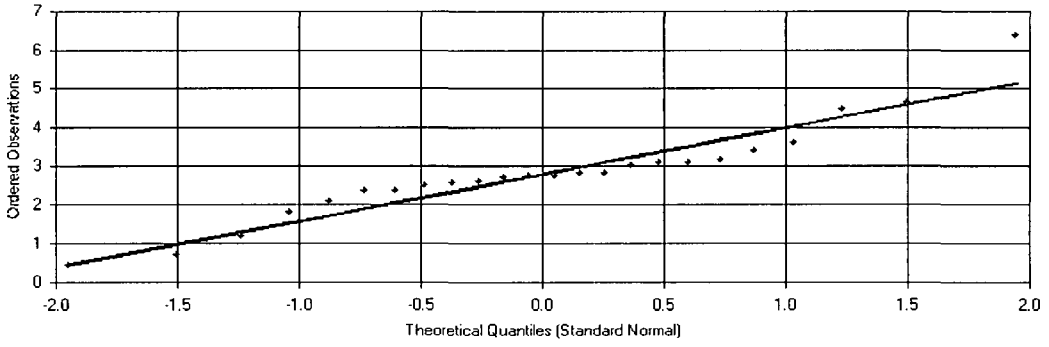
95% H-UCL	1.886252
95% Chebyshev (MVUE) UCL	2.003063
99% Chebyshev (MVUE) UCL	3.429213

Normal Q-Q Plot for Nickel



N = 24, Mean = 44.7708, Stdv = 115.6741
Slope = 67.1429, Intercept = 44.7708, Correlation, R = 0.56182863
Shapiro-Wilk Statistic = 0.345, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Nickel



N = 24, Mean = 2.7853, Stdv = 1.2352
Slope = 1.2127, Intercept = 2.7853, Correlation, R = 0.95030005
Shapiro-Wilk Statistic = 0.919, Critical Value(0.05) = 0.916, Data are Lognormal

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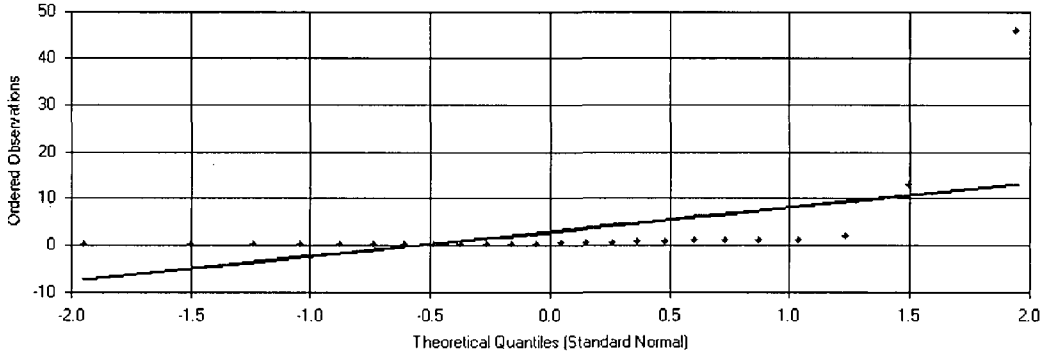
Summary Statistics for	Nickel
Number of Samples	24
Minimum	1.5
Maximum	576
Mean	44.77083
Median	15.25
Standard Deviation	115.6741
Variance	13380.51
Coefficient of Variation	2.583694
Skewness	4.580736
95 % UCL (Assuming Normal Data)	
Student's-t	85.23856
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	107.1996
Modified-t	88.91823
95 % Non-parametric UCL	
CLT	83.60893
Jackknife	85.23856
Standard Bootstrap	83.92523
Bootstrap-t	241.1902
Chebyshev (Mean, Std)	147.6927

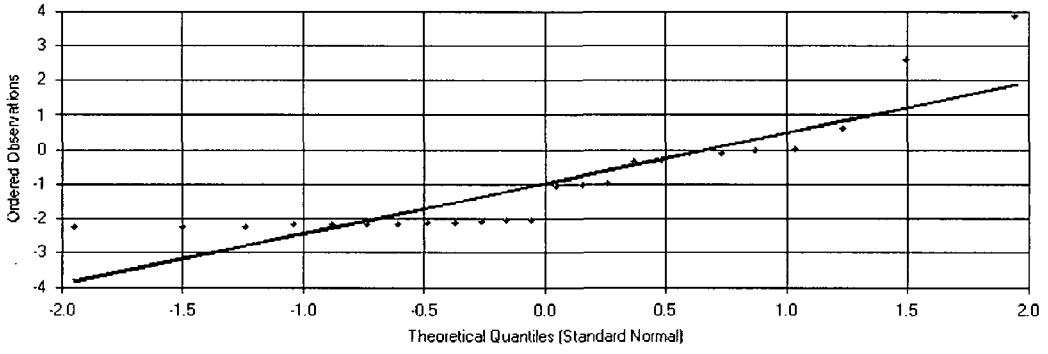
Summary Statistics for	ln(Nickel)
Minimum	0.405465
Maximum	6.356108
Mean	2.785281
Standard Deviation	1.235179
Variance	1.525667
Shapiro-Wilk Test Statisitic	0.919165
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	34.74772
MLE Standard Deviation	65.91277
MLE Coefficient of Variation	1.896895
MLE Skewness	12.51611
MLE Median	16.20436
MLE 80% Quantile	46.01681
MLE 90% Quantile	79.24034
MLE 95% Quantile	123.6123
MLE 99% Quantile	286.6628
MVU Estimate of Median	15.69678
MVU Estimate of Mean	32.99519
MVU Estimate of Std. Dev.	52.35055
MVU Estimate of SE of Mean	9.817963
UCL Assuming Lognormal Distribution	
95% H-UCL	72.31187
95% Chebyshev (MVUE) UCL	75.7907
99% Chebyshev (MVUE) UCL	130.6827
Recommended UCL to use:	
95 % Chebyshev (MVUE) UCL	

Normal Q-Q Plot for Silver



N = 24, Mean = 2.8314, Stdv = 9.4885
Slope = 5.2601, Intercept = 2.8314, Correlation, R = 0.53657737
Shapiro-Wilk Statistic = 0.316, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Silver



N = 24, Mean = -0.9708, Stdv = 1.6081
Slope = 1.4649, Intercept = -0.9708, Correlation, R = 0.88169260
Shapiro-Wilk Statistic = 0.779, Critical Value(0.05) = 0.916, Data not Lognormal

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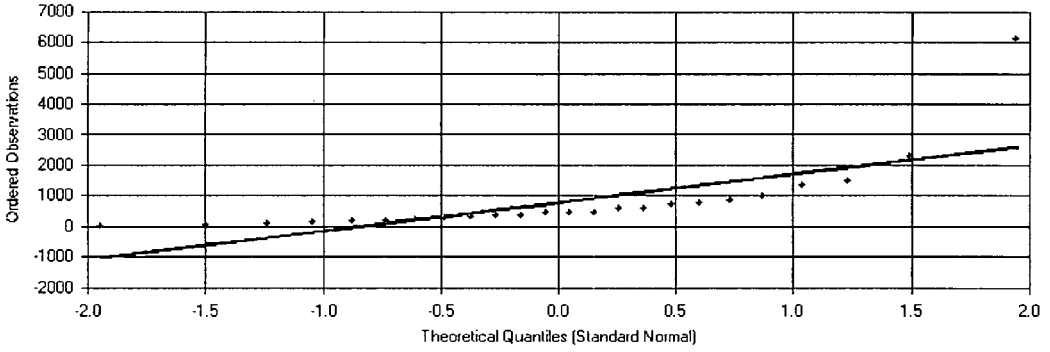
Summary Statistics for	Silver
Number of Samples	24
Minimum	0.105
Maximum	45.7
Mean	2.831354
Median	0.2325
Standard Deviation	9.488505
Variance	90.03174
Coefficient of Variation	3.351225
Skewness	4.412186
95 % UCL (Assuming Normal Data)	
Student's-t	6.150837
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	7.881053
Modified-t	6.441566
95 % Non-parametric UCL	
CLT	6.017161
Jackknife	6.150837
Standard Bootstrap	6.009083
Bootstrap-t	59.29772
Chebyshev (Mean, Std)	11.27381
97.5 % Non-parametric UCL	
CLT	6.627477
Jackknife	6.837998
Standard Bootstrap	6.64919
Bootstrap-t	72.5427
Chebyshev (Mean, Std)	14.92687

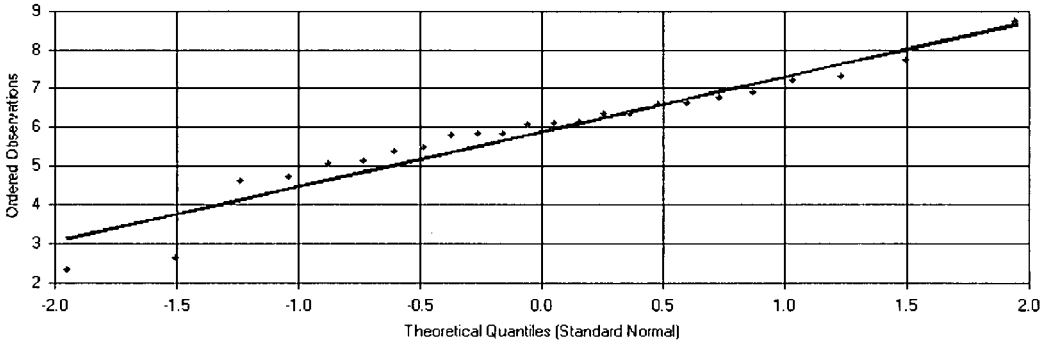
Summary Statistics for	ln(Silver)
Minimum	-2.253795
Maximum	3.822098
Mean	-0.970845
Standard Deviation	1.608134
Variance	2.586094
Shapiro-Wilk Test Statisitic	0.779032
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.380163
MLE Standard Deviation	4.836051
MLE Coefficient of Variation	3.503971
MLE Skewness	53.53299
MLE Median	0.378763
MLE 80% Quantile	1.47407
MLE 90% Quantile	2.990996
MLE 95% Quantile	5.336311
MLE 99% Quantile	15.95343
MVU Estimate of Median	0.358854
MVU Estimate of Mean	1.237863
MVU Estimate of Std. Dev.	3.001696
MVU Estimate of SE of Mean	0.505188
UCL Assuming Lognormal Distribution	
95% H-UCL	4.328267
95% Chebyshev (MVUE) UCL	3.439927
99% Chebyshev (MVUE) UCL	6.264422

Normal Q-Q Plot for Zinc



N = 24, Mean = 785.0667, Stdv = 1246.0152
Slope = 932.3249, Intercept = 785.0667, Correlation, R = 0.72424268
Shapiro-Wilk Statistic = 0.551, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Zinc



N = 24, Mean = 5.8820, Stdv = 1.4277
Slope = 1.4197, Intercept = 5.8820, Correlation, R = 0.96246137
Shapiro-Wilk Statistic = 0.936, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Zinc
Number of Samples	24
Minimum	9.9
Maximum	6085
Mean	785.0667
Median	431.5
Standard Deviation	1246.015
Variance	1552554
Coefficient of Variation	1.587146
Skewness	3.672381

95 % UCL (Assuming Normal Data)	
Student's-t	1220.976

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1407.145
Modified-t	1252.752

95 % Non-parametric UCL	
CLT	1203.422
Jackknife	1220.976
Standard Bootstrap	1202.933
Bootstrap-t	1900.587
Chebyshev (Mean, Std)	1893.717

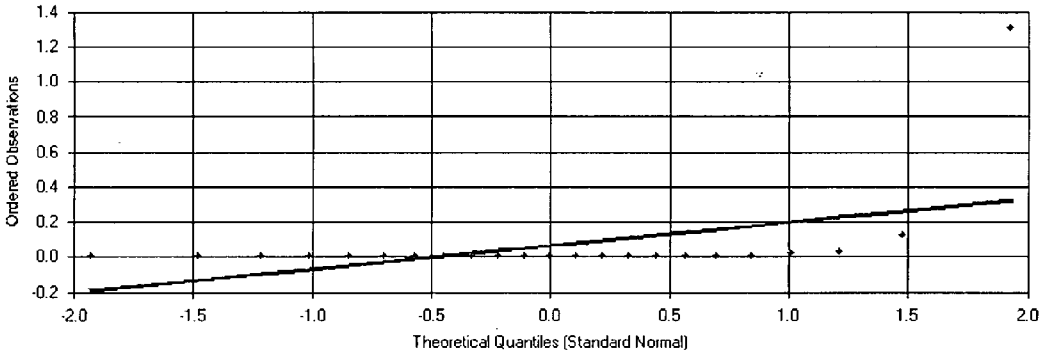
Summary Statistics for	ln(Zinc)
Minimum	2.292535
Maximum	8.713582
Mean	5.881985
Standard Deviation	1.427742
Variance	2.038447
Shapiro-Wilk Test Statisitic	0.935503
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	993.4746
MLE Standard Deviation	2567.449
MLE Coefficient of Variation	2.584313
MLE Skewness	25.01272
MLE Median	358.5202
MLE 80% Quantile	1198.022
MLE 90% Quantile	2245.387
MLE 95% Quantile	3754.162
MLE 99% Quantile	9925.997
MVU Estimate of Median	343.5886
MVU Estimate of Mean	919.5163
MVU Estimate of Std. Dev.	1824.709
MVU Estimate of SE of Mean	325.627

UCL Assuming Lognormal Distribution	
95% H-UCL	2522.494
95% Chebyshev (MVUE) UCL	2338.891
99% Chebyshev (MVUE) UCL	4159.464

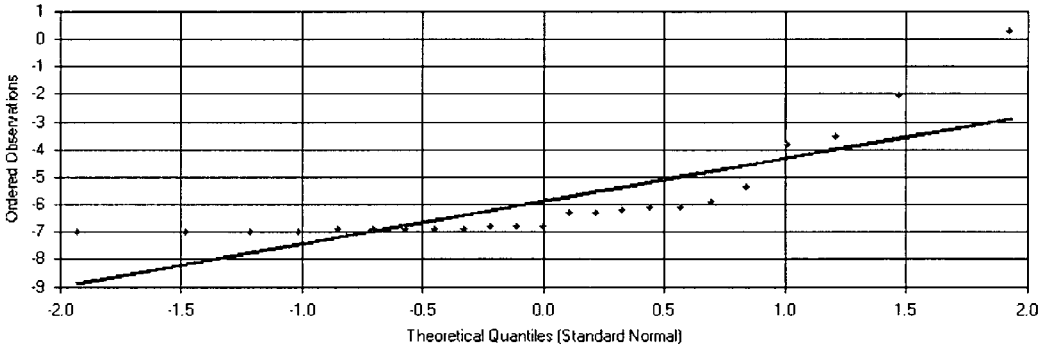
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Aldrin



N = 23, Mean = 0.0653, Stdv = 0.2704
Slope = 0.1336, Intercept = 0.0653, Correlation, R = 0.47772494
Shapiro-Wilk Statistic = 0.256, Critical Value(0.05) = 0.914, Data not Normal

Lognormal Q-Q Plot for Aldrin



N = 23, Mean = -5.8778, Stdv = 1.8621
Slope = 1.5528, Intercept = -5.8778, Correlation, R = 0.80633232
Shapiro-Wilk Statistic = 0.660, Critical Value(0.05) = 0.914, Data not Lognormal

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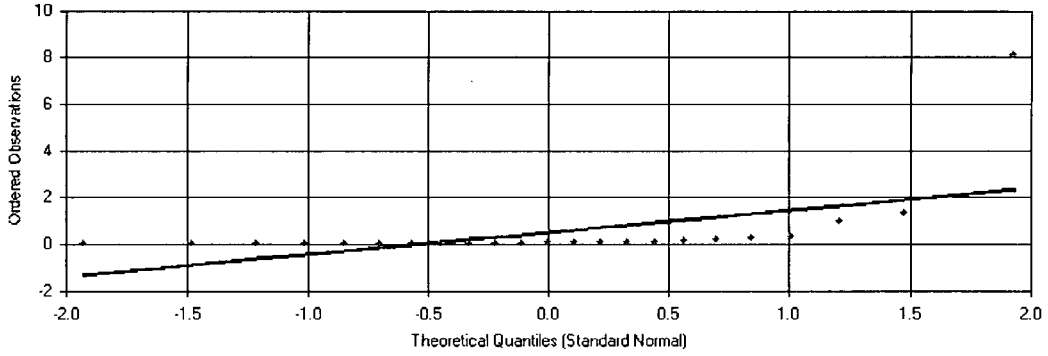
Summary Statistics for	Aldrin
Number of Samples	23
Minimum	0.0009
Maximum	1.3
Mean	0.065326
Median	0.00105
Standard Deviation	0.270417
Variance	0.073125
Coefficient of Variation	4.139492
Skewness	4.726248
95 % UCL (Assuming Normal Data)	
Student's-t	0.162149
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.217447
Modified-t	0.17141
95 % Non-parametric UCL	
CLT	0.158072
Jackknife	0.162149
Standard Bootstrap	0.154916
Bootstrap-t	3.004936
Chebyshev (Mean, Std)	0.311106
97.5 % Non-parametric UCL	
CLT	0.17584
Jackknife	0.182263
Standard Bootstrap	0.173469
Bootstrap-t	4.161049
Chebyshev (Mean, Std)	0.417455

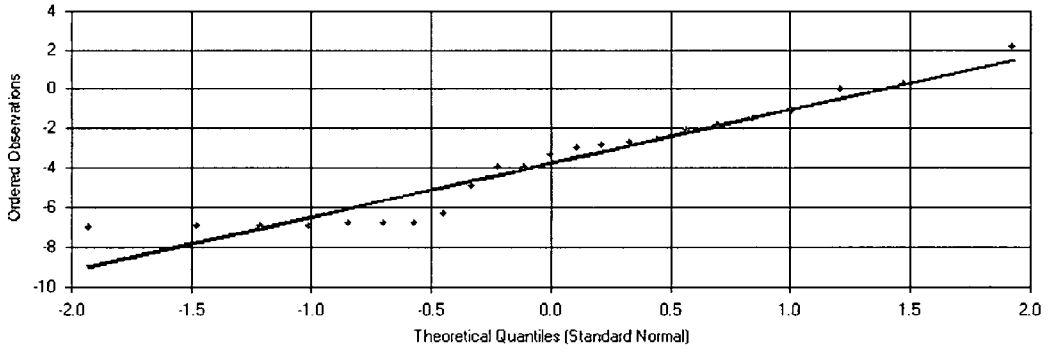
Summary Statistics for	ln(Aldrin)
Minimum	-7.013116
Maximum	0.262364
Mean	-5.87784
Standard Deviation	1.862082
Variance	3.467348
Shapiro-Wilk Test Statisitic	0.659557
Shapiro-Wilk 5% Critical Value	0.914
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.015857
MLE Standard Deviation	0.08836
MLE Coefficient of Variation	5.5724
MLE Skewness	189.7493
MLE Median	0.002801
MLE 80% Quantile	0.013509
MLE 90% Quantile	0.030652
MLE 95% Quantile	0.059922
MLE 99% Quantile	0.212963
MVU Estimate of Median	0.002597
MVU Estimate of Mean	0.013325
MVU Estimate of Std. Dev.	0.041787
MVU Estimate of SE of Mean	0.006534
UCL Assuming Lognormal Distribution	
95% H-UCL	0.072994
95% Chebyshev (MVUE) UCL	0.041807
99% Chebyshev (MVUE) UCL	0.07834

Normal Q-Q Plot for Chlordane - alpha



N = 23, Mean = 0.4998, Stdv = 1.6878
Slope = 0.9448, Intercept = 0.4998, Correlation, R = 0.54127071
Shapiro-Wilk Statistic = 0.321, Critical Value(0.05) = 0.914, Data not Normal

Lognormal Q-Q Plot for Chlordane - alpha



N = 23, Mean = -3.7674, Stdv = 2.7346
Slope = 2.7190, Intercept = -3.7674, Correlation, R = 0.96138354
Shapiro-Wilk Statistic = 0.912, Critical Value(0.05) = 0.914, Data not Lognormal

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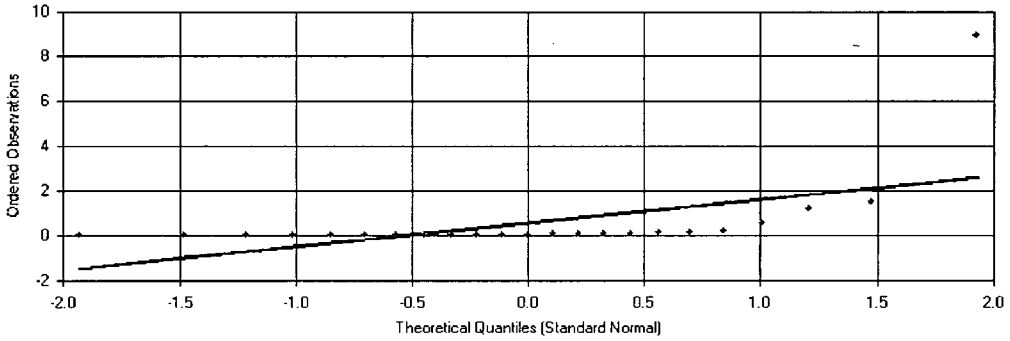
Summary Statistics for	Chlordane
Number of Samples	23
Minimum	0.0009
Maximum	8.1
Mean	0.499848
Median	0.034
Standard Deviation	1.687833
Variance	2.848781
Coefficient of Variation	3.376694
Skewness	4.531988
95 % UCL (Assuming Normal Data)	
Student's-t	1.104175
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.434096
Modified-t	1.159605
95 % Non-parametric UCL	
CLT	1.078734
Jackknife	1.104175
Standard Bootstrap	1.063691
Bootstrap-t	4.030616
Chebyshev (Mean, Std)	2.033908
99 % Non-parametric UCL	
CLT	1.318577
Jackknife	1.382621
Standard Bootstrap	1.287126
Bootstrap-t	12.38536
Chebyshev (Mean, Std)	4.001583

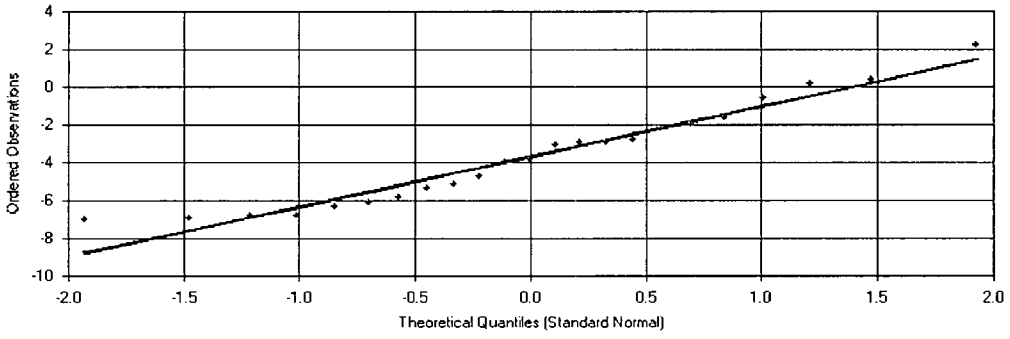
Summary Statistics for	ln(Chlordane - alpha)
Minimum	-7.013116
Maximum	2.091864
Mean	-3.767369
Standard Deviation	2.734578
Variance	7.477919
Shapiro-Wilk Test Statisitic	0.912163
Shapiro-Wilk 5% Critical Value	0.914
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.97199
MLE Standard Deviation	40.86474
MLE Coefficient of Variation	42.04233
MLE Skewness	74438.35
MLE Median	0.023113
MLE 80% Quantile	0.233016
MLE 90% Quantile	0.77613
MLE 95% Quantile	2.077183
MLE 99% Quantile	13.3733
MVU Estimate of Median	0.019623
MVU Estimate of Mean	0.554185
MVU Estimate of Std. Dev.	4.108057
MVU Estimate of SE of Mean	0.400153
UCL Assuming Lognormal Distribution	
95% H-UCL	21.81171
95% Chebyshev (MVUE) UCL	2.29841
99% Chebyshev (MVUE) UCL	4.535654

Normal Q-Q Plot for Chlordane - gamma (technical mixture)



N = 23, Mean = 0.5597, Stdv = 1.8596
Slope = 1.0579, Intercept = 0.5597, Correlation, R = 0.55002805
Shapiro-Wilk Statistic = 0.330, Critical Value(0.05) = 0.914, Data not Normal

Lognormal Q-Q Plot for Chlordane - gamma (technical mixture)



N = 23, Mean = -3.6773, Stdv = 2.6367
Slope = 2.6620, Intercept = -3.6773, Correlation, R = 0.97616782
Shapiro-Wilk Statistic = 0.943, Critical Value(0.05) = 0.914, Data are Lognormal

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Summary Statistics for	Chlordane
Number of Samples	23
Minimum	0.0009
Maximum	8.9
Mean	0.559726
Median	0.021
Standard Deviation	1.859643
Variance	3.458274
Coefficient of Variation	3.322417
Skewness	4.477902

95 % UCL (Assuming Normal Data)	
Student's-t	1.22557

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.584401
Modified-t	1.285913

95 % Non-parametric UCL	
CLT	1.197539
Jackknife	1.22557
Standard Bootstrap	1.205285
Bootstrap-t	4.141051
Chebyshev (Mean, Std)	2.249943

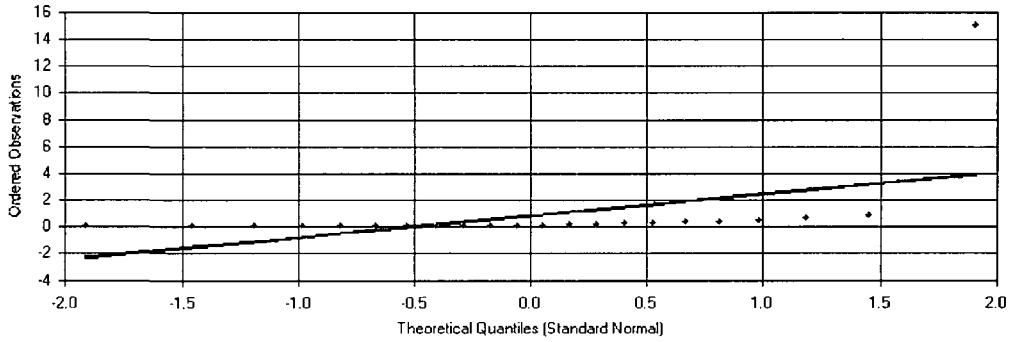
99 % Non-parametric UCL	
Chebyshev (Mean, Std)	4.417914

Summary Statistics for	ln(Chlordane - gamma (technical mixture))
Minimum	-7.013116
Maximum	2.186051
Mean	-3.677326
Standard Deviation	2.636711
Variance	6.952246
Shapiro-Wilk Test Statisitic	0.942569
Shapiro-Wilk 5% Critical Value	0.914
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	0.817746
MLE Standard Deviation	26.42844
MLE Coefficient of Variation	32.31865
MLE Skewness	33853.61
MLE Median	0.025291
MLE 80% Quantile	0.234733
MLE 90% Quantile	0.748898
MLE 95% Quantile	1.934915
MLE 99% Quantile	11.65417
MVU Estimate of Median	0.021722
MVU Estimate of Mean	0.494984
MVU Estimate of Std. Dev.	3.344482
MVU Estimate of SE of Mean	0.346302

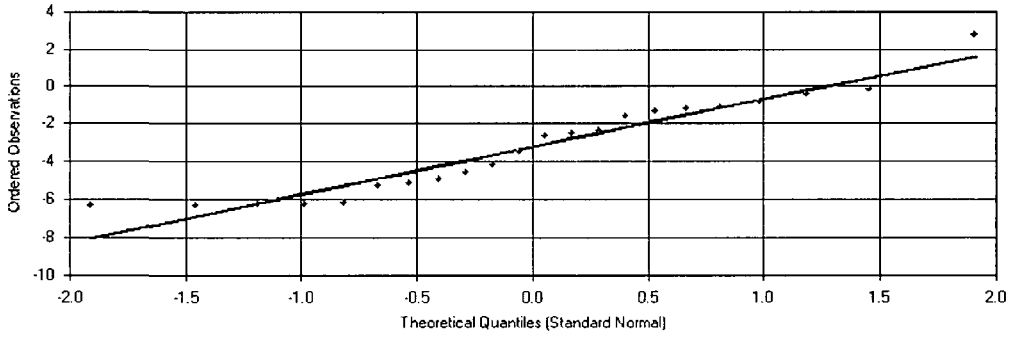
UCL Assuming Lognormal Distribution	
95% H-UCL	14.91453
95% Chebyshev (MVUE) UCL	2.00448
99% Chebyshev (MVUE) UCL	3.940645
Recommended UCL to use:	
Greater of	
99 % Chebyshev (MVUE) UCL	
99 % Chebyshev (Mean, Std)	

Normal Q-Q Plot for DDE-4,4'



N = 22, Mean = 0.8309, Stdv = 3.1729
Slope = 1.6192, Intercept = 0.8309, Correlation, R = 0.49286976
Shapiro-Wilk Statistic = 0.270, Critical Value(0.05) = 0.911, Data not Normal

Lognormal Q-Q Plot for DDE-4,4'



N = 22, Mean = -3.2215, Stdv = 2.5283
Slope = 2.5315, Intercept = -3.2215, Correlation, R = 0.96702275
Shapiro-Wilk Statistic = 0.928, Critical Value(0.05) = 0.911, Data are Lognormal

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Summary Statistics for	DDE-4,4'
Number of Samples	22
Minimum	0.00175
Maximum	15
Mean	0.830881
Median	0.049
Standard Deviation	3.172913
Variance	10.06737
Coefficient of Variation	3.818734
Skewness	4.651246

95 % UCL (Assuming Normal Data)

Student's-t	1.994907

95 % UCL (Adjusted for Skewness)

Adjusted-CLT	2.660349
Modified-t	2.10671

95 % Non-parametric UCL

CLT	1.94357
Jackknife	1.994907
Standard Bootstrap	1.928678
Bootstrap-t	14.90417
Chebyshev (Mean, Std)	3.779533

99 % Non-parametric UCL

Chebyshev (Mean, Std)	7.561645

Summary Statistics for	ln(DDE-4,4')
Minimum	-6.348139
Maximum	2.70805
Mean	-3.221514
Standard Deviation	2.52832
Variance	6.392405
Shapiro-Wilk Test Statisitic	0.928044
Shapiro-Wilk 5% Critical Value	0.911
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution

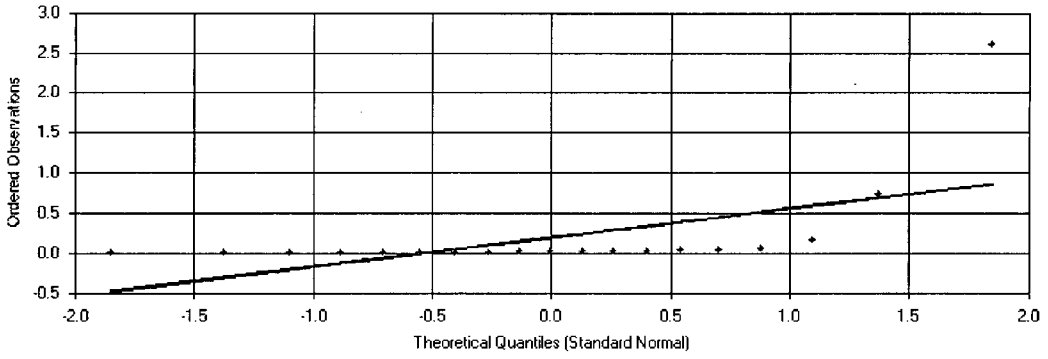
MLE Mean	0.975006
MLE Standard Deviation	23.80874
MLE Coefficient of Variation	24.41907
MLE Skewness	14634.13
MLE Median	0.039895
MLE 80% Quantile	0.337874
MLE 90% Quantile	1.027756
MLE 95% Quantile	2.553777
MLE 99% Quantile	14.28714
MVU Estimate of Median	0.034468
MVU Estimate of Mean	0.617551
MVU Estimate of Std. Dev.	3.648842
MVU Estimate of SE of Mean	0.419732

UCL Assuming Lognormal Distribution

95% H-UCL	15.55455
95% Chebyshev (MVUE) UCL	2.447119
99% Chebyshev (MVUE) UCL	4.793829

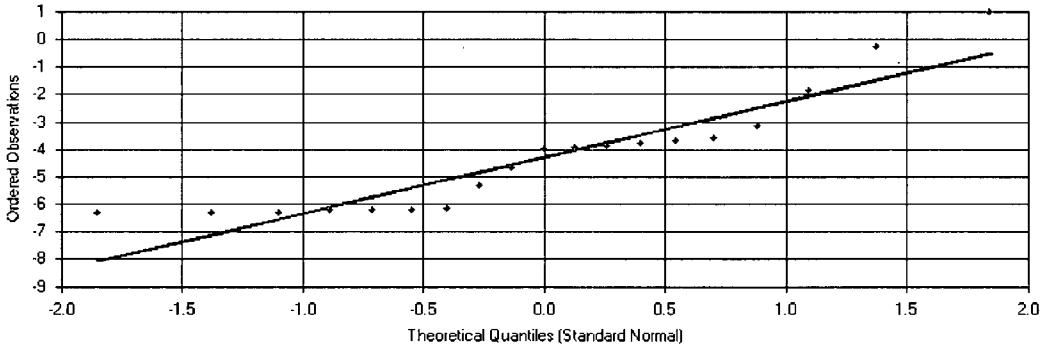
Recommended UCL to use:
Greater of
99 % Chebyshev (MVUE) UCL
99 % Chebyshev (Mean, Std)

Normal Q-Q Plot for DDT-4,4'



N = 19, Mean = 0.1937, Stdv = 0.6059
Slope = 0.3626, Intercept = 0.1937, Correlation, R = 0.57569425
Shapiro-Wilk Statistic = 0.359, Critical Value(0.05) = 0.901, Data not Normal

Lognormal Q-Q Plot for DDT-4,4'



N = 19, Mean = -4.2887, Stdv = 2.1197
Slope = 2.0455, Intercept = -4.2887, Correlation, R = 0.92833298
Shapiro-Wilk Statistic = 0.857, Critical Value(0.05) = 0.901, Data not Lognormal

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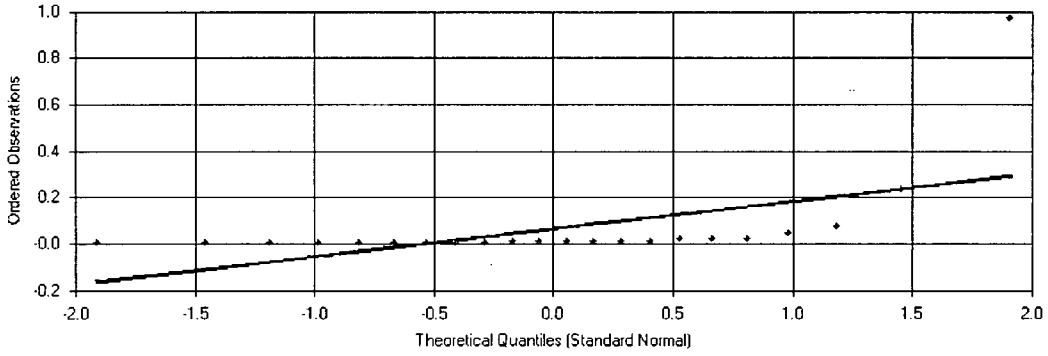
Summary Statistics for	DDT-4,4'
Number of Samples	19
Minimum	0.00175
Maximum	2.6
Mean	0.193701
Median	0.0185
Standard Deviation	0.605869
Variance	0.367077
Coefficient of Variation	3.127851
Skewness	3.90608
95 % UCL (Assuming Normal Data)	
Student's-t	0.434729
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.555419
Modified-t	0.455488
95 % Non-parametric UCL	
CLT	0.422329
Jackknife	0.434729
Standard Bootstrap	0.418816
Bootstrap-t	3.38717
Chebyshev (Mean, Std)	0.79957
99 % Non-parametric UCL	
CLT	0.517054
Jackknife	0.548471
Standard Bootstrap	0.510323
Bootstrap-t	10.08573
Chebyshev (Mean, Std)	1.576693

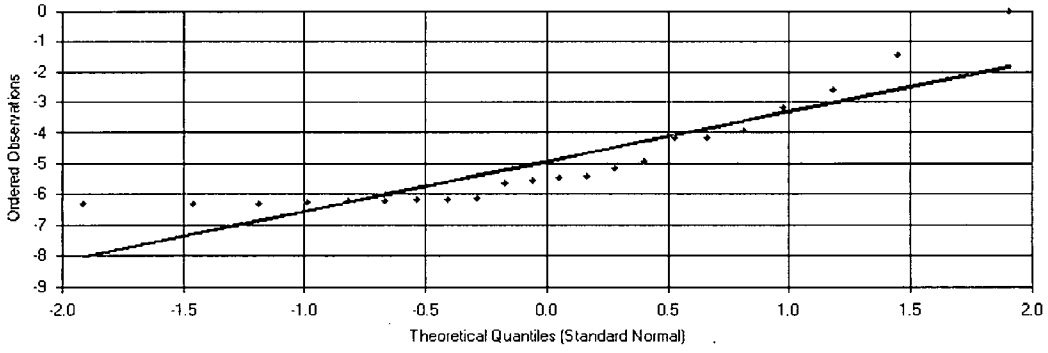
Summary Statistics for	ln(DDT-4,4')
Minimum	-6.348139
Maximum	0.955511
Mean	-4.28868
Standard Deviation	2.119653
Variance	4.492927
Shapiro-Wilk Test Statisitic	0.856947
Shapiro-Wilk 5% Critical Value	0.901
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.129741
MLE Standard Deviation	1.219721
MLE Coefficient of Variation	9.401208
MLE Skewness	859.1078
MLE Median	0.013723
MLE 80% Quantile	0.082284
MLE 90% Quantile	0.209103
MLE 95% Quantile	0.448498
MLE 99% Quantile	1.899578
MVU Estimate of Median	0.012184
MVU Estimate of Mean	0.09605
MVU Estimate of Std. Dev.	0.357266
MVU Estimate of SE of Mean	0.056996
UCL Assuming Lognormal Distribution	
95% H-UCL	1.226912
95% Chebyshev (MVUE) UCL	0.344489
99% Chebyshev (MVUE) UCL	0.663152

Normal Q-Q Plot for Dieldrin



N = 22, Mean = 0.0640, Stdv = 0.2084
Slope = 0.1192, Intercept = 0.0640, Correlation, R = 0.55262649
Shapiro-Wilk Statistic = 0.332, Critical Value(0.05) = 0.911, Data not Normal

Lognormal Q-Q Plot for Dieldrin



N = 22, Mean = -4.9302, Stdv = 1.7461
Slope = 1.6179, Intercept = -4.9302, Correlation, R = 0.89490036
Shapiro-Wilk Statistic = 0.800, Critical Value(0.05) = 0.911, Data not Lognormal

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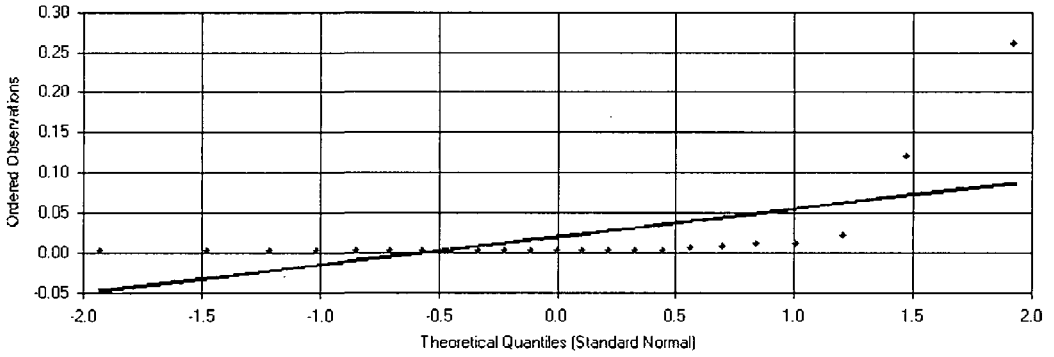
Summary Statistics for	Dieldrin
Number of Samples	22
Minimum	0.00175
Maximum	0.97
Mean	0.063969
Median	0.00395
Standard Deviation	0.208362
Variance	0.043415
Coefficient of Variation	3.257219
Skewness	4.311537
95 % UCL (Assuming Normal Data)	
Student's-t	0.14041
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.180671
Modified-t	0.147216
95 % Non-parametric UCL	
CLT	0.137039
Jackknife	0.14041
Standard Bootstrap	0.134262
Bootstrap-t	0.810058
Chebyshev (Mean, Std)	0.257604
97.5 % Non-parametric UCL	
CLT	6380.184
Jackknife	6430.348
Standard Bootstrap	6369.629
Bootstrap-t	6625.391
Chebyshev (Mean, Std)	8357.805

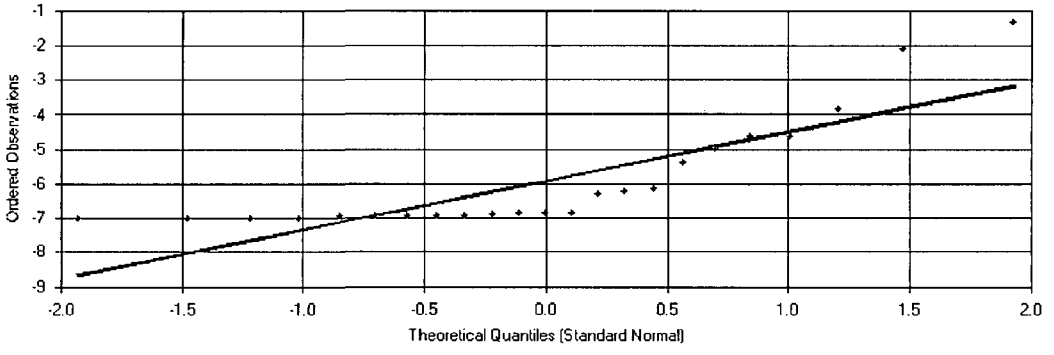
Summary Statistics for	ln(Dieldrin)
Minimum	-6.348139
Maximum	-0.030459
Mean	-4.930245
Standard Deviation	1.746085
Variance	3.048813
Shapiro-Wilk Test Statisitic	0.800225
Shapiro-Wilk 5% Critical Value	0.911
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.033179
MLE Standard Deviation	0.148716
MLE Coefficient of Variation	4.482221
MLE Skewness	103.4958
MLE Median	0.007225
MLE 80% Quantile	0.031594
MLE 90% Quantile	0.068117
MLE 95% Quantile	0.127717
MLE 99% Quantile	0.419433
MVU Estimate of Median	0.00674
MVU Estimate of Mean	0.028573
MVU Estimate of Std. Dev.	0.07831
MVU Estimate of SE of Mean	0.01321
UCL Assuming Lognormal Distribution	
95% H-UCL	0.135064
95% Chebyshev (MVUE) UCL	0.086154
99% Chebyshev (MVUE) UCL	0.16001

Normal Q-Q Plot for Heptachlor



N = 23, Mean = 0.0196, Stdv = 0.0580
Slope = 0.0352, Intercept = 0.0196, Correlation, R = 0.58638011
Shapiro-Wilk Statistic = 0.368, Critical Value(0.05) = 0.914, Data not Normal

Lognormal Q-Q Plot for Heptachlor



N = 23, Mean = -5.9167, Stdv = 1.6242
Slope = 1.4238, Intercept = -5.9167, Correlation, R = 0.84760899
Shapiro-Wilk Statistic = 0.718, Critical Value(0.05) = 0.914, Data not Lognormal

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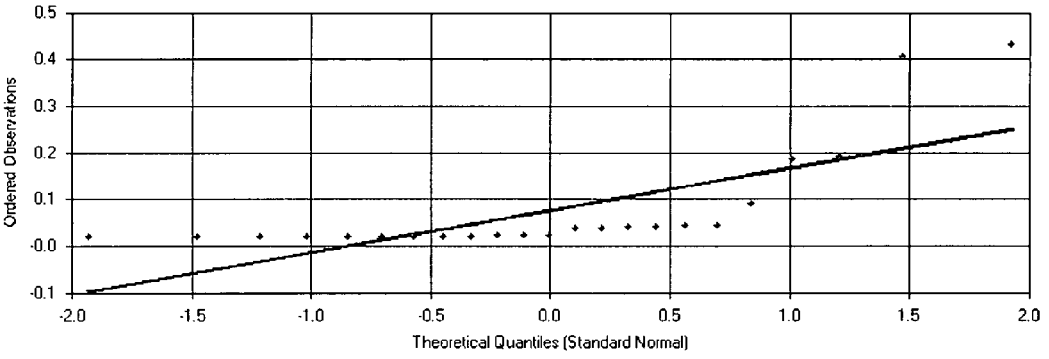
Summary Statistics for	Heptachlor
Number of Samples	23
Minimum	0.0009
Maximum	0.26
Mean	0.019552
Median	0.00105
Standard Deviation	0.057965
Variance	0.00336
Coefficient of Variation	2.964645
Skewness	3.785027
95 % UCL (Assuming Normal Data)	
Student's-t	0.040307
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.049626
Modified-t	0.041896
95 % Non-parametric UCL	
CLT	0.039433
Jackknife	0.040307
Standard Bootstrap	0.03903
Bootstrap-t	0.236701
Chebyshev (Mean, Std)	0.072236
97.5 % Non-parametric UCL	
CLT	0.043241
Jackknife	0.044618
Standard Bootstrap	0.042975
Bootstrap-t	0.343636
Chebyshev (Mean, Std)	0.095033

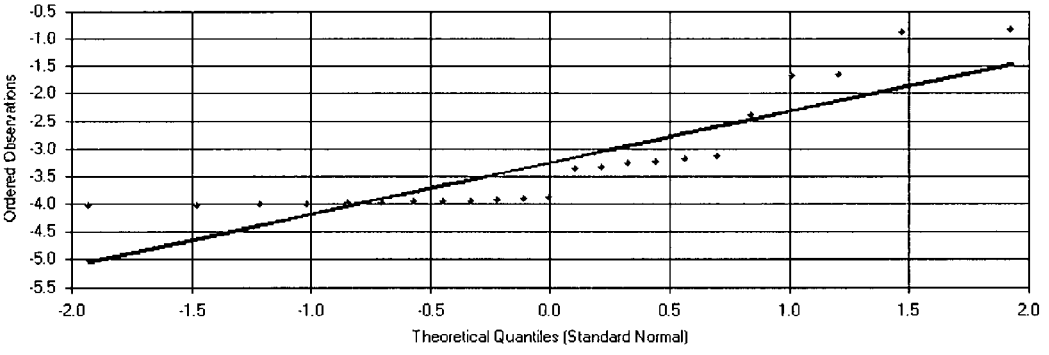
Summary Statistics for	ln(Heptachlor)
Minimum	-7.013116
Maximum	-1.347074
Mean	-5.91674
Standard Deviation	1.624183
Variance	2.637969
Shapiro-Wilk Test Statisitic	0.718403
Shapiro-Wilk 5% Critical Value	0.914
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.010074
MLE Standard Deviation	0.036303
MLE Coefficient of Variation	3.603439
MLE Skewness	57.60016
MLE Median	0.002694
MLE 80% Quantile	0.010628
MLE 90% Quantile	0.021717
MLE 95% Quantile	0.03897
MLE 99% Quantile	0.117785
MVU Estimate of Median	0.002543
MVU Estimate of Mean	0.008968
MVU Estimate of Std. Dev.	0.02189
MVU Estimate of SE of Mean	0.003758
UCL Assuming Lognormal Distribution	
95% H-UCL	0.033381
95% Chebyshev (MVUE) UCL	0.025349
99% Chebyshev (MVUE) UCL	0.046359

Normal Q-Q Plot for Pcb-araclor 1248



N = 23, Mean = 0.0763, Stdv = 0.1181
Slope = 0.0902, Intercept = 0.0763, Correlation, R = 0.73863300
Shapiro-Wilk Statistic = 0.552, Critical Value(0.05) = 0.914, Data not Normal

Lognormal Q-Q Plot for Pcb-araclor 1248



N = 23, Mean = -3.2534, Stdv = 1.0311
Slope = 0.9293, Intercept = -3.2534, Correlation, R = 0.87147163
Shapiro-Wilk Statistic = 0.751, Critical Value(0.05) = 0.914, Data not Lognormal

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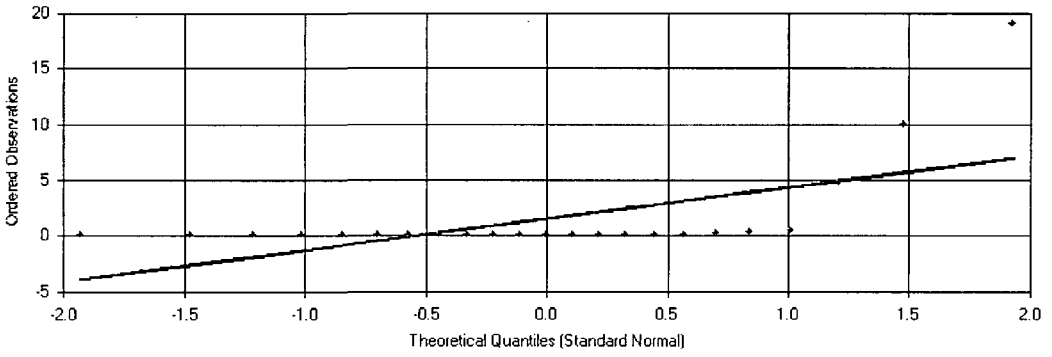
Summary Statistics for	Pcb-araclo
Number of Samples	23
Minimum	0.0175
Maximum	0.43025
Mean	0.076304
Median	0.0205
Standard Deviation	0.118077
Variance	0.013942
Coefficient of Variation	1.547447
Skewness	2.418817
95 % UCL (Assuming Normal Data)	
Student's-t	0.118582
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.13007
Modified-t	0.120651
95 % Non-parametric UCL	
CLT	0.116802
Jackknife	0.118582
Standard Bootstrap	0.115882
Bootstrap-t	0.169811
Chebyshev (Mean, Std)	0.183624
97.5 % Non-parametric UCL	
CLT	0.12456
Jackknife	0.127365
Standard Bootstrap	0.124042
Bootstrap-t	0.212447
Chebyshev (Mean, Std)	0.230061

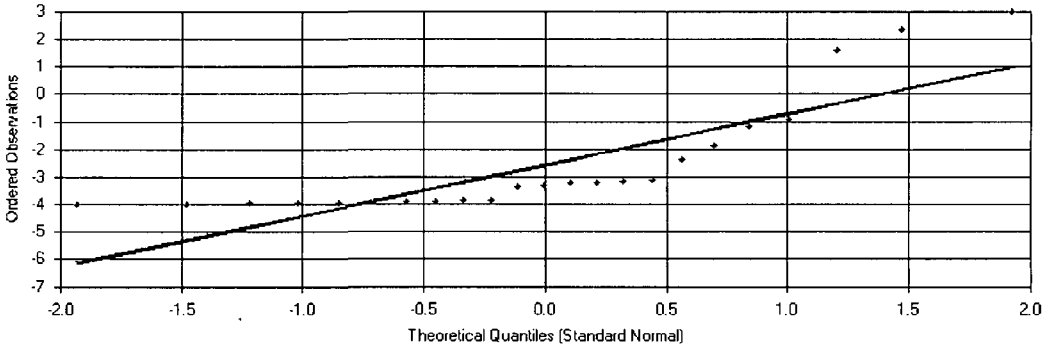
Summary Statistics for	ln(Pcb-araclor 1248)
Minimum	-4.045554
Maximum	-0.843389
Mean	-3.253402
Standard Deviation	1.031119
Variance	1.063207
Shapiro-Wilk Test Statisitic	0.751164
Shapiro-Wilk 5% Critical Value	0.914
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.065756
MLE Standard Deviation	0.090535
MLE Coefficient of Variation	1.376823
MLE Skewness	6.740433
MLE Median	0.038643
MLE 80% Quantile	0.092356
MLE 90% Quantile	0.145379
MLE 95% Quantile	0.210723
MLE 99% Quantile	0.425275
MVU Estimate of Median	0.037759
MVU Estimate of Mean	0.063599
MVU Estimate of Std. Dev.	0.077977
MVU Estimate of SE of Mean	0.015537
UCL Assuming Lognormal Distribution	
95% H-UCL	0.115872
95% Chebyshev (MVUE) UCL	0.131323
99% Chebyshev (MVUE) UCL	0.218191

Normal Q-Q Plot for Pcb-araclor 1254



N = 23, Mean = 1.5224, Stdv = 4.4213
Slope = 2.8084, Intercept = 1.5224, Correlation, R = 0.61417764
Shapiro-Wilk Statistic = 0.399, Critical Value(0.05) = 0.914, Data not Normal

Lognormal Q-Q Plot for Pcb-araclor 1254



N = 23, Mean = -2.5732, Stdv = 2.1188
Slope = 1.8503, Intercept = -2.5732, Correlation, R = 0.84437352
Shapiro-Wilk Statistic = 0.710, Critical Value(0.05) = 0.914, Data not Lognormal

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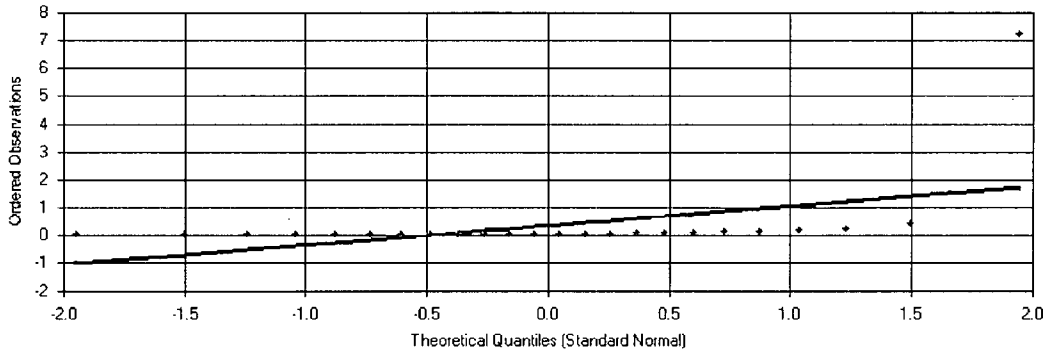
Summary Statistics for	Pcb-araclo
Number of Samples	23
Minimum	0.0175
Maximum	19
Mean	1.522402
Median	0.0345
Standard Deviation	4.421263
Variance	19.54757
Coefficient of Variation	2.904136
Skewness	3.408748
95 % UCL (Assuming Normal Data)	
Student's-t	3.105433
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.738943
Modified-t	3.214642
95 % Non-parametric UCL	
CLT	3.038788
Jackknife	3.105433
Standard Bootstrap	3.008218
Bootstrap-t	7.364871
Chebyshev (Mean, Std)	5.540859
99 % Non-parametric UCL	
CLT	3.667056
Jackknife	3.834819
Standard Bootstrap	3.603592
Bootstrap-t	85.28162
Chebyshev (Mean, Std)	10.69516

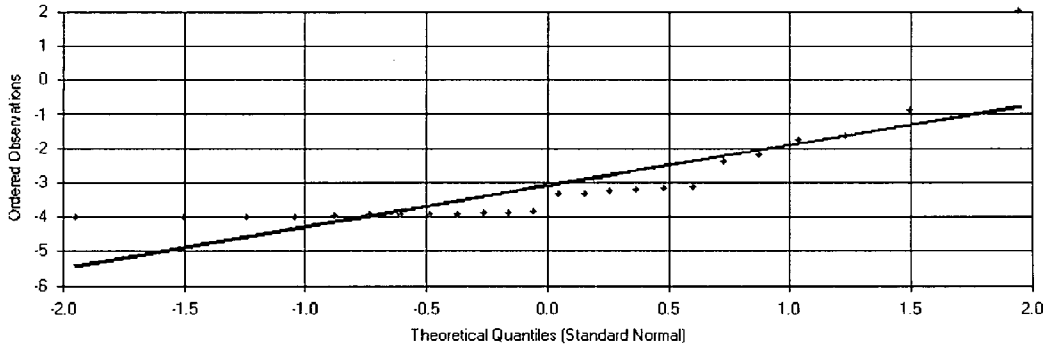
Summary Statistics for	ln(Pcb-araclor 1254)
Minimum	-4.045554
Maximum	2.944439
Mean	-2.573217
Standard Deviation	2.118849
Variance	4.489523
Shapiro-Wilk Test Statisitic	0.71005
Shapiro-Wilk 5% Critical Value	0.914
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.720035
MLE Standard Deviation	6.757552
MLE Coefficient of Variation	9.385038
MLE Skewness	854.7792
MLE Median	0.07629
MLE 80% Quantile	0.457129
MLE 90% Quantile	1.161258
MLE 95% Quantile	2.490018
MLE 99% Quantile	10.54051
MVU Estimate of Median	0.069168
MVU Estimate of Mean	0.557014
MVU Estimate of Std. Dev.	2.269136
MVU Estimate of SE of Mean	0.314663
UCL Assuming Lognormal Distribution	
95% H-UCL	4.965637
95% Chebyshev (MVUE) UCL	1.928597
99% Chebyshev (MVUE) UCL	3.687869

Normal Q-Q Plot for Pcb-araclor 1260



N = 24, Mean = 0.3592, Stdv = 1.4597
Slope = 0.7011, Intercept = 0.3592, Correlation, R = 0.46487619
Shapiro-Wilk Statistic = 0.244, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Pcb-araclor 1260



N = 24, Mean = -3.0922, Stdv = 1.3987
Slope = 1.1956, Intercept = -3.0922, Correlation, R = 0.82736777
Shapiro-Wilk Statistic = 0.698, Critical Value(0.05) = 0.916, Data not Lognormal

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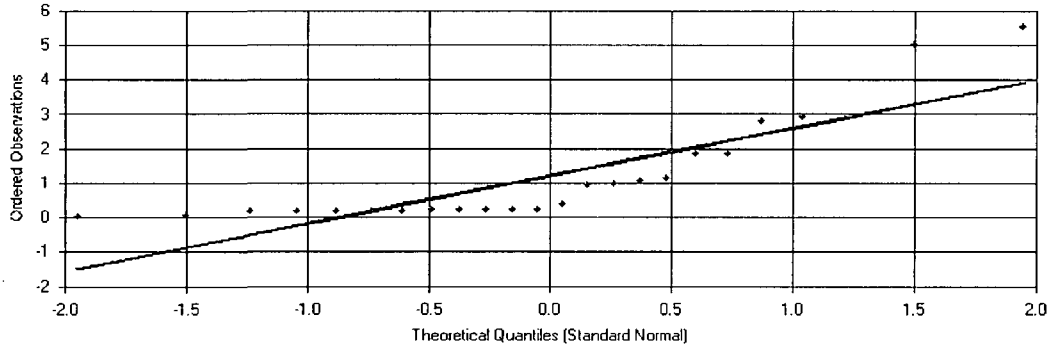
Summary Statistics for	Pcb-araclo
Number of Samples	24
Minimum	0.0175
Maximum	7.2
Mean	0.359229
Median	0.0275
Standard Deviation	1.459679
Variance	2.130664
Coefficient of Variation	4.063366
Skewness	4.871113
95 % UCL (Assuming Normal Data)	
Student's-t	0.869887
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.165882
Modified-t	0.919264
95 % Non-parametric UCL	
CLT	0.849323
Jackknife	0.869887
Standard Bootstrap	0.834449
Bootstrap-t	10.42697
Chebyshev (Mean, Std)	1.657988
97.5 % Non-parametric UCL	
CLT	0.943212
Jackknife	0.975598
Standard Bootstrap	0.934891
Bootstrap-t	12.82448
Chebyshev (Mean, Std)	2.219963

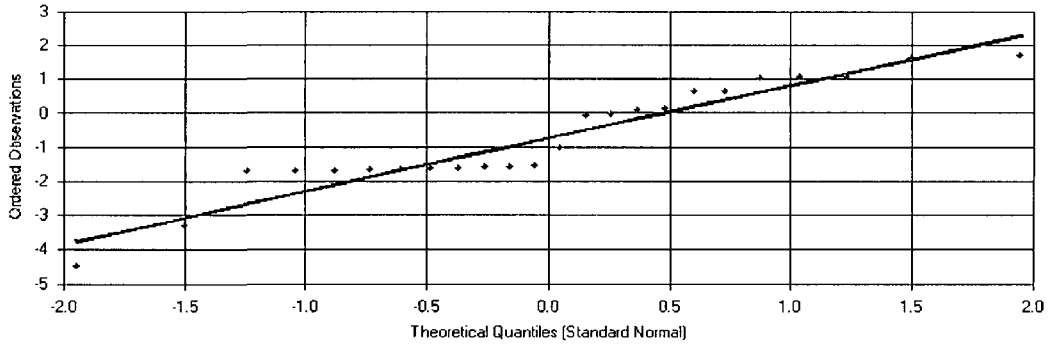
Summary Statistics for	ln(Pcb-araclor 1260)
Minimum	-4.045554
Maximum	1.974081
Mean	-3.092176
Standard Deviation	1.398708
Variance	1.956384
Shapiro-Wilk Test Statisitic	0.698399
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.120756
MLE Standard Deviation	0.297601
MLE Coefficient of Variation	2.464488
MLE Skewness	22.36203
MLE Median	0.045403
MLE 80% Quantile	0.148041
MLE 90% Quantile	0.273943
MLE 95% Quantile	0.453254
MLE 99% Quantile	1.174942
MVU Estimate of Median	0.043587
MVU Estimate of Mean	0.112254
MVU Estimate of Std. Dev.	0.215529
MVU Estimate of SE of Mean	0.038784
UCL Assuming Lognormal Distribution	
95% H-UCL	0.297025
95% Chebyshev (MVUE) UCL	0.281311
99% Chebyshev (MVUE) UCL	0.498153

Normal Q-Q Plot for Acetophenone



N = 24, Mean = 1.2125, Stdv = 1.5603
Slope = 1.3878, Intercept = 1.2125, Correlation, R = 0.86092161
Shapiro-Wilk Statistic = 0.740, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Acetophenone



N = 24, Mean = -0.7415, Stdv = 1.5662
Slope = 1.5512, Intercept = -0.7415, Correlation, R = 0.95867569
Shapiro-Wilk Statistic = 0.918, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Acetophen
Number of Samples	24
Minimum	0.011
Maximum	5.5
Mean	1.212521
Median	0.2775
Standard Deviation	1.560255
Variance	2.434395
Coefficient of Variation	1.286786
Skewness	1.654819

95 % UCL (Assuming Normal Data)	
Student's-t	1.758364

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.851335
Modified-t	1.776294

95 % Non-parametric UCL	
CLT	1.736383
Jackknife	1.758364
Standard Bootstrap	1.72684
Bootstrap-t	1.962867
Chebyshev (Mean, Std)	2.600768

97.5 % Non-parametric UCL	
CLT	1.836741
Jackknife	1.871358
Standard Bootstrap	1.824479
Bootstrap-t	2.266615
Chebyshev (Mean, Std)	3.201463

Summary Statistics for	ln(Acetophenone)
Minimum	-4.50986
Maximum	1.704748
Mean	-0.741458
Standard Deviation	1.566204
Variance	2.452996
Shapiro-Wilk Test Statisitic	0.918319
Shapiro-Wilk 5% Critical Value	0.916

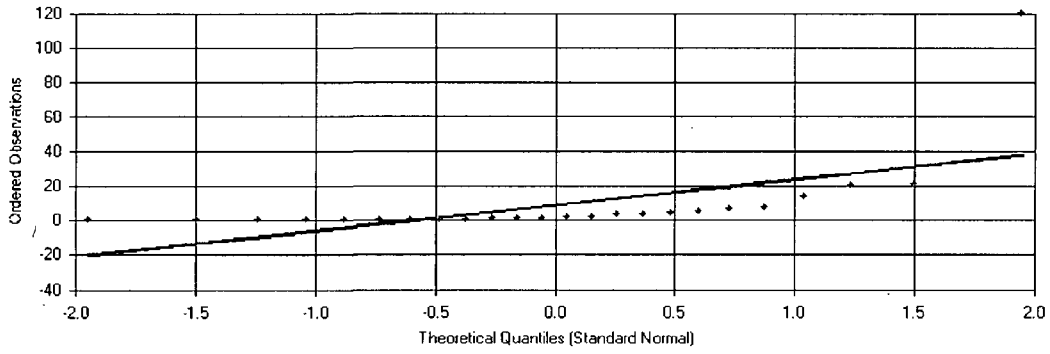
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	1.62424
MLE Standard Deviation	5.293906
MLE Coefficient of Variation	3.259312
MLE Skewness	44.40199
MLE Median	0.476419
MLE 80% Quantile	1.789587
MLE 90% Quantile	3.564824
MLE 95% Quantile	6.264809
MLE 99% Quantile	18.20203
MVU Estimate of Median	0.452636
MVU Estimate of Mean	1.468506
MVU Estimate of Std. Dev.	3.400992
MVU Estimate of SE of Mean	0.580834

UCL Assuming Lognormal Distribution	
95% H-UCL	4.839503
95% Chebyshev (MVUE) UCL	4.000305
99% Chebyshev (MVUE) UCL	7.247735

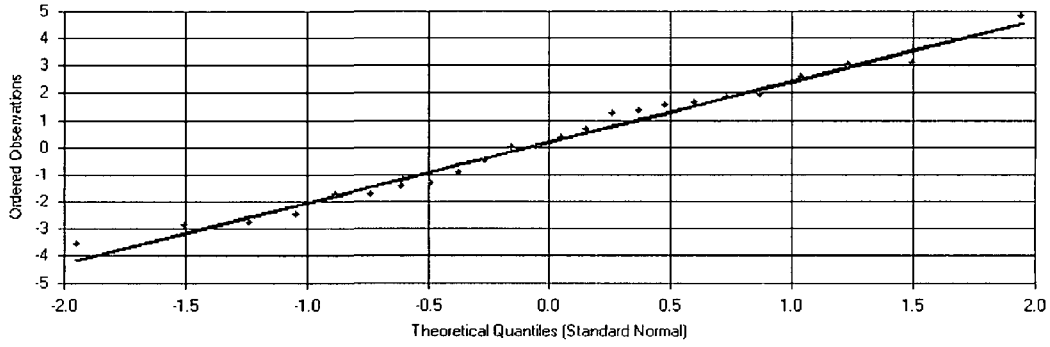
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(a)anthracene



N = 24, Mean = 8.8105, Stdv = 24.4244
Slope = 14.8846, Intercept = 8.8105, Correlation, R = 0.58986570
Shapiro-Wilk Statistic = 0.377, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Benzo(a)anthracene



N = 24, Mean = 0.1789, Stdv = 2.1787
Slope = 2.2316, Intercept = 0.1789, Correlation, R = 0.99142355
Shapiro-Wilk Statistic = 0.977, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Benzo(a)ar
Number of Samples	24
Minimum	0.028
Maximum	120
Mean	8.810542
Median	1.2
Standard Deviation	24.42443
Variance	596.5527
Coefficient of Variation	2.772182
Skewness	4.457874

95 % UCL (Assuming Normal Data)	
Student's-t	17.35524

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	21.85869
Modified-t	18.11136

95 % Non-parametric UCL	
CLT	17.01115
Jackknife	17.35524
Standard Bootstrap	16.78451
Bootstrap-t	42.83525
Chebyshev (Mean, Std)	30.54234

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	58.41679

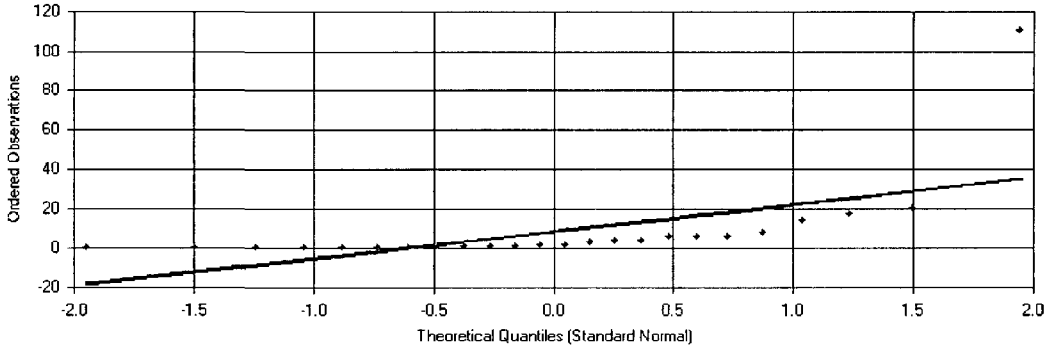
Summary Statistics for	ln(Benzo(a)anthracene)
Minimum	-3.575551
Maximum	4.787492
Mean	0.178877
Standard Deviation	2.17867
Variance	4.746604
Shapiro-Wilk Test Statisitic	0.976961
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	12.83504
MLE Standard Deviation	137.1564
MLE Coefficient of Variation	10.68609
MLE Skewness	1252.329
MLE Median	1.195874
MLE 80% Quantile	7.537221
MLE 90% Quantile	19.65769
MLE 95% Quantile	43.06841
MLE 99% Quantile	189.8937
MVU Estimate of Median	1.082848
MVU Estimate of Mean	9.800644
MVU Estimate of Std. Dev.	43.29319
MVU Estimate of SE of Mean	5.638378

UCL Assuming Lognormal Distribution	
95% H-UCL	92.15819
95% Chebyshev (MVUE) UCL	34.37777
99% Chebyshev (MVUE) UCL	65.9018

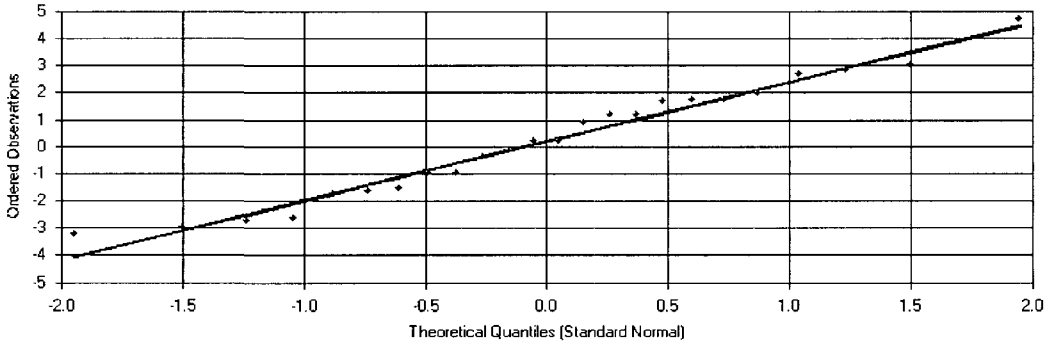
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(a)pyrene



N = 24, Mean = 8.3000, Stdv = 22.3682
Slope = 13.7947, Intercept = 8.3000, Correlation, R = 0.59692923
Shapiro-Wilk Statistic = 0.385, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Benzo(a)pyrene



N = 24, Mean = 0.1959, Stdv = 2.1456
Slope = 2.1910, Intercept = 0.1959, Correlation, R = 0.98841156
Shapiro-Wilk Statistic = 0.968, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Benzo(a)py
Number of Samples	24
Minimum	0.04
Maximum	110
Mean	8.299979
Median	1.2
Standard Deviation	22.36816
Variance	500.3345
Coefficient of Variation	2.694965
Skewness	4.438869

95 % UCL (Assuming Normal Data)	
Student's-t	16.12531

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	20.23069
Modified-t	16.81482

95 % Non-parametric UCL	
CLT	15.81019
Jackknife	16.12531
Standard Bootstrap	15.51223
Bootstrap-t	39.57253
Chebyshev (Mean, Std)	28.20219

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	53.72992

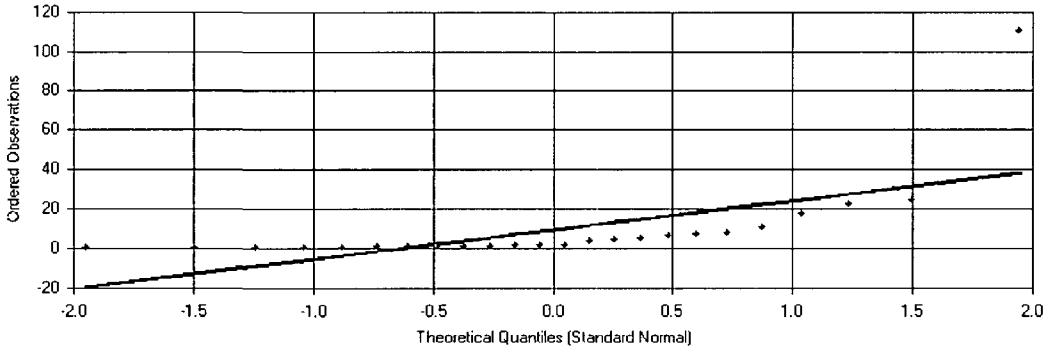
Summary Statistics for	ln(Benzo(a)pyrene)
Minimum	-3.218876
Maximum	4.70048
Mean	0.195851
Standard Deviation	2.14555
Variance	4.603386
Shapiro-Wilk Test Statisitic	0.968404
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	12.15261
MLE Standard Deviation	120.808
MLE Coefficient of Variation	9.940911
MLE Skewness	1012.201
MLE Median	1.216346
MLE 80% Quantile	7.454674
MLE 90% Quantile	19.16112
MLE 95% Quantile	41.4829
MLE 99% Quantile	178.8238
MVU Estimate of Median	1.104702
MVU Estimate of Mean	9.394688
MVU Estimate of Std. Dev.	40.12152
MVU Estimate of SE of Mean	5.317748

UCL Assuming Lognormal Distribution	
95% H-UCL	82.60795
95% Chebyshev (MVUE) UCL	32.57421
99% Chebyshev (MVUE) UCL	62.30561

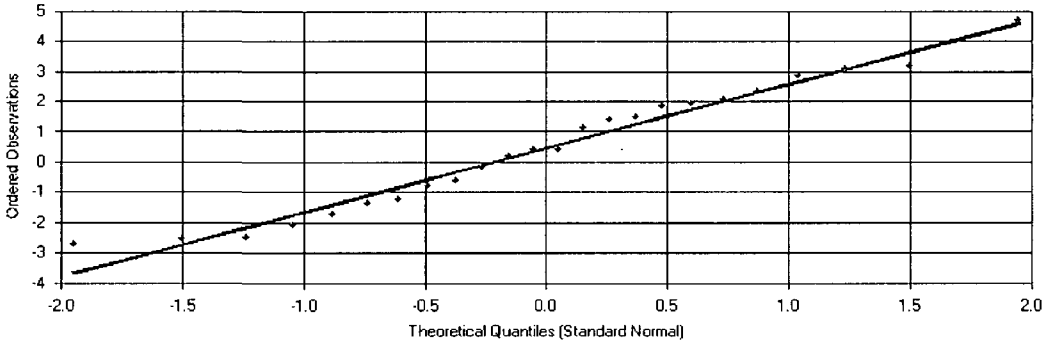
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(b)fluoranthene



N = 24, Mean = 9.2860, Stdv = 22.5495
Slope = 14.7777, Intercept = 9.2860, Correlation, R = 0.63432281
Shapiro-Wilk Statistic = 0.431, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Benzo(b)fluoranthene



N = 24, Mean = 0.4592, Stdv = 2.0782
Slope = 2.1202, Intercept = 0.4592, Correlation, R = 0.98744034
Shapiro-Wilk Statistic = 0.964, Critical Value(0.05) = 0.916, Data are Lognormal

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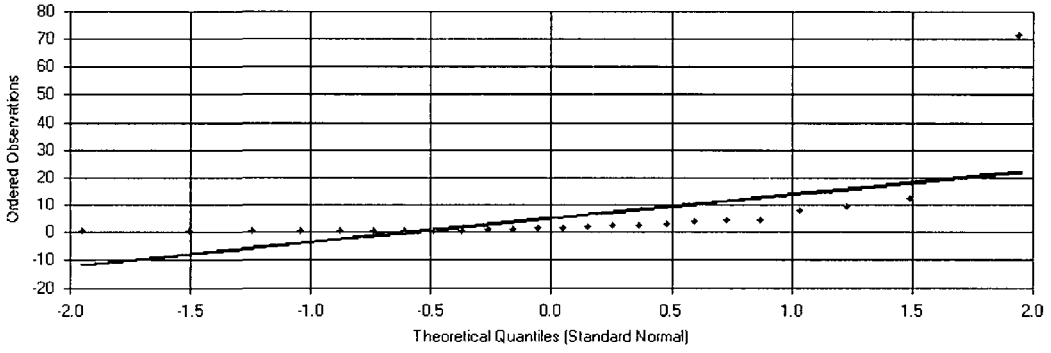
Summary Statistics for	Benzo(b)flu
Number of Samples	24
Minimum	0.065
Maximum	110
Mean	9.286
Median	1.5
Standard Deviation	22.54946
Variance	508.4783
Coefficient of Variation	2.428329
Skewness	4.211287
95 % UCL (Assuming Normal Data)	
Student's-t	17.17476
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	21.08494
Modified-t	17.83422
95 % Non-parametric UCL	
CLT	16.85708
Jackknife	17.17476
Standard Bootstrap	16.85997
Bootstrap-t	35.65836
Chebyshev (Mean, Std)	29.34953
99 % Non-parametric UCL	
Chebyshev (Mean, Std)	55.08418

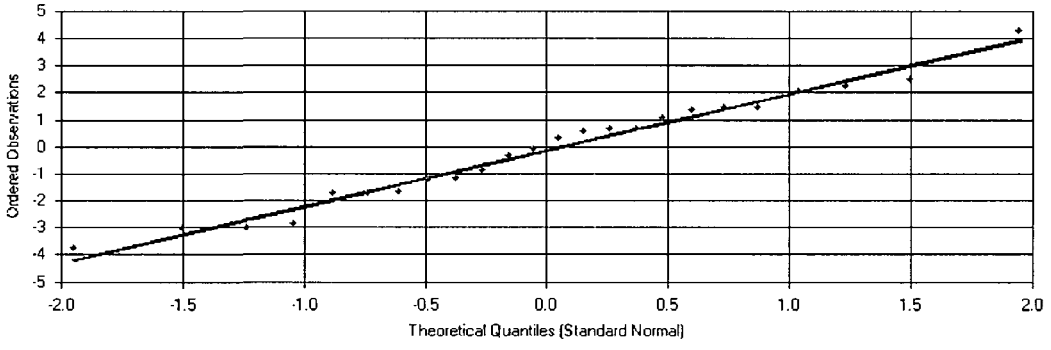
Summary Statistics for	ln(Benzo(b)fluoranthene)
Minimum	-2.733368
Maximum	4.70048
Mean	0.459234
Standard Deviation	2.078249
Variance	4.319118
Shapiro-Wilk Test Statisitic	0.964357
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	13.71915
MLE Standard Deviation	118.1141
MLE Coefficient of Variation	8.609432
MLE Skewness	663.9794
MLE Median	1.58286
MLE 80% Quantile	9.16465
MLE 90% Quantile	22.86902
MLE 95% Quantile	48.32518
MLE 99% Quantile	198.9871
MVU Estimate of Median	1.446179
MVU Estimate of Mean	10.86132
MVU Estimate of Std. Dev.	43.29327
MVU Estimate of SE of Mean	5.940841
UCL Assuming Lognormal Distribution	
95% H-UCL	83.64995
95% Chebyshev (MVUE) UCL	36.75685
99% Chebyshev (MVUE) UCL	69.97194
Recommended UCL to use:	
99 % Chebyshev (MVUE) UCL	

Normal Q-Q Plot for Benzo(k)fluoranthene



N = 24, Mean = 5.1972, Stdv = 14.3688
Slope = 8.6391, Intercept = 5.1972, Correlation, R = 0.58194940
Shapiro-Wilk Statistic = 0.368, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Benzo(k)fluoranthene



N = 24, Mean = -0.1482, Stdv = 2.0348
Slope = 2.0822, Intercept = -0.1482, Correlation, R = 0.99044861
Shapiro-Wilk Statistic = 0.977, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Benzo(k)flu
Number of Samples	24
Minimum	0.023
Maximum	71
Mean	5.197208
Median	1.09
Standard Deviation	14.36883
Variance	206.4631
Coefficient of Variation	2.76472
Skewness	4.535531

95 % UCL (Assuming Normal Data)	
Student's-t	10.22403

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	12.92308
Modified-t	10.67661

95 % Non-parametric UCL	
CLT	10.0216
Jackknife	10.22403
Standard Bootstrap	10.02386
Bootstrap-t	27.86743
Chebyshev (Mean, Std)	17.98196

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	34.38043

Summary Statistics for	ln(Benzo(k)fluoranthene)
Minimum	-3.772261
Maximum	4.26268
Mean	-0.148246
Standard Deviation	2.034794
Variance	4.140388
Shapiro-Wilk Test Statisitic	0.977266
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

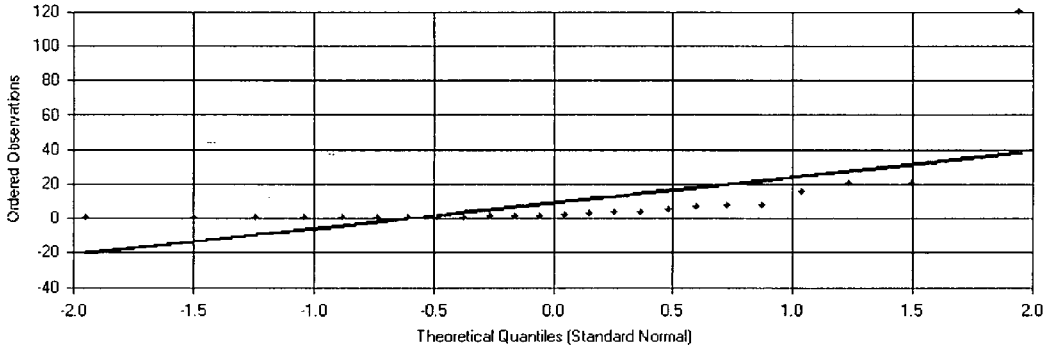
Estimates Assuming Lognormal Distribution	
MLE Mean	6.834254
MLE Standard Deviation	53.73791
MLE Coefficient of Variation	7.863025
MLE Skewness	509.7376
MLE Median	0.862219
MLE 80% Quantile	4.812201
MLE 90% Quantile	11.78072
MLE 95% Quantile	24.50776
MLE 99% Quantile	97.97231
MVU Estimate of Median	0.790725
MVU Estimate of Mean	5.489725
MVU Estimate of Std. Dev.	20.92364
MVU Estimate of SE of Mean	2.934316

UCL Assuming Lognormal Distribution	
95% H-UCL	38.91672
95% Chebyshev (MVUE) UCL	18.28011
99% Chebyshev (MVUE) UCL	34.6858

Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

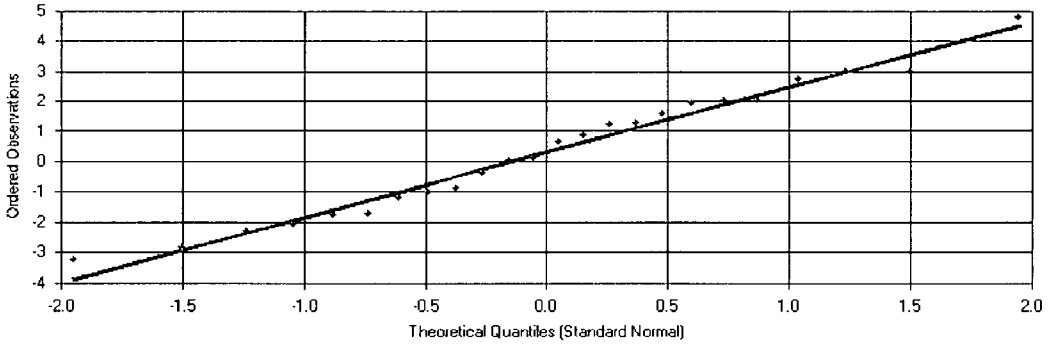
301661

Normal Q-Q Plot for Chrysene



N = 24, Mean = 9.0259, Stdv = 24.3856
Slope = 14.9895, Intercept = 9.0259, Correlation, R = 0.59496788
Shapiro-Wilk Statistic = 0.383, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Chrysene



N = 24, Mean = 0.3059, Stdv = 2.1106
Slope = 2.1607, Intercept = 0.3059, Correlation, R = 0.99088066
Shapiro-Wilk Statistic = 0.976, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Chrysene
Number of Samples	24
Minimum	0.038
Maximum	120
Mean	9.025875
Median	1.5
Standard Deviation	24.3856
Variance	594.6576
Coefficient of Variation	2.701744
Skewness	4.450291

95 % UCL (Assuming Normal Data)	
Student's-t	17.557

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	22.04505
Modified-t	18.31063

95 % Non-parametric UCL	
CLT	17.21345
Jackknife	17.557
Standard Bootstrap	17.03992
Bootstrap-t	42.84314
Chebyshev (Mean, Std)	30.72312

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	58.55327

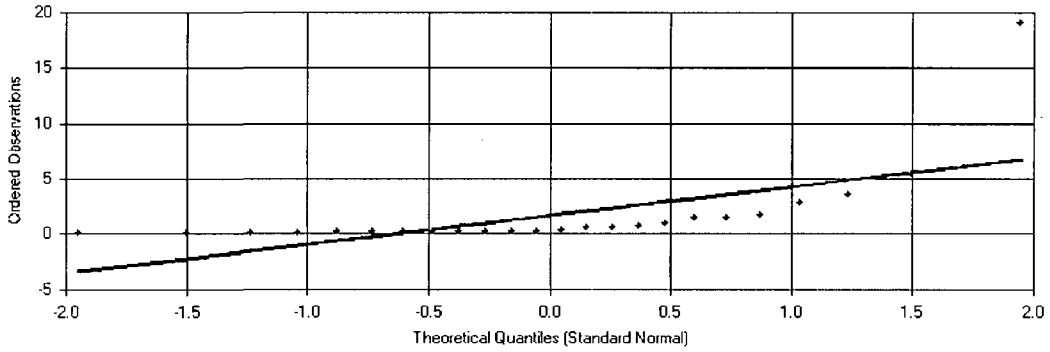
Summary Statistics for	ln(Chrysene)
Minimum	-3.270169
Maximum	4.787492
Mean	0.30595
Standard Deviation	2.110634
Variance	4.454776
Shapiro-Wilk Test Statisitic	0.975519
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	12.59548
MLE Standard Deviation	116.1498
MLE Coefficient of Variation	9.221546
MLE Skewness	811.8364
MLE Median	1.357914
MLE 80% Quantile	8.080351
MLE 90% Quantile	20.45269
MLE 95% Quantile	43.72599
MLE 99% Quantile	184.0642
MVU Estimate of Median	1.23713
MVU Estimate of Mean	9.860125
MVU Estimate of Std. Dev.	40.63129
MVU Estimate of SE of Mean	5.48404

UCL Assuming Lognormal Distribution	
95% H-UCL	80.88834
95% Chebyshev (MVUE) UCL	33.7645
99% Chebyshev (MVUE) UCL	64.42564

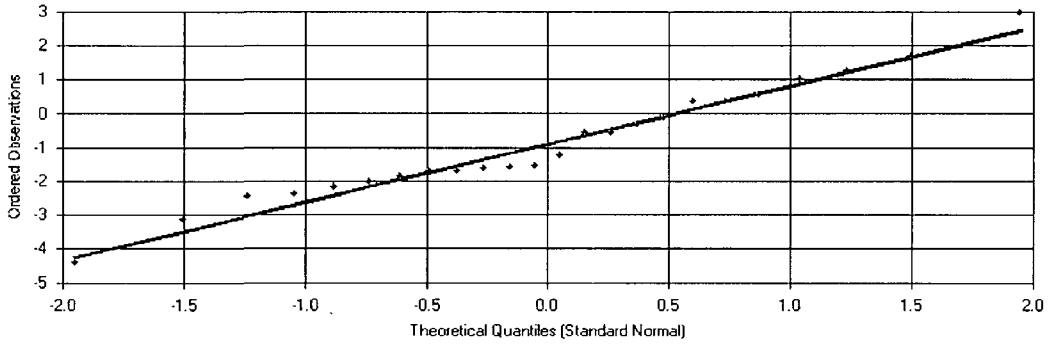
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Dibenzo(a,h)anthracene



N = 24, Mean = 1.6559, Stdv = 3.9200
Slope = 2.5891, Intercept = 1.6559, Correlation, R = 0.63928844
Shapiro-Wilk Statistic = 0.436, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Dibenzo(a,h)anthracene



N = 24, Mean = -0.9048, Stdv = 1.6862
Slope = 1.7189, Intercept = -0.9048, Correlation, R = 0.98664516
Shapiro-Wilk Statistic = 0.978, Critical Value(0.05) = 0.916, Data are Lognormal

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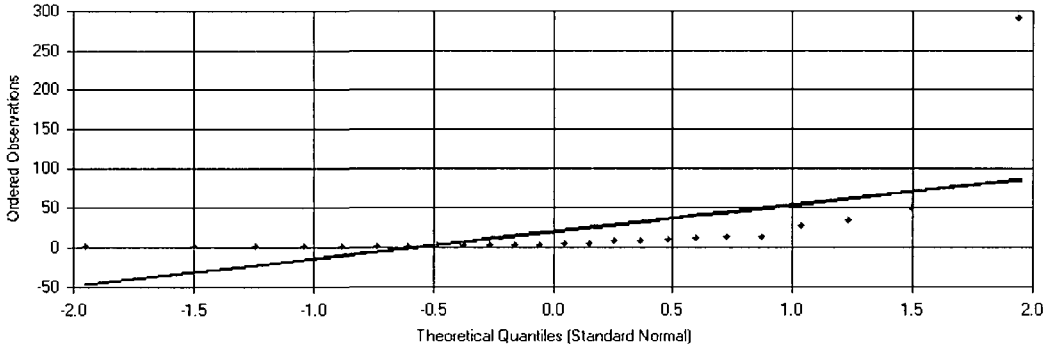
Summary Statistics for	Dibenzo(a,l
Number of Samples	24
Minimum	0.012
Maximum	19
Mean	1.655917
Median	0.25
Standard Deviation	3.919987
Variance	15.3663
Coefficient of Variation	2.367261
Skewness	4.116892
95 % UCL (Assuming Normal Data)	
Student's-t	3.027295
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.690564
Modified-t	3.139365
95 % Non-parametric UCL	
CLT	2.972069
Jackknife	3.027295
Standard Bootstrap	2.970097
Bootstrap-t	6.235272
Chebyshev (Mean, Std)	5.143751

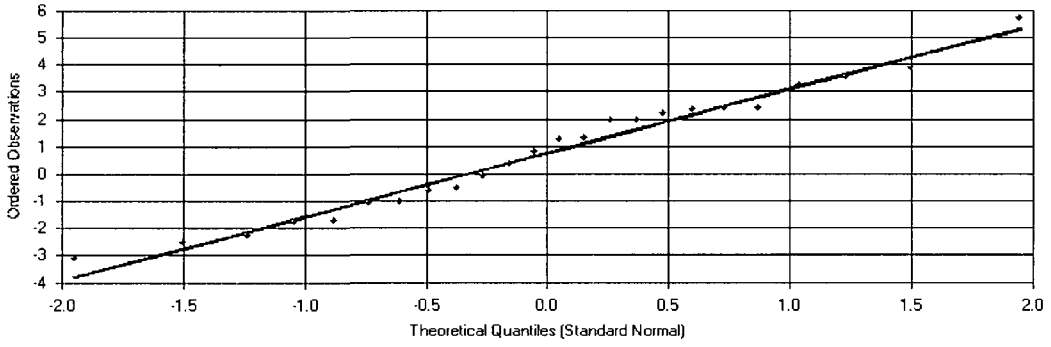
Summary Statistics for	ln(Dibenzo(a,h)anthracene)
Minimum	-4.422849
Maximum	2.944439
Mean	-0.904809
Standard Deviation	1.686243
Variance	2.843417
Shapiro-Wilk Test Statisitic	0.978253
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.67682
MLE Standard Deviation	6.743724
MLE Coefficient of Variation	4.021735
MLE Skewness	77.11414
MLE Median	0.404619
MLE 80% Quantile	1.682139
MLE 90% Quantile	3.532527
MLE 95% Quantile	6.482207
MLE 99% Quantile	20.43794
MVU Estimate of Median	0.381293
MVU Estimate of Mean	1.479808
MVU Estimate of Std. Dev.	3.905856
MVU Estimate of SE of Mean	0.638625
UCL Assuming Lognormal Distribution	
95% H-UCL	5.805551
95% Chebyshev (MVUE) UCL	4.26351
99% Chebyshev (MVUE) UCL	7.834048
Recommended UCL to use:	
95 % Chebyshev (MVUE) UCL	

Normal Q-Q Plot for Fluoranthene



N = 24, Mean = 19.3575, Stdv = 58.8566
Slope = 34.0756, Intercept = 19.3575, Correlation, R = 0.56038703
Shapiro-Wilk Statistic = 0.343, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Fluoranthene



N = 24, Mean = 0.7518, Stdv = 2.2857
Slope = 2.3378, Intercept = 0.7518, Correlation, R = 0.99000911
Shapiro-Wilk Statistic = 0.975, Critical Value(0.05) = 0.916, Data are Lognormal

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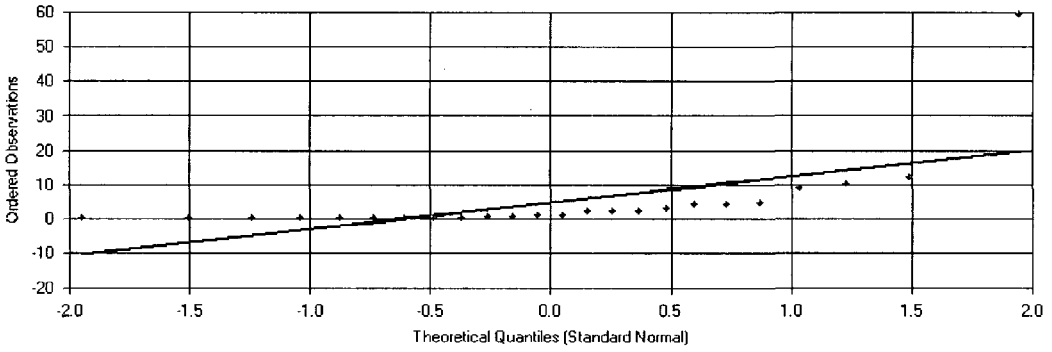
Summary Statistics for	Fluoranthei
Number of Samples	24
Minimum	0.043
Maximum	290
Mean	19.35754
Median	2.8
Standard Deviation	58.8566
Variance	3464.099
Coefficient of Variation	3.0405
Skewness	4.595775
95 % UCL (Assuming Normal Data)	
Student's-t	39.94808
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	51.16158
Modified-t	41.8265
95 % Non-parametric UCL	
CLT	39.1189
Jackknife	39.94808
Standard Bootstrap	38.59812
Bootstrap-t	122.5676
Chebyshev (Mean, Std)	71.72559
99 % Non-parametric UCL	
Chebyshev (Mean, Std)	138.8959

Summary Statistics for	ln(Fluoranthene)
Minimum	-3.146555
Maximum	5.669881
Mean	0.751815
Standard Deviation	2.285656
Variance	5.224222
Shapiro-Wilk Test Statisitic	0.974648
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	28.90243
MLE Standard Deviation	392.8143
MLE Coefficient of Variation	13.59105
MLE Skewness	2551.264
MLE Median	2.120846
MLE 80% Quantile	14.63175
MLE 90% Quantile	40.00012
MLE 95% Quantile	91.0782
MLE 99% Quantile	431.9242
MVU Estimate of Median	1.901224
MVU Estimate of Mean	21.14711
MVU Estimate of Std. Dev.	104.1087
MVU Estimate of SE of Mean	12.78732
UCL Assuming Lognormal Distribution	
95% H-UCL	249.114
95% Chebyshev (MVUE) UCL	76.88575
99% Chebyshev (MVUE) UCL	148.3794

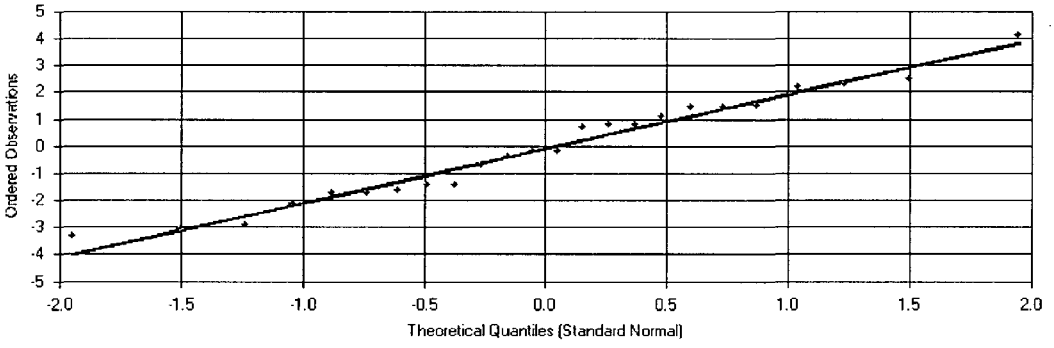
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 24, Mean = 4.8152, Stdv = 12.0146
Slope = 7.6763, Intercept = 4.8152, Correlation, R = 0.61841616
Shapiro-Wilk Statistic = 0.411, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 24, Mean = -0.1012, Stdv = 1.9694
Slope = 2.0108, Intercept = -0.1012, Correlation, R = 0.98827656
Shapiro-Wilk Statistic = 0.970, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Indeno(1,2,
Number of Samples	24
Minimum	0.035
Maximum	59
Mean	4.815167
Median	0.81
Standard Deviation	12.01458
Variance	144.3501
Coefficient of Variation	2.495153
Skewness	4.331455

95 % UCL (Assuming Normal Data)	
Student's-t	9.018377

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	11.16604
Modified-t	9.37977

95 % Non-parametric UCL	
CLT	8.849114
Jackknife	9.018377
Standard Bootstrap	8.727478
Bootstrap-t	19.86169
Chebyshev (Mean, Std)	15.50522

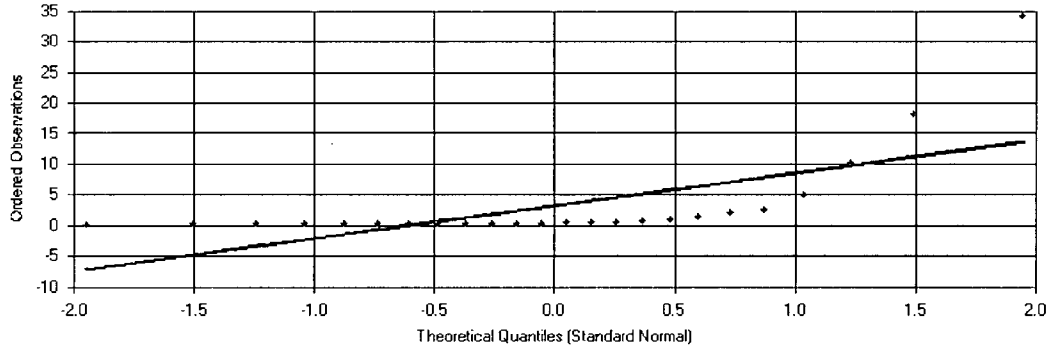
Summary Statistics for	ln(Indeno(1,2,3-cd)pyrene)
Minimum	-3.352407
Maximum	4.077537
Mean	-0.101193
Standard Deviation	1.969396
Variance	3.878521
Shapiro-Wilk Test Statisitic	0.969737
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	6.284381
MLE Standard Deviation	43.24487
MLE Coefficient of Variation	6.881326
MLE Skewness	346.493
MLE Median	0.903758
MLE 80% Quantile	4.772864
MLE 90% Quantile	11.35299
MLE 95% Quantile	23.06839
MLE 99% Quantile	88.20134
MVU Estimate of Median	0.833386
MVU Estimate of Mean	5.153161
MVU Estimate of Std. Dev.	18.35353
MVU Estimate of SE of Mean	2.656749

UCL Assuming Lognormal Distribution	
95% H-UCL	32.36919
95% Chebyshev (MVUE) UCL	16.73366
99% Chebyshev (MVUE) UCL	31.58748

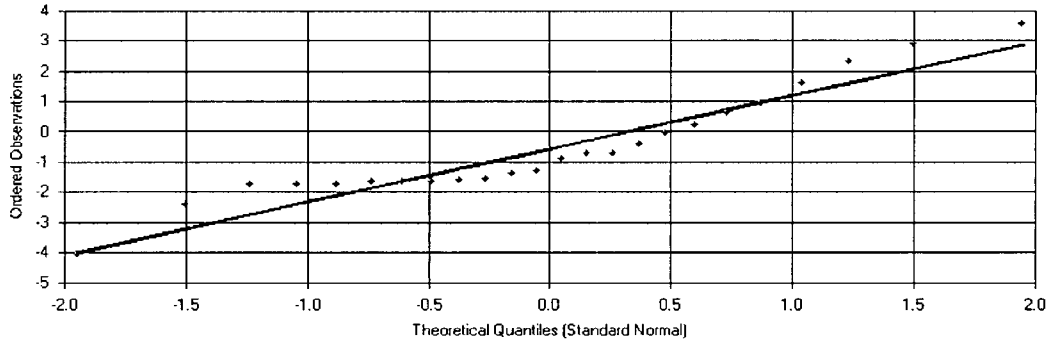
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Naphthalene



N = 24, Mean = 3.2272, Stdv = 7.7101
Slope = 5.3149, Intercept = 3.2272, Correlation, R = 0.66722656
Shapiro-Wilk Statistic = 0.467, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Naphthalene



N = 24, Mean = -0.5662, Stdv = 1.7840
Slope = 1.7603, Intercept = -0.5662, Correlation, R = 0.95505697
Shapiro-Wilk Statistic = 0.917, Critical Value(0.05) = 0.916, Data are Lognormal

From File C:\Documents and Settings\cklein\My Documents\164453MartinAaron\HHRA\Backup Tables\surf_MA ProUCL.xls

Summary Statistics for	Naphthaler
Number of Samples	24
Minimum	0.017
Maximum	34
Mean	3.227229
Median	0.335
Standard Deviation	7.71015
Variance	59.44641
Coefficient of Variation	2.389093
Skewness	3.335673

95 % UCL (Assuming Normal Data)	
Student's-t	5.924567

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6.960972
Modified-t	6.103168

95 % Non-parametric UCL	
CLT	5.815945
Jackknife	5.924567
Standard Bootstrap	5.788499
Bootstrap-t	11.43674
Chebyshev (Mean, Std)	10.08739

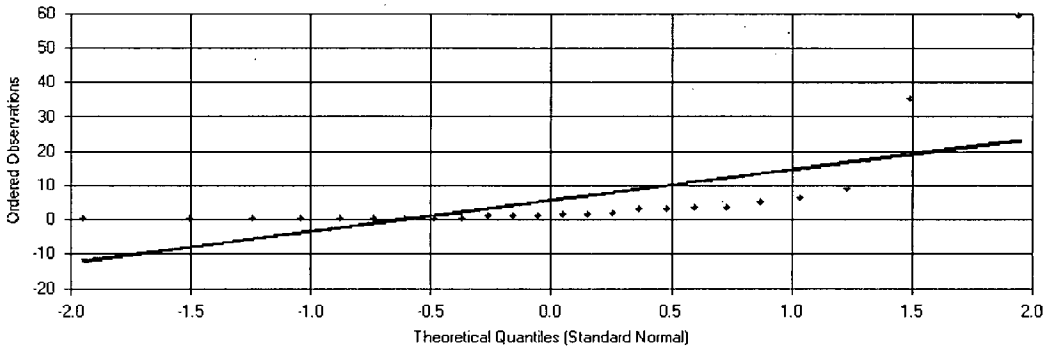
Summary Statistics for	ln(Naphthalene)
Minimum	-4.074542
Maximum	3.526361
Mean	-0.566157
Standard Deviation	1.783982
Variance	3.18259
Shapiro-Wilk Test Statisitic	0.917267
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	2.787481
MLE Standard Deviation	13.39996
MLE Coefficient of Variation	4.807195
MLE Skewness	125.5117
MLE Median	0.567703
MLE 80% Quantile	2.563331
MLE 90% Quantile	5.619594
MLE 95% Quantile	10.68128
MLE 99% Quantile	35.99515
MVU Estimate of Median	0.531189
MVU Estimate of Mean	2.404955
MVU Estimate of Std. Dev.	7.048197
MVU Estimate of SE of Mean	1.108219

UCL Assuming Lognormal Distribution	
95% H-UCL	10.99451
95% Chebyshev (MVUE) UCL	7.235569
99% Chebyshev (MVUE) UCL	13.43159

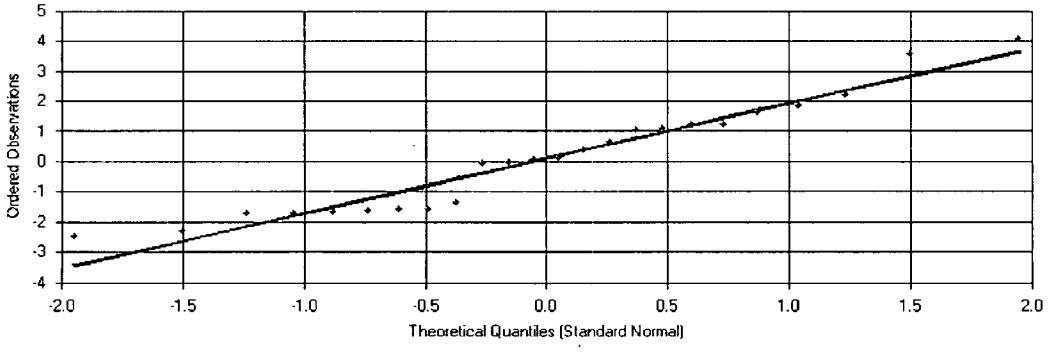
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Phthalate, bis(2-ethylhexyl) (DEHP)



N = 24, Mean = 5.6423, Stdv = 13.4062
Slope = 9.0545, Intercept = 5.6423, Correlation, R = 0.65373027
Shapiro-Wilk Statistic = 0.449, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Phthalate, bis(2-ethylhexyl) (DEHP)



N = 24, Mean = 0.1047, Stdv = 1.8140
Slope = 1.8226, Intercept = 0.1047, Correlation, R = 0.97255205
Shapiro-Wilk Statistic = 0.938, Critical Value(0.05) = 0.916, Data are Lognormal

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Summary Statistics for	Phthalate, I
Number of Samples	24
Minimum	0.082
Maximum	59
Mean	5.642271
Median	1.0775
Standard Deviation	13.40617
Variance	179.7254
Coefficient of Variation	2.376024
Skewness	3.448495

95 % UCL (Assuming Normal Data)	
Student's-t	10.33232

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	12.20173
Modified-t	10.65337

95 % Non-parametric UCL	
CLT	10.14345
Jackknife	10.33232
Standard Bootstrap	10.13463
Bootstrap-t	29.84566
Chebyshev (Mean, Std)	17.5705

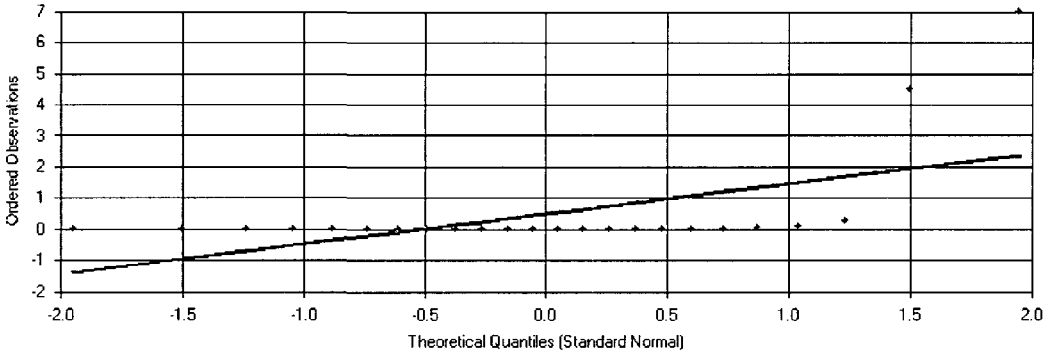
Summary Statistics for	ln(Phthalate, bis(2-ethylhexyl) (DEHP))
Minimum	-2.501036
Maximum	4.077537
Mean	0.104741
Standard Deviation	1.813956
Variance	3.290436
Shapiro-Wilk Test Statisitic	0.937516
Shapiro-Wilk 5% Critical Value	0.916
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5.754365
MLE Standard Deviation	29.25944
MLE Coefficient of Variation	5.084738
MLE Skewness	146.7179
MLE Median	1.110423
MLE 80% Quantile	5.14247
MLE 90% Quantile	11.42352
MLE 95% Quantile	21.94849
MLE 99% Quantile	75.49014
MVU Estimate of Median	1.036657
MVU Estimate of Mean	4.927621
MVU Estimate of Std. Dev.	14.9083
MVU Estimate of SE of Mean	2.314683

UCL Assuming Lognormal Distribution	
95% H-UCL	23.65498
95% Chebyshev (MVUE) UCL	15.01709
99% Chebyshev (MVUE) UCL	27.95842

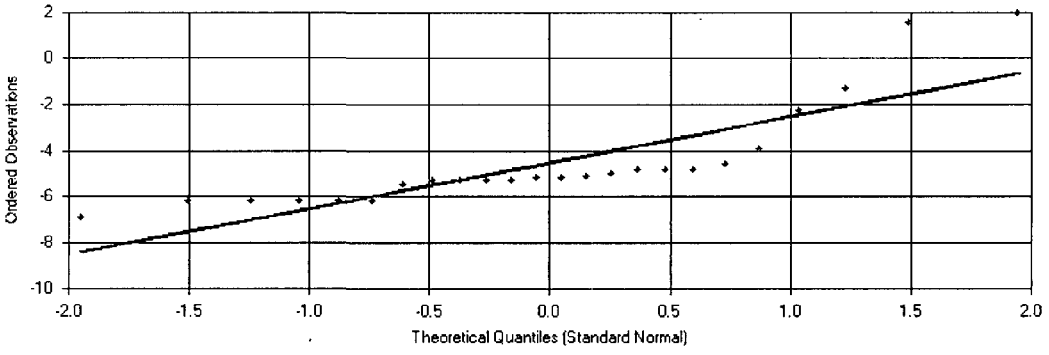
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzene



N = 24, Mean = 0.4988, Stdv = 1.6597
Slope = 0.9659, Intercept = 0.4988, Correlation, R = 0.56329445
Shapiro-Wilk Statistic = 0.338, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Benzene



N = 24, Mean = -4.5224, Stdv = 2.2722
Slope = 1.9926, Intercept = -4.5224, Correlation, R = 0.84880389
Shapiro-Wilk Statistic = 0.727, Critical Value(0.05) = 0.916, Data not Lognormal

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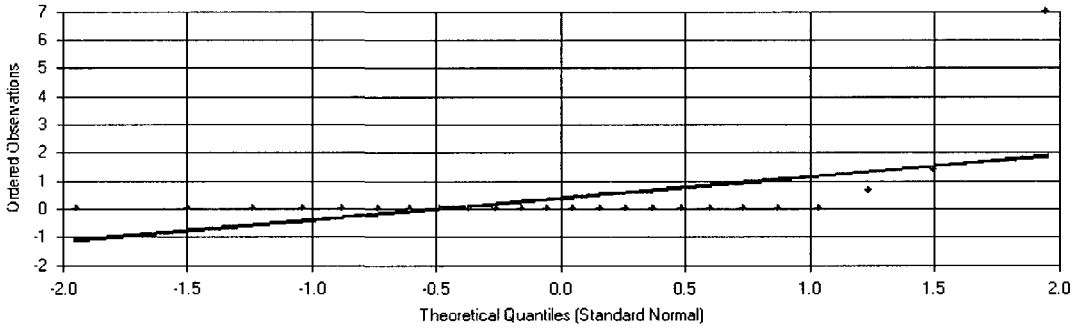
Summary Statistics for	Benzene
Number of Samples	24
Minimum	0.001
Maximum	7
Mean	0.498802
Median	0.0055
Standard Deviation	1.659718
Variance	2.754663
Coefficient of Variation	3.327407
Skewness	3.489462
95 % UCL (Assuming Normal Data)	
Student's-t	1.079442
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.313906
Modified-t	1.119661
95 % Non-parametric UCL	
CLT	1.056059
Jackknife	1.079442
Standard Bootstrap	1.03484
Bootstrap-t	15.87976
Chebyshev (Mean, Std)	1.975547
99 % Non-parametric UCL	
CLT	1.286942
Jackknife	1.345728
Standard Bootstrap	1.259445
Bootstrap-t	157.6345
Chebyshev (Mean, Std)	3.869705

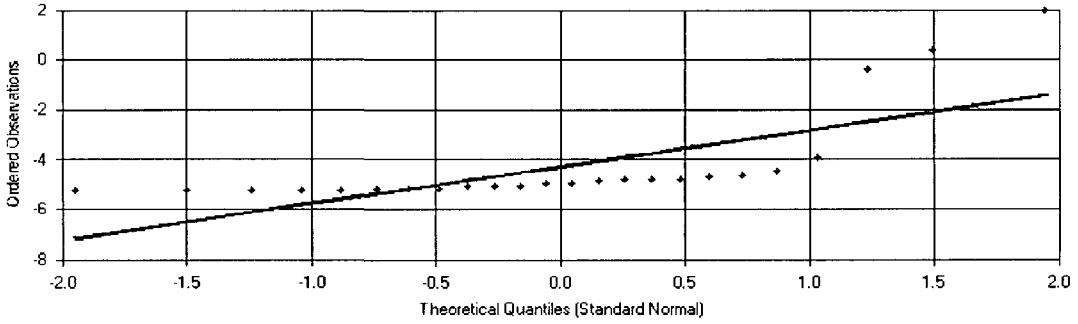
Summary Statistics for	ln(Benzene)
Minimum	-6.907755
Maximum	1.94591
Mean	-4.522431
Standard Deviation	2.272185
Variance	5.162825
Shapiro-Wilk Test Statisitic	0.726534
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.143558
MLE Standard Deviation	1.891789
MLE Coefficient of Variation	13.1779
MLE Skewness	2327.97
MLE Median	0.010863
MLE 80% Quantile	0.074093
MLE 90% Quantile	0.201358
MLE 95% Quantile	0.456263
MLE 99% Quantile	2.143997
MVU Estimate of Median	0.00975
MVU Estimate of Mean	0.105629
MVU Estimate of Std. Dev.	0.513002
MVU Estimate of SE of Mean	0.063487
UCL Assuming Lognormal Distribution	
95% H-UCL	1.208623
95% Chebyshev (MVUE) UCL	0.382362
99% Chebyshev (MVUE) UCL	0.737316

Normal Q-Q Plot for Chloroform



N = 24, Mean = 0.3834, Stdv = 1.4425
Slope = 0.7673, Intercept = 0.3834, Correlation, R = 0.51487052
Shapiro-Wilk Statistic = 0.293, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Chloroform



N = 24, Mean = -4.2916, Stdv = 1.9537
Slope = 1.4737, Intercept = -4.2916, Correlation, R = 0.73009808
Shapiro-Wilk Statistic = 0.543, Critical Value(0.05) = 0.916, Data not Lognormal

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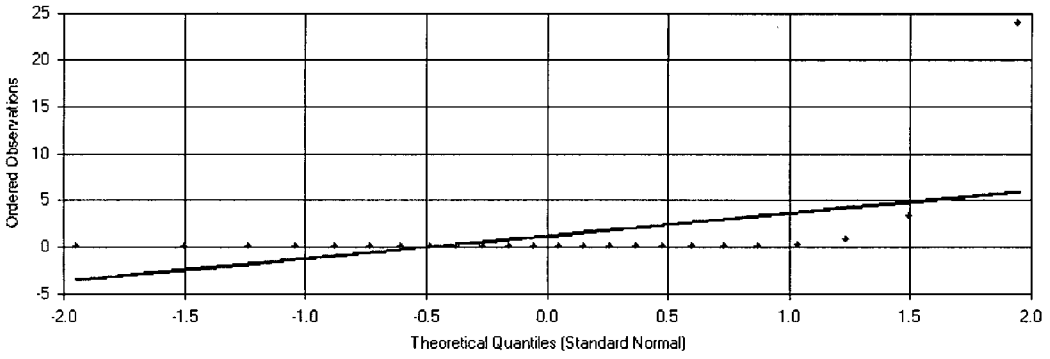
Summary Statistics for	Chloroform
Number of Samples	24
Minimum	0.005
Maximum	7
Mean	0.383406
Median	0.0065
Standard Deviation	1.442459
Variance	2.080687
Coefficient of Variation	3.76222
Skewness	4.577004
95 % UCL (Assuming Normal Data)	
Student's-t	0.88804
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.161655
Modified-t	0.933888
95 % Non-parametric UCL	
CLT	0.867718
Jackknife	0.88804
Standard Bootstrap	0.856226
Bootstrap-t	4.22504
Chebyshev (Mean, Std)	1.666843
97.5 % Non-parametric UCL	
CLT	0.960499
Jackknife	0.992503
Standard Bootstrap	0.945143
Bootstrap-t	177.0798
Chebyshev (Mean, Std)	2.222187

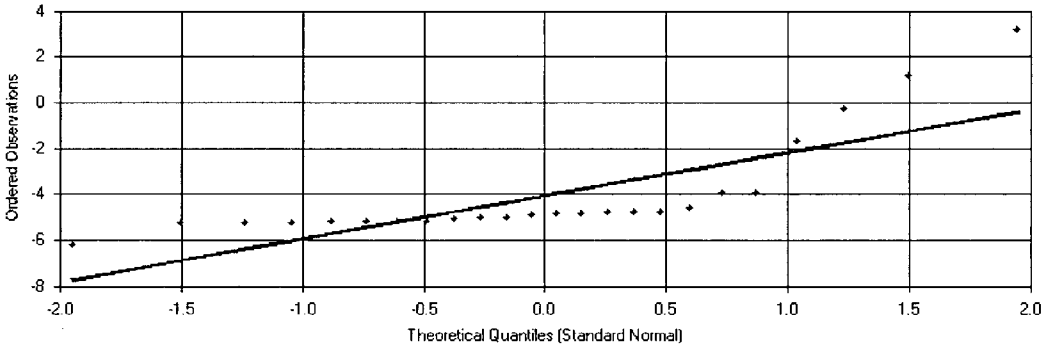
Summary Statistics for	ln(Chloroform)
Minimum	-5.29832
Maximum	1.94591
Mean	-4.29163
Standard Deviation	1.953721
Variance	3.817025
Shapiro-Wilk Test Statisitic	0.542728
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.092263
MLE Standard Deviation	0.615254
MLE Coefficient of Variation	6.668489
MLE Skewness	316.5449
MLE Median	0.013683
MLE 80% Quantile	0.071309
MLE 90% Quantile	0.168454
MLE 95% Quantile	0.340359
MLE 99% Quantile	1.287533
MVU Estimate of Median	0.012634
MVU Estimate of Mean	0.076013
MVU Estimate of Std. Dev.	0.266347
MVU Estimate of SE of Mean	0.038841
UCL Assuming Lognormal Distribution	
95% H-UCL	0.464141
95% Chebyshev (MVUE) UCL	0.24532
99% Chebyshev (MVUE) UCL	0.462481

Normal Q-Q Plot for Dichloroethylene-1,2 cis



N = 24, Mean = 1.1780, Stdv = 4.9057
Slope = 2.4423, Intercept = 1.1780, Correlation, R = 0.48187349
Shapiro-Wilk Statistic = 0.260, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Dichloroethylene-1,2 cis



N = 24, Mean = -4.0658, Stdv = 2.2949
Slope = 1.8842, Intercept = -4.0658, Correlation, R = 0.79471917
Shapiro-Wilk Statistic = 0.644, Critical Value(0.05) = 0.916, Data not Lognormal

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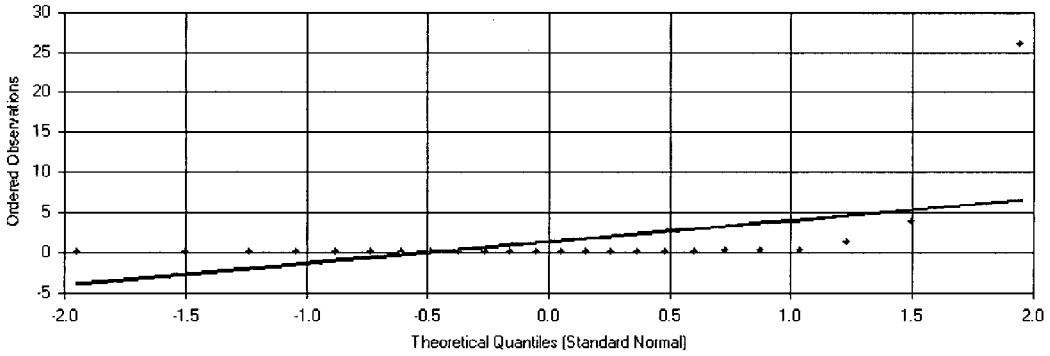
Summary Statistics for	Dichloroeth
Number of Samples	24
Minimum	0.002
Maximum	24
Mean	1.17799
Median	0.007375
Standard Deviation	4.905709
Variance	24.06599
Coefficient of Variation	4.164476
Skewness	4.765485
95 % UCL (Assuming Normal Data)	
Student's-t	2.894215
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.865929
Modified-t	3.056563
95 % Non-parametric UCL	
CLT	2.825103
Jackknife	2.894215
Standard Bootstrap	2.785941
Bootstrap-t	38.5565
Chebyshev (Mean, Std)	5.542877
99 % Non-parametric UCL	
CLT	3.507533
Jackknife	3.68129
Standard Bootstrap	3.528827
Bootstrap-t	1301.16
Chebyshev (Mean, Std)	11.14153

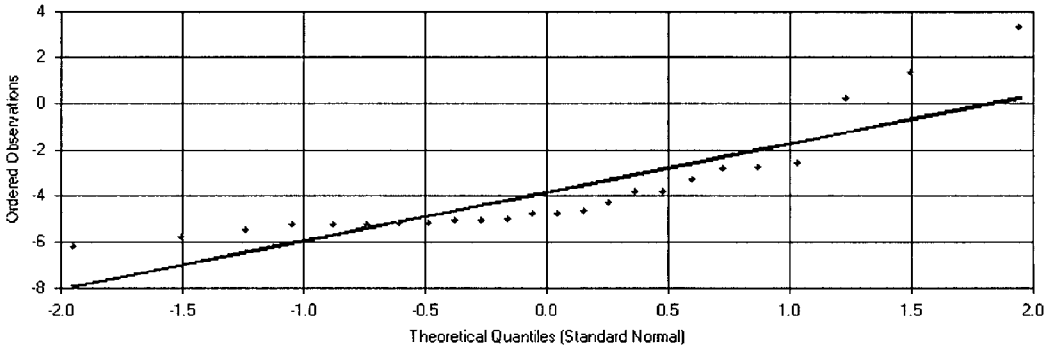
Summary Statistics for	ln(Dichloroethylene-1,2 cis)
Minimum	-6.214608
Maximum	3.178054
Mean	-4.065767
Standard Deviation	2.294859
Variance	5.266377
Shapiro-Wilk Test Statisitic	0.643884
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.238693
MLE Standard Deviation	3.313556
MLE Coefficient of Variation	13.88211
MLE Skewness	2716.907
MLE Median	0.01715
MLE 80% Quantile	0.119241
MLE 90% Quantile	0.327301
MLE 95% Quantile	0.747722
MLE 99% Quantile	3.568246
MVU Estimate of Median	0.01536
MVU Estimate of Mean	0.173968
MVU Estimate of Std. Dev.	0.864436
MVU Estimate of SE of Mean	0.105628
UCL Assuming Lognormal Distribution	
95% H-UCL	2.090768
95% Chebyshev (MVUE) UCL	0.63439
99% Chebyshev (MVUE) UCL	1.224953

Normal Q-Q Plot for Tetrachloroethylene



N = 24, Mean = 1.3026, Stdv = 5.3178
Slope = 2.6837, Intercept = 1.3026, Correlation, R = 0.48846448
Shapiro-Wilk Statistic = 0.267, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Tetrachloroethylene



N = 24, Mean = -3.8482, Stdv = 2.3504
Slope = 2.1093, Intercept = -3.8482, Correlation, R = 0.86864158
Shapiro-Wilk Statistic = 0.762, Critical Value(0.05) = 0.916, Data not Lognormal

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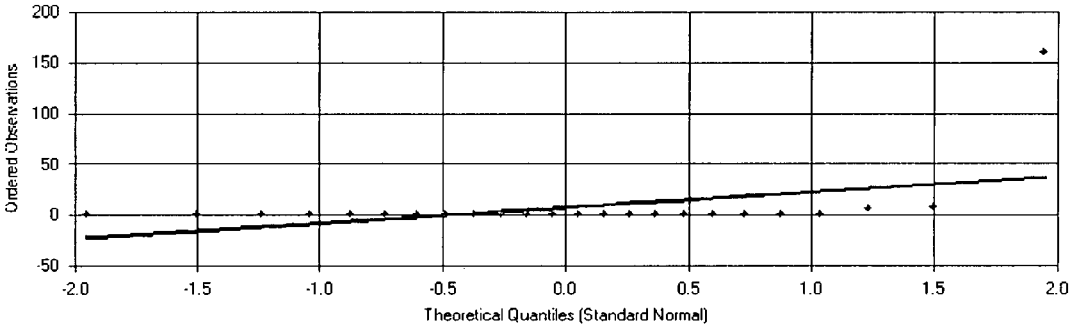
Summary Statistics for	Tetrachlorc
Number of Samples	24
Minimum	0.002
Maximum	26
Mean	1.302646
Median	0.008
Standard Deviation	5.317814
Variance	28.27914
Coefficient of Variation	4.082317
Skewness	4.741572
95 % UCL (Assuming Normal Data)	
Student's-t	3.163043
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	4.210724
Modified-t	3.338146
95 % Non-parametric UCL	
CLT	3.088125
Jackknife	3.163043
Standard Bootstrap	3.066612
Bootstrap-t	28.45227
Chebyshev (Mean, Std)	6.034205
99 % Non-parametric UCL	
CLT	3.827883
Jackknife	4.016236
Standard Bootstrap	3.762016
Bootstrap-t	382.622
Chebyshev (Mean, Std)	12.10318

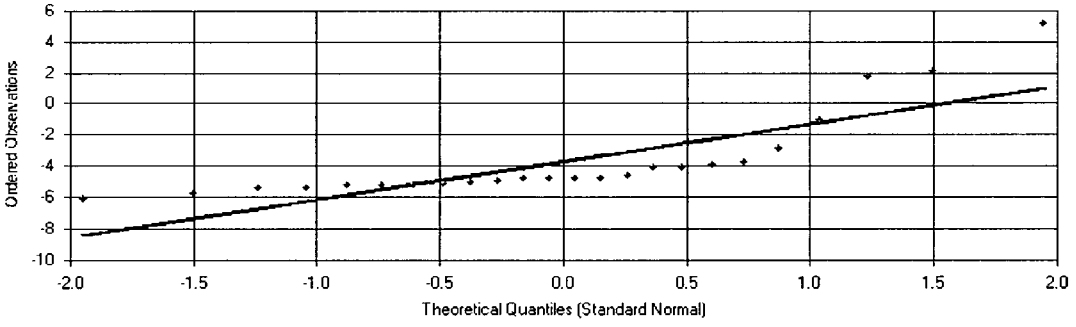
Summary Statistics for	ln(Tetrachloroethylene)
Minimum	-6.214608
Maximum	3.258097
Mean	-3.848236
Standard Deviation	2.350384
Variance	5.524307
Shapiro-Wilk Test Statisitic	0.761537
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.337536
MLE Standard Deviation	5.333847
MLE Coefficient of Variation	15.80229
MLE Skewness	3993.438
MLE Median	0.021317
MLE 80% Quantile	0.155337
MLE 90% Quantile	0.436926
MLE 95% Quantile	1.018312
MLE 99% Quantile	5.04682
MVU Estimate of Median	0.01899
MVU Estimate of Mean	0.240141
MVU Estimate of Std. Dev.	1.261693
MVU Estimate of SE of Mean	0.149369
UCL Assuming Lognormal Distribution	
95% H-UCL	3.263222
95% Chebyshev (MVUE) UCL	0.891225
99% Chebyshev (MVUE) UCL	1.726343

Normal Q-Q Plot for Toluene



N = 24, Mean = 7.2396, Stdv = 32.5919
Slope = 15.3248, Intercept = 7.2396, Correlation, R = 0.45512007
Shapiro-Wilk Statistic = 0.235, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Toluene



N = 24, Mean = -3.7414, Stdv = 2.8335
Slope = 2.4216, Intercept = -3.7414, Correlation, R = 0.82724293
Shapiro-Wilk Statistic = 0.693, Critical Value(0.05) = 0.916, Data not Lognormal

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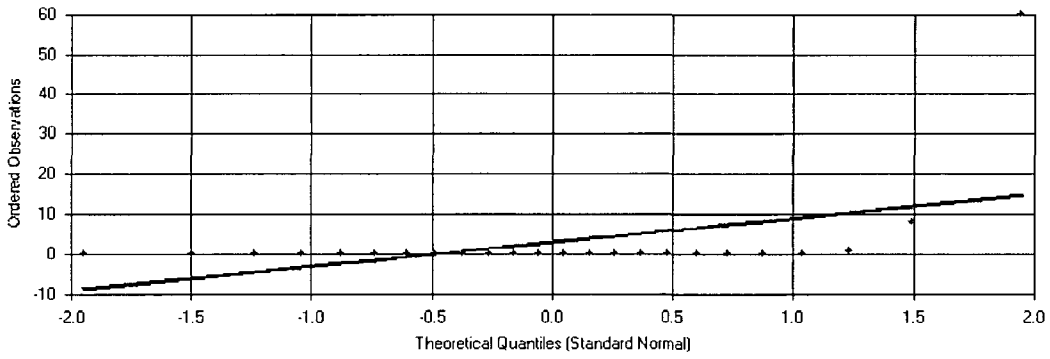
Summary Statistics for	Toluene
Number of Samples	24
Minimum	0.002
Maximum	160
Mean	7.239583
Median	0.00775
Standard Deviation	32.59192
Variance	1062.233
Coefficient of Variation	4.501905
Skewness	4.873055
95 % UCL (Assuming Normal Data)	
Student's-t	18.64162
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	25.25345
Modified-t	19.74455
95 % Non-parametric UCL	
CLT	18.18246
Jackknife	18.64162
Standard Bootstrap	17.9945
Bootstrap-t	207.0623
Chebyshev (Mean, Std)	36.23846
99 % Non-parametric UCL	
CLT	22.7163
Jackknife	23.87069
Standard Bootstrap	22.06109
Bootstrap-t	3476.065
Chebyshev (Mean, Std)	73.43408

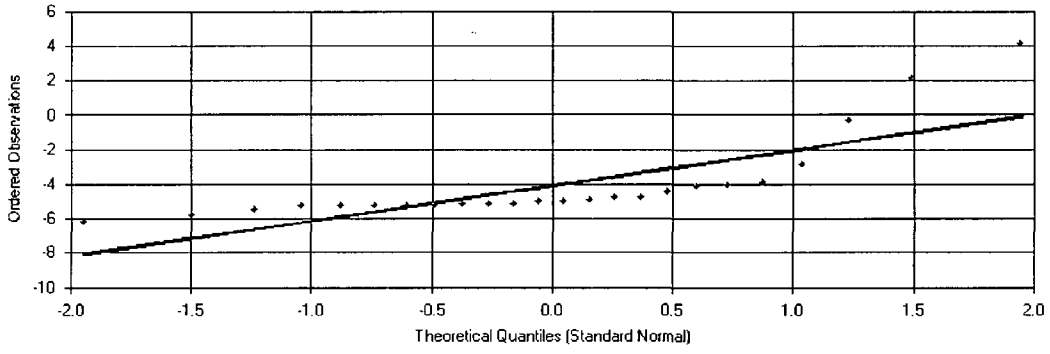
Summary Statistics for	ln(Toluene)
Minimum	-6.21461
Maximum	5.075174
Mean	-3.74136
Standard Deviation	2.833455
Variance	8.028465
Shapiro-Wilk Test Statisitic	0.69311
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.313738
MLE Standard Deviation	72.74395
MLE Coefficient of Variation	55.37173
MLE Skewness	169937.4
MLE Median	0.023722
MLE 80% Quantile	0.259997
MLE 90% Quantile	0.904506
MLE 95% Quantile	2.50848
MLE 99% Quantile	17.27499
MVU Estimate of Median	0.020045
MVU Estimate of Mean	0.715842
MVU Estimate of Std. Dev.	6.037871
MVU Estimate of SE of Mean	0.528555
UCL Assuming Lognormal Distribution	
95% H-UCL	33.08132
95% Chebyshev (MVUE) UCL	3.019761
99% Chebyshev (MVUE) UCL	5.974901

Normal Q-Q Plot for Trichloroethylene



N = 24, Mean = 2.8672, Stdv = 12.2751
Slope = 6.0144, Intercept = 2.8672, Correlation, R = 0.47424803
Shapiro-Wilk Statistic = 0.253, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Trichloroethylene



N = 24, Mean = -4.0890, Stdv = 2.5071
Slope = 2.0467, Intercept = -4.0890, Correlation, R = 0.79018585
Shapiro-Wilk Statistic = 0.637, Critical Value(0.05) = 0.916, Data not Lognormal

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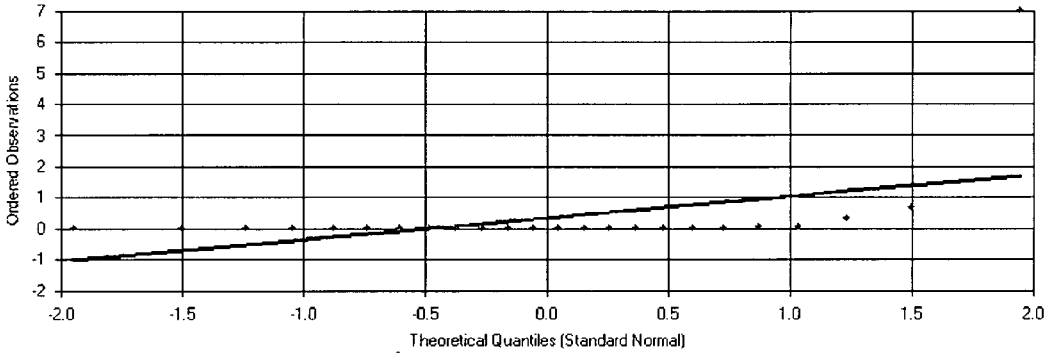
Summary Statistics for	Trichloroetl
Number of Samples	24
Minimum	0.002
Maximum	60
Mean	2.867198
Median	0.0065
Standard Deviation	12.27514
Variance	150.6791
Coefficient of Variation	4.281232
Skewness	4.772757
95 % UCL (Assuming Normal Data)	
Student's-t	7.161564
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	9.596974
Modified-t	7.568413
95 % Non-parametric UCL	
CLT	6.98863
Jackknife	7.161564
Standard Bootstrap	6.919093
Bootstrap-t	245.1055
Chebyshev (Mean, Std)	13.78908
99 % Non-parametric UCL	
CLT	1.016693
Jackknife	1.067195
Standard Bootstrap	1.009311
Bootstrap-t	79.06545
Chebyshev (Mean, Std)	3.235503

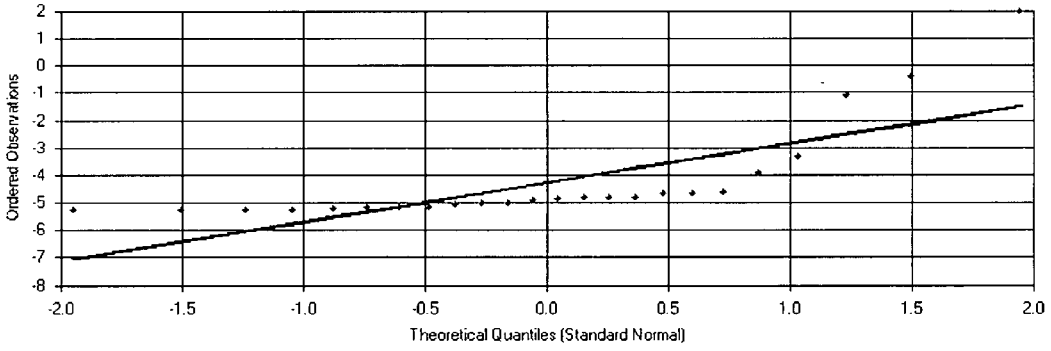
Summary Statistics for	ln(Trichloroethylene)
Minimum	-6.214608
Maximum	4.094345
Mean	-4.088954
Standard Deviation	2.507121
Variance	6.285656
Shapiro-Wilk Test Statisitic	0.637247
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.388242
MLE Standard Deviation	8.986923
MLE Coefficient of Variation	23.14771
MLE Skewness	12472.37
MLE Median	0.016757
MLE 80% Quantile	0.139396
MLE 90% Quantile	0.420083
MLE 95% Quantile	1.03589
MLE 99% Quantile	5.712234
MVU Estimate of Median	0.01469
MVU Estimate of Mean	0.256241
MVU Estimate of Std. Dev.	1.573437
MVU Estimate of SE of Mean	0.169726
UCL Assuming Lognormal Distribution	
95% H-UCL	5.024044
95% Chebyshev (MVUE) UCL	0.996059
99% Chebyshev (MVUE) UCL	1.944992

Normal Q-Q Plot for Vinyl chloride



N = 24, Mean = 0.3396, Stdv = 1.4258
Slope = 0.6973, Intercept = 0.3396, Correlation, R = 0.47336415
Shapiro-Wilk Statistic = 0.252, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Vinyl chloride



N = 24, Mean = -4.2747, Stdv = 1.8194
Slope = 1.4298, Intercept = -4.2747, Correlation, R = 0.76067616
Shapiro-Wilk Statistic = 0.591, Critical Value(0.05) = 0.916, Data not Lognormal

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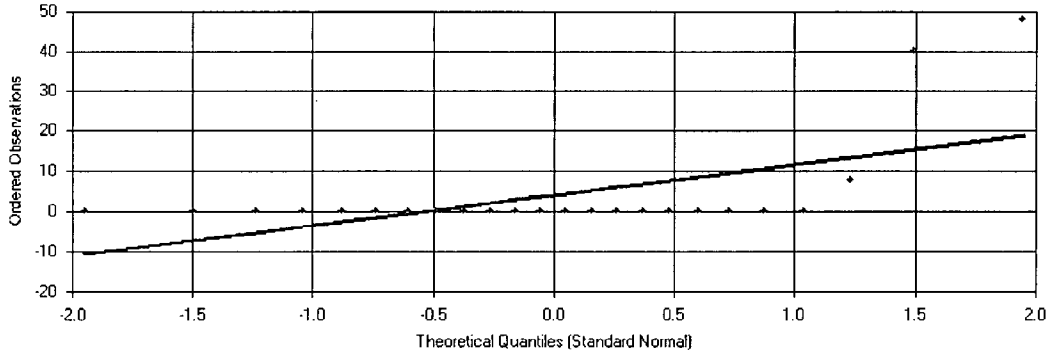
Summary Statistics for	Vinyl chlori
Number of Samples	24
Minimum	0.005
Maximum	7
Mean	0.339615
Median	0.007375
Standard Deviation	1.425837
Variance	2.033011
Coefficient of Variation	4.198398
Skewness	4.822485
95 % UCL (Assuming Normal Data)	
Student's-t	0.838433
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.124478
Modified-t	0.886184
95 % Non-parametric UCL	
CLT	0.818346
Jackknife	0.838433
Standard Bootstrap	0.816738
Bootstrap-t	7.464164
Chebyshev (Mean, Std)	1.608262
97.5 % Non-parametric UCL	
CLT	0.910058
Jackknife	0.941693
Standard Bootstrap	0.877415
Bootstrap-t	71.37346
Chebyshev (Mean, Std)	2.157207

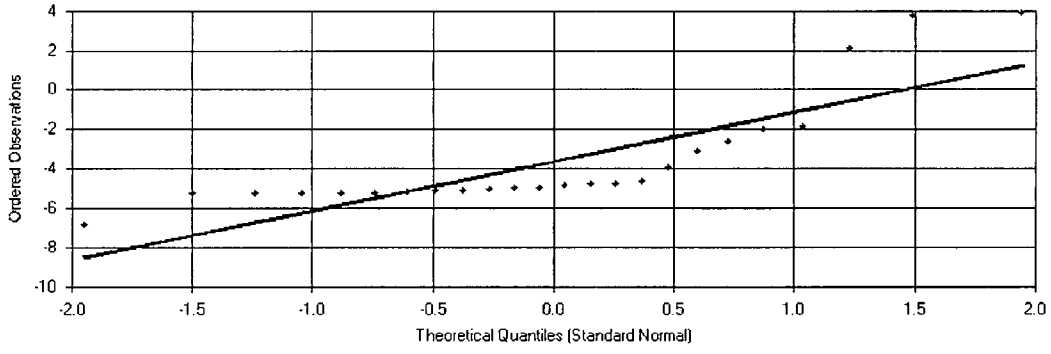
Summary Statistics for	ln(Vinyl chloride)
Minimum	-5.298317
Maximum	1.94591
Mean	-4.274732
Standard Deviation	1.819355
Variance	3.310053
Shapiro-Wilk Test Statisitic	0.590876
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.072824
MLE Standard Deviation	0.374083
MLE Coefficient of Variation	5.136788
MLE Skewness	150.9527
MLE Median	0.013916
MLE 80% Quantile	0.06474
MLE 90% Quantile	0.144156
MLE 95% Quantile	0.277512
MLE 99% Quantile	0.957996
MVU Estimate of Median	0.012986
MVU Estimate of Mean	0.062276
MVU Estimate of Std. Dev.	0.189492
MVU Estimate of SE of Mean	0.029353
UCL Assuming Lognormal Distribution	
95% H-UCL	0.301626
95% Chebyshev (MVUE) UCL	0.190223
99% Chebyshev (MVUE) UCL	0.354335

Normal Q-Q Plot for Xylenes, total



N = 24, Mean = 4.0002, Stdv = 12.4695
Slope = 7.5636, Intercept = 4.0002, Correlation, R = 0.58710907
Shapiro-Wilk Statistic = 0.361, Critical Value(0.05) = 0.916, Data not Normal

Lognormal Q-Q Plot for Xylenes, total



N = 24, Mean = -3.6482, Stdv = 2.8917
Slope = 2.5054, Intercept = -3.6482, Correlation, R = 0.83864356
Shapiro-Wilk Statistic = 0.707, Critical Value(0.05) = 0.916, Data not Lognormal

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Summary Statistics for	Xylenes, tc
Number of Samples	24
Minimum	0.001
Maximum	48
Mean	4.00024
Median	0.007125
Standard Deviation	12.46953
Variance	155.4892
Coefficient of Variation	3.117196
Skewness	3.193896
95 % UCL (Assuming Normal Data)	
Student's-t	8.362611
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	9.960066
Modified-t	8.639183
95 % Non-parametric UCL	
CLT	8.186938
Jackknife	8.362611
Standard Bootstrap	8.128455
Bootstrap-t	33.9708
Chebyshev (Mean, Std)	15.09509
99 % Non-parametric UCL	
CLT	9.921568
Jackknife	10.36323
Standard Bootstrap	9.935929
Bootstrap-t	1617.647
Chebyshev (Mean, Std)	29.32597

Summary Statistics for	ln(Xylenes, total)
Minimum	-6.907755
Maximum	3.871201
Mean	-3.648167
Standard Deviation	2.891654
Variance	8.361661
Shapiro-Wilk Test Statisitic	0.707186
Shapiro-Wilk 5% Critical Value	0.916
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.703463
MLE Standard Deviation	111.4278
MLE Coefficient of Variation	65.41253
MLE Skewness	280083.3
MLE Median	0.026039
MLE 80% Quantile	0.299776
MLE 90% Quantile	1.069945
MLE 95% Quantile	3.030122
MLE 99% Quantile	21.711
MVU Estimate of Median	0.021849
MVU Estimate of Mean	0.8922
MVU Estimate of Std. Dev.	7.955562
MVU Estimate of SE of Mean	0.669772
UCL Assuming Lognormal Distribution	
95% H-UCL	48.72247
95% Chebyshev (MVUE) UCL	3.811668
99% Chebyshev (MVUE) UCL	7.556347

Martin Aaron Property - Subsurface Soil

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Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	62	1150	25500	5421.452	4930	3524.277	0.650062	3.350616	12420530
Antimony	62	0.37	41	3.980121	1.7	7.770399	1.952302	3.568954	60.37911
Arsenic	62	2.1	23300	693.596	43.45	3053.414	4.402295	6.939682	9323339
Barium	62	18.5	34350	5940.303	2105	7668.415	1.290913	1.532236	58804588
Cadmium	62	0.0415	110	6.440669	1.65	15.82394	2.456878	5.117738	250.397
Chromium	62	6.4	21300	553.0355	59.55	2713.159	4.90594	7.576709	7361232
Copper	62	4	2590	201.4065	69.7	394.2839	1.957653	4.380056	155459.8
Iron	62	3820	103000	22691.94	16100	19536.89	0.860962	2.419772	3.82E+08
Lead	62	8.3	112000	2726.465	414.5	14232.28	5.22005	7.668109	2.03E+08
Manganese	62	11.8	744	230.6645	188.25	168.6472	0.731136	1.099744	28441.89
Mercury	60	0.03	224	4.68715	0.6	28.82116	6.148972	7.722866	830.6591
Nickel	62	1.5	576	28.60968	13	74.06198	2.588704	6.878456	5485.178
Silver	62	0.095	45.7	1.247379	0.125	5.969158	4.78536	7.117019	35.63085
Thallium	52	0.5	6.4	0.873077	0.6	0.946729	1.084359	4.754424	0.896295
Vanadium	62	6.9	90.8	21.61129	20.8	11.67015	0.540003	3.549877	136.1925
Zinc	62	9.9	23900	1258.642	501.5	3177.4	2.524467	6.246597	10095871
Aldrin	59	0.0009	1.3	0.032288	0.00105	0.17208	5.329514	7.166436	0.029612
Chlordane - alpha	60	0.0009	8.1	0.221172	0.00275	1.061925	4.801361	7.184724	1.127685
Chlordane - gamma (technical mixture)	58	0.0009	8.9	0.286945	0.005125	1.231905	4.293177	6.379757	1.51759
DDE-4,4'	57	0.0017	19	0.689674	0.0072	3.166244	4.590928	5.279524	10.0251
DDT-4,4'	53	0.0017	2.6	0.075947	0.00345	0.367824	4.843193	6.563827	0.135295
Dieldrin	58	0.00175	0.97	0.047212	0.003225	0.160758	3.40505	4.707358	0.025843
Heptachlor	60	0.0009	0.26	0.00844	0.00105	0.036503	4.325041	6.232569	0.001332
Pcb-araclor 1248	60	0.017	0.43025	0.047421	0.02025	0.079732	1.681362	3.811605	0.006357
Pcb-araclor 1254	60	0.017	48	1.761129	0.021	7.010631	3.980759	5.487551	49.14895
Pcb-araclor 1260	61	0.0175	7.2	0.339197	0.0205	1.117194	3.293648	4.800796	1.248124
Acetophenone	62	0.011	16	1.228371	0.21	2.451771	1.995953	4.143073	6.011183
Benzo(a)anthracene	62	0.023	120	5.671935	1	15.96163	2.814141	6.29118	254.7736
Benzo(a)pyrene	62	0.02	110	5.349492	1.1	14.58153	2.725779	6.315189	212.6211
Benzo(b)fluoranthene	62	0.021	110	6.285065	1.45	15.17939	2.415153	5.570253	230.414
Benzo(k)fluoranthene	62	0.019	71	3.333694	0.72	9.376203	2.812557	6.422738	87.91317
Chrysene	62	0.027	120	5.911597	1.1	15.97266	2.701919	6.237964	255.1258
Dibenzo(a,h)anthracene	62	0.012	19	1.430677	0.24	3.309791	2.313444	4.091449	10.95472
Fluoranthene	62	0.043	290	11.68371	1.8	37.83559	3.23832	6.774561	1431.532

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Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Indeno(1,2,3-cd)pyrene	62	0.023	59	3.3565	0.745	8.067967	2.403684	5.672987	65.09208
Naphthalene	62	0.016	120	6.578823	0.335	20.40823	3.10211	4.307772	416.496
Phthalate, bis(2-ethylhexyl) (DEHP)	62	0.075	94	8.72346	0.64	21.45047	2.45894	3.02179	460.1226
Benzene	62	0.001	31	0.780806	0.006625	4.042256	5.177027	7.146445	16.33983
Bromomethane	62	0.003	7	0.254234	0.007	0.981576	3.860917	5.935155	0.963491
Chloroform	62	0.005	16	0.4825	0.007125	2.205303	4.570577	6.331849	4.863363
Dichloroethylene-1,2 cis	62	0.002	24	0.953621	0.007125	3.695901	3.87565	5.026952	13.65968
Ethylbenzene	60	0.001	29	1.095867	0.0075	4.100255	3.741564	5.794425	16.81209
Tetrachloroethylene	61	0.002	110	3.286832	0.009	15.33283	4.664928	6.158106	235.0958
Toluene	62	0.002	160	3.699794	0.008	21.13608	5.712771	7.012406	446.7338
Trichloroethylene	62	0.001	630	11.92666	0.007	80.20227	6.72462	7.753587	6432.404
Vinyl chloride	62	0.005	7	0.265621	0.0075	0.98552	3.710251	5.838151	0.971251
Xylenes, total	61	0.001	220	6.591713	0.0075	29.76326	4.515254	6.485157	885.8515

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Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	62	7.047517	10.14643	8.455854	8.503092	0.520358	0.061538	0.249005	0.270772
Antimony	62	-0.99425	3.713572	0.47269	0.530628	1.226679	2.595102	0.763193	1.504741
Arsenic	62	0.741937	10.05621	4.104837	3.76807	1.85413	0.451694	0.991205	3.437797
Barium	62	2.917771	10.44436	7.529198	7.651436	1.836791	0.243956	-0.43491	3.3738
Cadmium	62	-3.18206	4.70048	0.514197	0.500316	1.731538	3.367458	-0.25028	2.998223
Chromium	62	1.856298	9.966462	4.291477	4.086334	1.605202	0.374044	1.067778	2.576672
Copper	62	1.386294	7.859413	4.396955	4.244134	1.285329	0.292323	0.347688	1.65207
Iron	62	8.248006	11.54248	9.773216	9.686555	0.694436	0.071055	0.370114	0.482241
Lead	62	2.116256	11.62625	6.031903	6.027014	1.511388	0.250566	0.525257	2.284294
Manganese	62	2.4681	6.612041	5.124027	5.237763	0.898263	0.175304	-0.82038	0.806877
Mercury	60	-3.50656	5.411646	-0.45732	-0.51096	1.314401	-2.87417	1.163022	1.727651
Nickel	62	0.405465	6.356108	2.653083	2.564949	0.966856	0.364428	0.931431	0.934811
Silver	62	-2.35388	3.822098	-1.46574	-2.07944	1.200425	-0.81899	2.325676	1.441019
Thallium	52	-0.69315	1.856298	-0.33359	-0.51083	0.495863	-1.48646	2.905927	0.24588
Vanadium	62	1.931521	4.508659	2.972769	3.034941	0.437952	0.147321	0.258629	0.191802
Zinc	62	2.292535	10.08163	6.13211	6.217603	1.382802	0.225502	-0.10715	1.912141
Aldrin	59	-7.01312	0.262364	-6.24841	-6.85897	1.511196	-0.24185	2.860089	2.283714
Chlordane - alpha	60	-7.01312	2.091864	-4.81677	-5.9348	2.409554	-0.50024	0.89221	5.805949
Chlordane - gamma (technical mixture)	58	-7.01312	2.186051	-4.55415	-5.27996	2.409809	-0.52915	0.880782	5.807178
DDE-4,4'	57	-6.37713	2.944439	-4.08183	-4.93367	2.433806	-0.59625	1.018493	5.923413
DDT-4,4'	53	-6.37713	0.955511	-5.04007	-5.66938	1.619617	-0.32135	1.723199	2.623158
Dieldrin	58	-6.34814	-0.03046	-5.14095	-5.73926	1.596175	-0.31048	1.731934	2.547775
Heptachlor	60	-7.01312	-1.34707	-6.38148	-6.85897	1.126023	-0.17645	2.892559	1.267928
Pcb-araclor 1248	60	-4.07454	-0.84339	-3.54239	-3.89968	0.773583	-0.21838	2.2413	0.598431
Pcb-araclor 1254	60	-4.07454	3.871201	-2.85589	-3.86352	2.017697	-0.7065	2.085291	4.071101
Pcb-araclor 1260	61	-4.04555	1.974081	-3.01759	-3.88733	1.518835	-0.50333	1.828153	2.30686
Acetophenone	62	-4.50986	2.772589	-0.91002	-1.56093	1.448225	-1.59141	0.397679	2.097357
Benzo(a)anthracene	62	-3.77226	4.787492	-0.07862	0	2.069849	-26.327	0.086307	4.284275
Benzo(a)pyrene	62	-3.91202	4.70048	-0.05625	0.091161	2.025241	-36.006	0.090478	4.101599
Benzo(b)fluoranthene	62	-3.86323	4.70048	0.181418	0.370969	2.001274	11.03127	0.070626	4.005098
Benzo(k)fluoranthene	62	-3.96332	4.26268	-0.36667	-0.3286	1.83552	-5.00596	0.15832	3.369133
Chrysene	62	-3.61192	4.787492	0.080988	0.09531	1.980352	24.45228	0.125472	3.921796
Dibenzo(a,h)anthracene	62	-4.42285	2.944439	-1.07071	-1.42799	1.665184	-1.55521	0.37697	2.772836
Fluoranthene	62	-3.14656	5.669881	0.48238	0.562465	2.109557	4.373226	0.172877	4.450229

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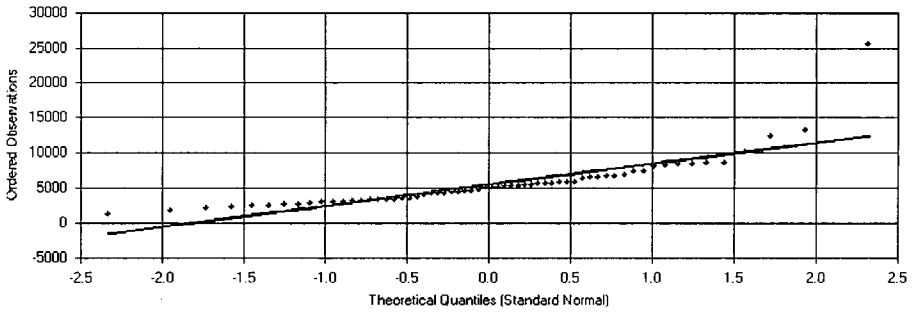
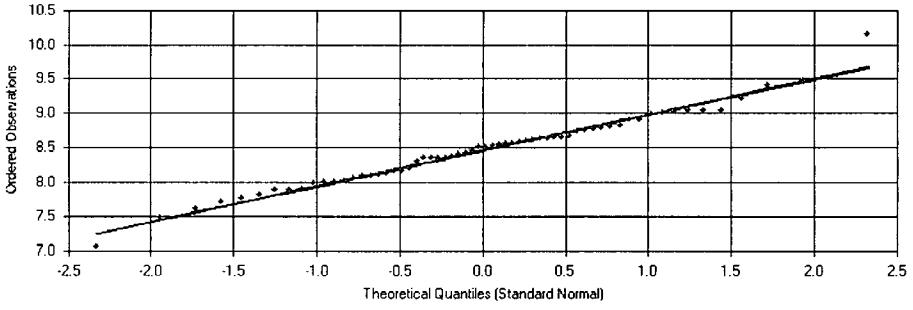
Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Indeno(1,2,3-cd)pyrene	62	-3.77226	4.077537	-0.36097	-0.29457	1.89744	-5.25644	0.172168	3.600278
Naphthalene	62	-4.13517	4.787492	-0.52697	-1.11281	2.024448	-3.84165	0.806971	4.09839
Phthalate, bis(2-ethylhexyl) (DEHP)	62	-2.59027	4.543295	0.039339	-0.44824	1.967289	50.00876	0.865777	3.870227
Benzene	62	-6.90776	3.433987	-4.14213	-5.01708	2.25994	-0.5456	1.678214	5.10733
Bromomethane	62	-5.80914	1.94591	-4.20491	-4.96185	1.867873	-0.44421	2.004858	3.488948
Chloroform	62	-5.29832	2.772589	-4.1143	-4.9443	1.997764	-0.48557	2.0714	3.99106
Dichloroethylene-1,2 cis	62	-6.21461	3.178054	-3.90733	-4.9443	2.32741	-0.59565	1.750367	5.416836
Ethylbenzene	60	-6.90776	3.367296	-3.7037	-4.89285	2.506369	-0.67672	1.462395	6.281885
Tetrachloroethylene	61	-6.21461	4.70048	-3.44431	-4.71053	2.625275	-0.76221	1.478187	6.892069
Toluene	62	-6.21461	5.075174	-3.69625	-4.82831	2.468424	-0.66782	1.834207	6.093119
Trichloroethylene	62	-6.90776	6.44572	-3.79234	-4.96185	2.795477	-0.73714	1.90534	7.814694
Vinyl chloride	62	-5.29832	1.94591	-4.0818	-4.89285	1.889351	-0.46287	1.868412	3.569645
Xylenes, total	61	-6.90776	5.393628	-3.43994	-4.89285	2.934004	-0.85292	1.59409	8.608382

Normal Q-Q Plot for Aluminum



N = 62, Mean = 5421.4516, Stdv = 3524.2772
Slope = 3000.4100, Intercept = 5421.4516, Correlation, R = 0.83799885
Lilliefors Statistic = 0.176, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Aluminum



N = 62, Mean = 8.4559, Stdv = 0.5204
Slope = 0.5222, Intercept = 8.4559, Correlation, R = 0.98784698
Lilliefors Statistic = 0.063, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Aluminum
Number of Samples	62
Minimum	1150
Maximum	25500
Mean	5421.452
Median	4930
Standard Deviation	3524.277
Variance	12420530
Coefficient of Variation	0.650062
Skewness	3.350616

95 % UCL (Assuming Normal Data)	
Student's-t	6169.014

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6361.17
Modified-t	6200.758

95 % Non-parametric UCL	
CLT	6157.661
Jackknife	6169.014
Standard Bootstrap	6156.858
Bootstrap-t	6468.794
Chebyshev (Mean, Std)	7372.424

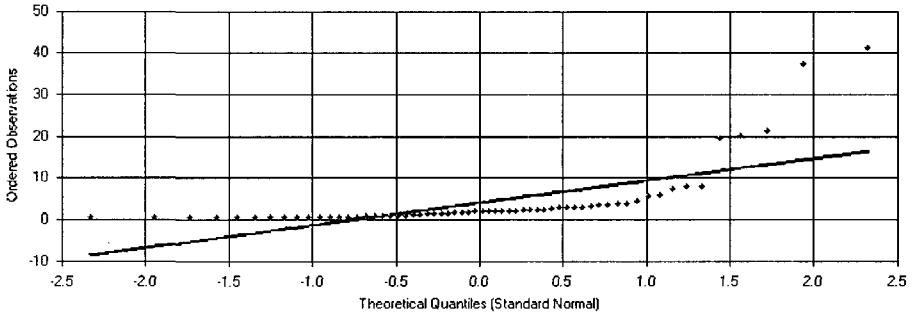
Summary Statistics for	ln(Aluminum)
Minimum	7.047517
Maximum	10.14643
Mean	8.455854
Standard Deviation	0.520358
Variance	0.270772
Lilliefors Test Statisitic	0.062982
Lilliefors 5% Critical Value	0.112522
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5384.288
MLE Standard Deviation	3002.561
MLE Coefficient of Variation	0.557652
MLE Skewness	1.846374
MLE Median	4702.523
MLE 80% Quantile	7299.467
MLE 90% Quantile	9177.535
MLE 95% Quantile	11068.32
MLE 99% Quantile	15775.39
MVU Estimate of Median	4692.265
MVU Estimate of Mean	5371.039
MVU Estimate of Std. Dev.	2966.84
MVU Estimate of SE of Mean	374.9554

UCL Assuming Lognormal Distribution	
95% H-UCL	6099.933
95% Chebyshev (MVUE) UCL	7005.432
99% Chebyshev (MVUE) UCL	9101.798

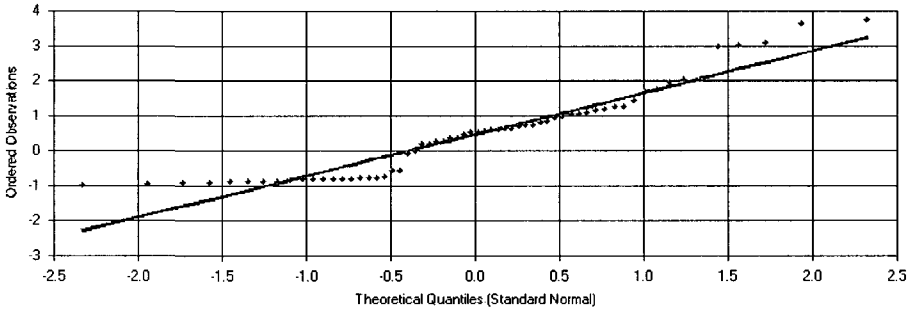
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Antimony



N = 62, Mean = 3.9801, Stdv = 7.7704
Slope = 5.3896, Intercept = 3.9801, Correlation, R = 0.68272120
Lilliefors Statistic = 0.347, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Antimony



N = 62, Mean = 0.4727, Stdv = 1.2267
Slope = 1.1885, Intercept = 0.4727, Correlation, R = 0.95370441
Lilliefors Statistic = 0.150, Critical Value(0.05) = 0.113, Data not Lognormal

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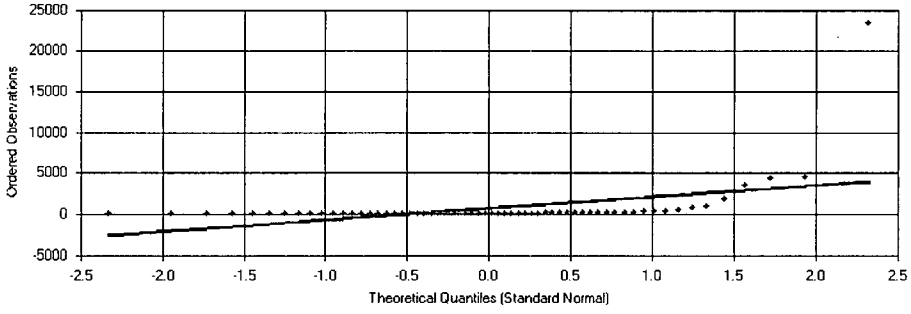
Summary Statistics for	Antimony
Number of Samples	62
Minimum	0.37
Maximum	41
Mean	3.980121
Median	1.7
Standard Deviation	7.770399
Variance	60.37911
Coefficient of Variation	1.952302
Skewness	3.568954
95 % UCL (Assuming Normal Data)	
Student's-t	5.628363
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6.081271
Modified-t	5.702912
95 % Non-parametric UCL	
CLT	5.603331
Jackknife	5.628363
Standard Bootstrap	5.592256
Bootstrap-t	6.899057
Chebyshev (Mean, Std)	8.281664
97.5 % Non-parametric UCL	
CLT	5.914295
Jackknife	5.953432
Standard Bootstrap	5.850812
Bootstrap-t	7.738311
Chebyshev (Mean, Std)	10.14295

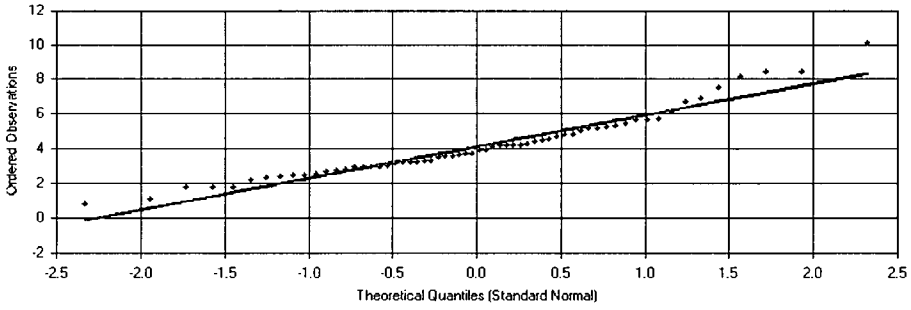
Summary Statistics for	ln(Antimony)
Minimum	-0.994252
Maximum	3.713572
Mean	0.47269
Standard Deviation	1.226679
Variance	1.504741
Lilliefors Test Statisitic	0.150099
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	3.404373
MLE Standard Deviation	6.371718
MLE Coefficient of Variation	1.871627
MLE Skewness	12.17117
MLE Median	1.604304
MLE 80% Quantile	4.523264
MLE 90% Quantile	7.759924
MLE 95% Quantile	12.06824
MLE 99% Quantile	27.82529
MVU Estimate of Median	1.58495
MVU Estimate of Mean	3.33503
MVU Estimate of Std. Dev.	5.76156
MVU Estimate of SE of Mean	0.653728
UCL Assuming Lognormal Distribution	
95% H-UCL	5.04882
95% Chebyshev (MVUE) UCL	6.184564
99% Chebyshev (MVUE) UCL	9.83954

Normal Q-Q Plot for Arsenic



N = 62, Mean = 693.5960, Stdv = 3053.4143
Slope = 1399.6112, Intercept = 693.5960, Correlation, R = 0.45118490
Lilliefors Statistic = 0.423, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Arsenic



N = 62, Mean = 4.1048, Stdv = 1.8541
Slope = 1.8246, Intercept = 4.1048, Correlation, R = 0.96863752
Lilliefors Statistic = 0.108, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Arsenic
Number of Samples	62
Minimum	2.1
Maximum	23300
Mean	693.596
Median	43.45
Standard Deviation	3053.414
Variance	9323339
Coefficient of Variation	4.402295
Skewness	6.939682

95 % UCL (Assuming Normal Data)	
Student's-t	1341.28

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1696.63
Modified-t	1398.242

95 % Non-parametric UCL	
CLT	1331.444
Jackknife	1341.28
Standard Bootstrap	1312.514
Bootstrap-t	3161.487
Chebyshev (Mean, Std)	2383.907

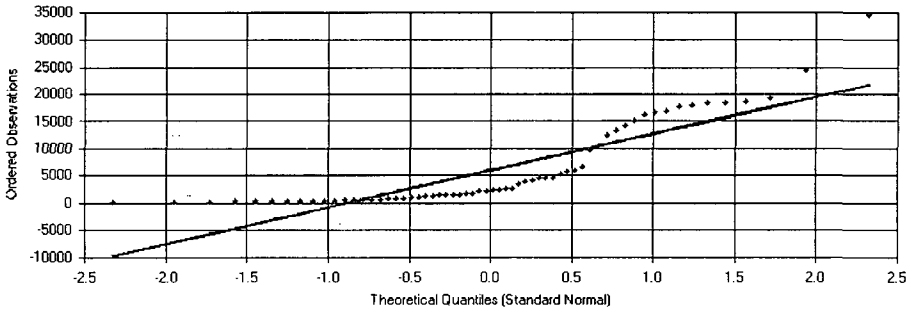
Summary Statistics for	ln(Arsenic)
Minimum	0.741937
Maximum	10.05621
Mean	4.104837
Standard Deviation	1.85413
Variance	3.437797
Lilliefors Test Statisitic	0.1082
Lilliefors 5% Critical Value	0.112522
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	338.2332
MLE Standard Deviation	1856.229
MLE Coefficient of Variation	5.488017
MLE Skewness	181.7539
MLE Median	60.63286
MLE 80% Quantile	290.4922
MLE 90% Quantile	656.8093
MLE 95% Quantile	1280.339
MLE 99% Quantile	4525.769
MVU Estimate of Median	58.97424
MVU Estimate of Mean	315.29
MVU Estimate of Std. Dev.	1303.526
MVU Estimate of SE of Mean	108.4079

UCL Assuming Lognormal Distribution	
95% H-UCL	733.9046
95% Chebyshev (MVUE) UCL	787.8291
99% Chebyshev (MVUE) UCL	1393.935

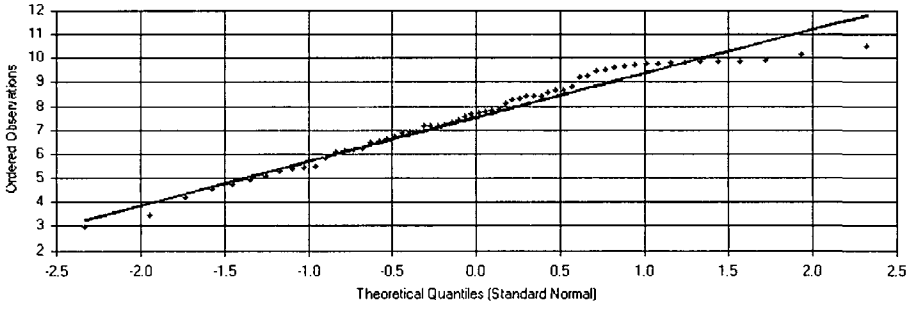
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Barium



N = 62, Mean = 5940.3032, Stdv = 7668.4150
Slope = 6775.4931, Intercept = 5940.3032, Correlation, R = 0.86969743
Lilliefors Statistic = 0.242, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Barium



N = 62, Mean = 7.5292, Stdv = 1.8368
Slope = 1.8329, Intercept = 7.5292, Correlation, R = 0.98224966
Lilliefors Statistic = 0.090, Critical Value(0.05) = 0.113, Data are Lognormal

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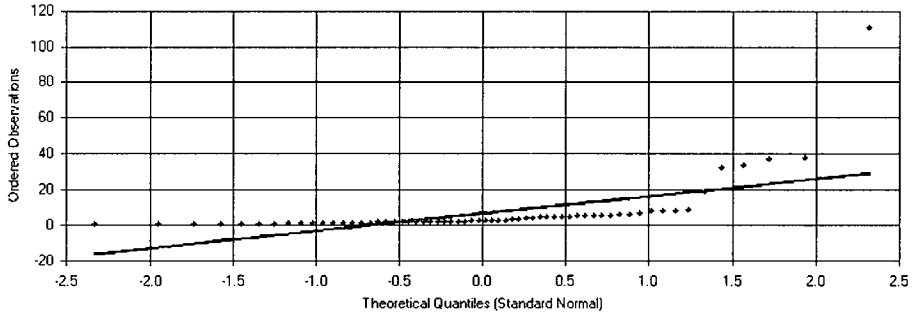
Summary Statistics for	Barium
Number of Samples	62
Minimum	18.5
Maximum	34350
Mean	5940.303
Median	2105
Standard Deviation	7668.415
Variance	58804588
Coefficient of Variation	1.290913
Skewness	1.532236
95 % UCL (Assuming Normal Data)	
Student's-t	7566.912
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	7744.707
Modified-t	7598.498
95 % Non-parametric UCL	
CLT	7542.209
Jackknife	7566.912
Standard Bootstrap	7529.008
Bootstrap-t	7841.264
Chebyshev (Mean, Std)	10185.39

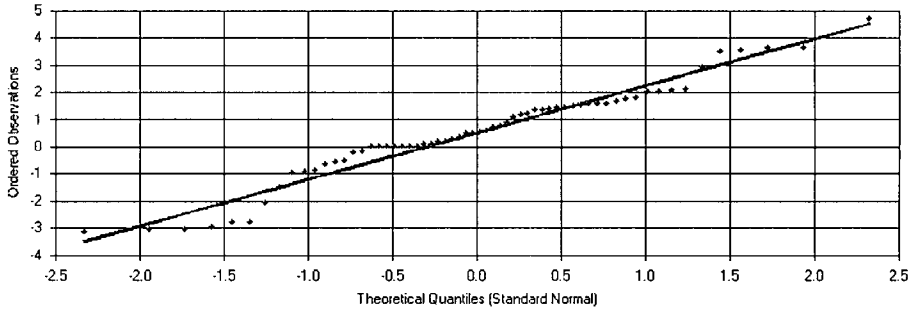
Summary Statistics for	ln(Barium)
Minimum	2.917771
Maximum	10.44436
Mean	7.529198
Standard Deviation	1.836791
Variance	3.3738
Lilliefors Test Statisitic	0.089952
Lilliefors 5% Critical Value	0.112522
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	10057.74
MLE Standard Deviation	53400.11
MLE Coefficient of Variation	5.309353
MLE Skewness	165.5946
MLE Median	1861.613
MLE 80% Quantile	8789.266
MLE 90% Quantile	19721.69
MLE 95% Quantile	38204.89
MLE 99% Quantile	133462.2
MVU Estimate of Median	1811.623
MVU Estimate of Mean	9394.623
MVU Estimate of Std. Dev.	37895
MVU Estimate of SE of Mean	3188.758
UCL Assuming Lognormal Distribution	
95% H-UCL	21553.81
95% Chebyshev (MVUE) UCL	23294.1
99% Chebyshev (MVUE) UCL	41122.37
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Cadmium



N = 62, Mean = 6.4407, Stdv = 15.8239
Slope = 9.8376, Intercept = 6.4407, Correlation, R = 0.61193847
Lilliefors Statistic = 0.364, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Cadmium



N = 62, Mean = 0.5142, Stdv = 1.7315
Slope = 1.7253, Intercept = 0.5142, Correlation, R = 0.98076943
Lilliefors Statistic = 0.121, Critical Value(0.05) = 0.113, Data not Lognormal

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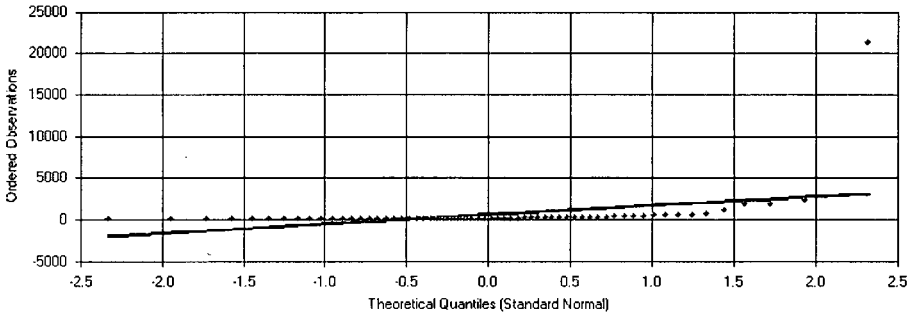
Summary Statistics for	Cadmium
Number of Samples	62
Minimum	0.0415
Maximum	110
Mean	6.440669
Median	1.65
Standard Deviation	15.82394
Variance	250.397
Coefficient of Variation	2.456878
Skewness	5.117738
95 % UCL (Assuming Normal Data)	
Student's-t	9.797212
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	11.1419
Modified-t	10.01491
95 % Non-parametric UCL	
CLT	9.746237
Jackknife	9.797212
Standard Bootstrap	9.668602
Bootstrap-t	13.84951
Chebyshev (Mean, Std)	15.2005
97.5 % Non-parametric UCL	
CLT	10.3795
Jackknife	10.4592
Standard Bootstrap	10.32074
Bootstrap-t	16.1683
Chebyshev (Mean, Std)	18.99088

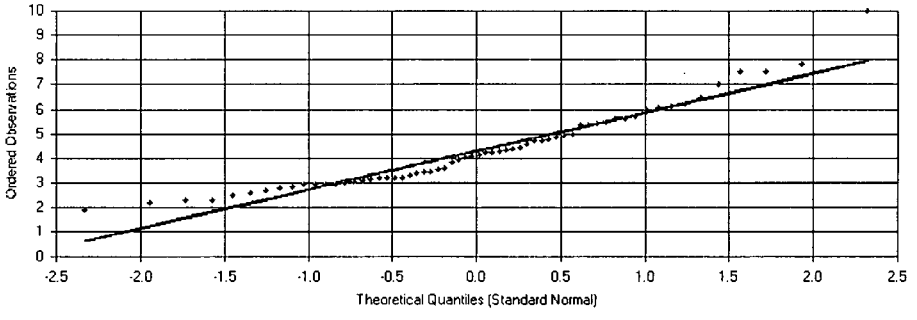
Summary Statistics for	ln(Cadmium)
Minimum	-3.182062
Maximum	4.70048
Mean	0.514197
Standard Deviation	1.731538
Variance	2.998223
Lilliefors Test Statisitic	0.120738
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	7.488052
MLE Standard Deviation	32.68247
MLE Coefficient of Variation	4.364616
MLE Skewness	96.23923
MLE Median	1.672295
MLE 80% Quantile	7.22355
MLE 90% Quantile	15.47496
MLE 95% Quantile	28.86347
MLE 99% Quantile	93.85527
MVU Estimate of Median	1.63233
MVU Estimate of Mean	7.074735
MVU Estimate of Std. Dev.	24.59556
MVU Estimate of SE of Mean	2.214031
UCL Assuming Lognormal Distribution	
95% H-UCL	14.91395
95% Chebyshev (MVUE) UCL	16.72547
99% Chebyshev (MVUE) UCL	29.10407

Normal Q-Q Plot for Chromium



N = 62, Mean = 553.0355, Stdv = 2713.1590
Slope = 1108.6395, Intercept = 553.0355, Correlation, R = 0.40220547
Lilliefors Statistic = 0.420, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Chromium



N = 62, Mean = 4.2915, Stdv = 1.6052
Slope = 1.5693, Intercept = 4.2915, Correlation, R = 0.96230298
Lilliefors Statistic = 0.114, Critical Value(0.05) = 0.113, Data not Lognormal

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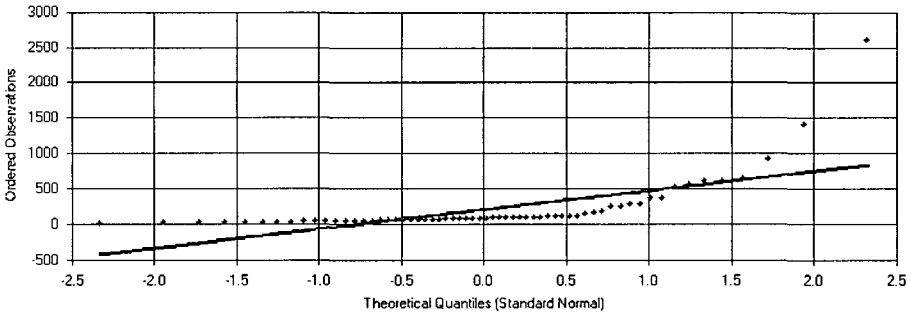
Summary Statistics for	Chromium
Number of Samples	62
Minimum	6.4
Maximum	21300
Mean	553.0355
Median	59.55
Standard Deviation	2713.159
Variance	7361232
Coefficient of Variation	4.90594
Skewness	7.576709
95 % UCL (Assuming Normal Data)	
Student's-t	1128.545
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1474.084
Modified-t	1183.806
95 % Non-parametric UCL	
CLT	1119.805
Jackknife	1128.545
Standard Bootstrap	1117.274
Bootstrap-t	3991.925
Chebyshev (Mean, Std)	2054.988
97.5 % Non-parametric UCL	
CLT	1228.383
Jackknife	1242.049
Standard Bootstrap	1229.744
Bootstrap-t	5080.685
Chebyshev (Mean, Std)	2704.884

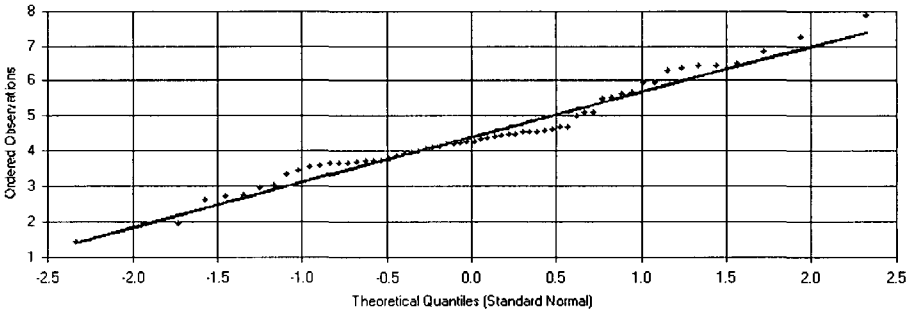
Summary Statistics for	ln(Chromium)
Minimum	1.856298
Maximum	9.966462
Mean	4.291477
Standard Deviation	1.605202
Variance	2.576672
Lilliefors Test Statisitic	0.114143
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	265.022
MLE Standard Deviation	923.9084
MLE Coefficient of Variation	3.486157
MLE Skewness	52.82676
MLE Median	73.07431
MLE 80% Quantile	283.6872
MLE 90% Quantile	574.8797
MLE 95% Quantile	1024.575
MLE 99% Quantile	3056.958
MVU Estimate of Median	71.57103
MVU Estimate of Mean	253.3492
MVU Estimate of Std. Dev.	738.3478
MVU Estimate of SE of Mean	71.43835
UCL Assuming Lognormal Distribution	
95% H-UCL	485.9226
95% Chebyshev (MVUE) UCL	564.7418
99% Chebyshev (MVUE) UCL	964.1518

Normal Q-Q Plot for Copper



N = 62, Mean = 201.4065, Stdv = 394.2839
Slope = 271.6915, Intercept = 201.4065, Correlation, R = 0.67826560
Lilliefors Statistic = 0.320, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Copper



N = 62, Mean = 4.3970, Stdv = 1.2853
Slope = 1.2855, Intercept = 4.3970, Correlation, R = 0.98442653
Lilliefors Statistic = 0.141, Critical Value(0.05) = 0.113, Data not Lognormal

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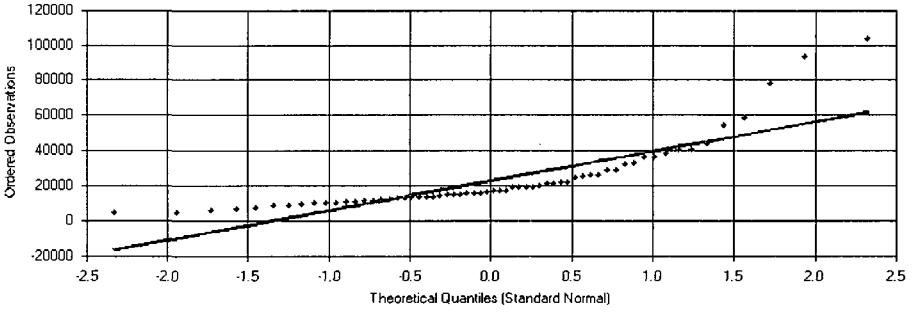
Summary Statistics for	Copper
Number of Samples	62
Minimum	4
Maximum	2590
Mean	201.4065
Median	69.7
Standard Deviation	394.2839
Variance	155459.8
Coefficient of Variation	1.957653
Skewness	4.380056
95 % UCL (Assuming Normal Data)	
Student's-t	285.0412
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	313.5341
Modified-t	289.6836
95 % Non-parametric UCL	
CLT	283.771
Jackknife	285.0412
Standard Bootstrap	282.3524
Bootstrap-t	351.7164
Chebyshev (Mean, Std)	419.6744
97.5 % Non-parametric UCL	
CLT	299.5499
Jackknife	301.5358
Standard Bootstrap	298.5653
Bootstrap-t	399.565
Chebyshev (Mean, Std)	514.1192

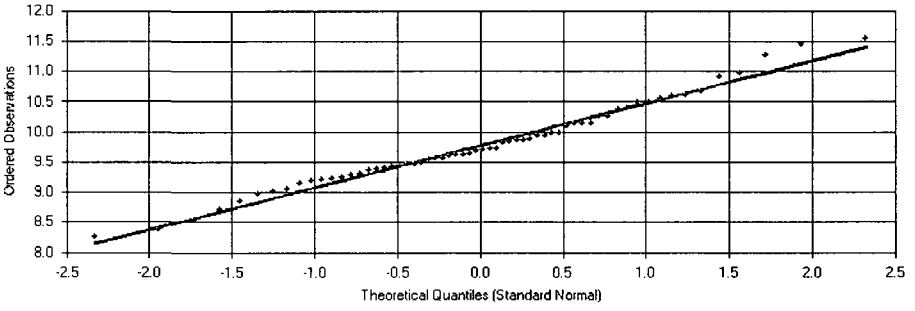
Summary Statistics for	ln(Copper)
Minimum	1.386294
Maximum	7.859413
Mean	4.396955
Standard Deviation	1.285329
Variance	1.65207
Lilliefors Test Statisitic	0.140833
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	185.488
MLE Standard Deviation	380.9407
MLE Coefficient of Variation	2.053721
MLE Skewness	14.82329
MLE Median	81.20323
MLE 80% Quantile	240.5813
MLE 90% Quantile	423.5208
MLE 95% Quantile	672.7145
MLE 99% Quantile	1614.257
MVU Estimate of Median	80.12829
MVU Estimate of Mean	181.1848
MVU Estimate of Std. Dev.	339.5275
MVU Estimate of SE of Mean	37.78945
UCL Assuming Lognormal Distribution	
95% H-UCL	283.3239
95% Chebyshev (MVUE) UCL	345.9052
99% Chebyshev (MVUE) UCL	557.185

Normal Q-Q Plot for Iron



N = 62, Mean = 22691.9355, Stdv = 19536.8863
Slope = 16884.5765, Intercept = 22691.9355, Correlation, R = 0.85068291
Lilliefors Statistic = 0.220, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Iron



N = 62, Mean = 9.7732, Stdv = 0.6944
Slope = 0.6992, Intercept = 9.7732, Correlation, R = 0.99104321
Lilliefors Statistic = 0.081, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Iron
Number of Samples	62
Minimum	3820
Maximum	103000
Mean	22691.94
Median	16100
Standard Deviation	19536.89
Variance	3.82E+08
Coefficient of Variation	0.860962
Skewness	2.419772

95 % UCL (Assuming Normal Data)	
Student's-t	26836.06

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	27587.86
Modified-t	26963.14

95 % Non-parametric UCL	
CLT	26773.13
Jackknife	26836.06
Standard Bootstrap	26697.19
Bootstrap-t	28224.36
Chebyshev (Mean, Std)	33507.18

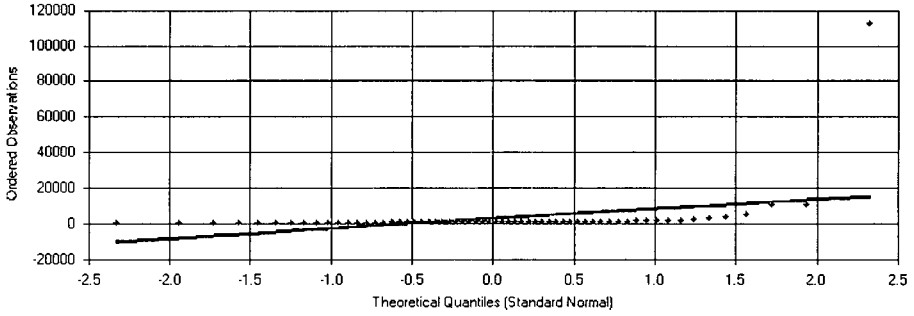
Summary Statistics for	ln(Iron)
Minimum	8.248006
Maximum	11.54248
Mean	9.773216
Standard Deviation	0.694436
Variance	0.482241
Lilliefors Test Statisitic	0.081362
Lilliefors 5% Critical Value	0.112522
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	22344.53
MLE Standard Deviation	17589.85
MLE Coefficient of Variation	0.787211
MLE Skewness	2.849467
MLE Median	17557.14
MLE 80% Quantile	31571.64
MLE 90% Quantile	42854.52
MLE 95% Quantile	55026.13
MLE 99% Quantile	88298.14
MVU Estimate of Median	17488.99
MVU Estimate of Mean	22238.12
MVU Estimate of Std. Dev.	17187.43
MVU Estimate of SE of Mean	2151.143

UCL Assuming Lognormal Distribution	
95% H-UCL	26690.76
95% Chebyshev (MVUE) UCL	31614.73
99% Chebyshev (MVUE) UCL	43641.72

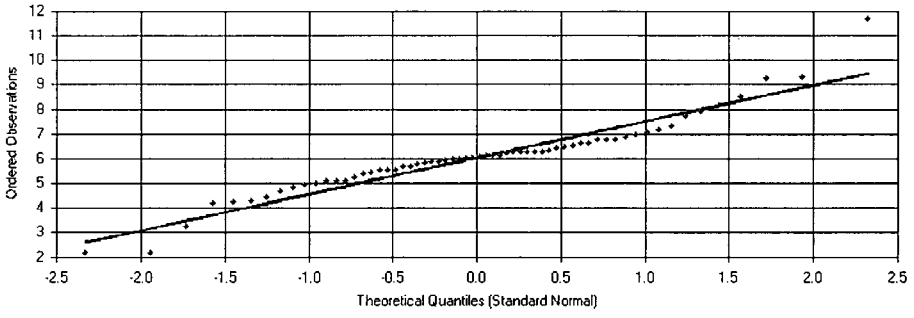
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Lead



N = 62, Mean = 2726.4645, Stdv = 14232.2808
Slope = 5498.1664, Intercept = 2726.4645, Correlation, R = 0.38025617
Lilliefors Statistic = 0.424, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Lead



N = 62, Mean = 6.0319, Stdv = 1.5114
Slope = 1.4713, Intercept = 6.0319, Correlation, R = 0.95817456
Lilliefors Statistic = 0.121, Critical Value(0.05) = 0.113, Data not Lognormal

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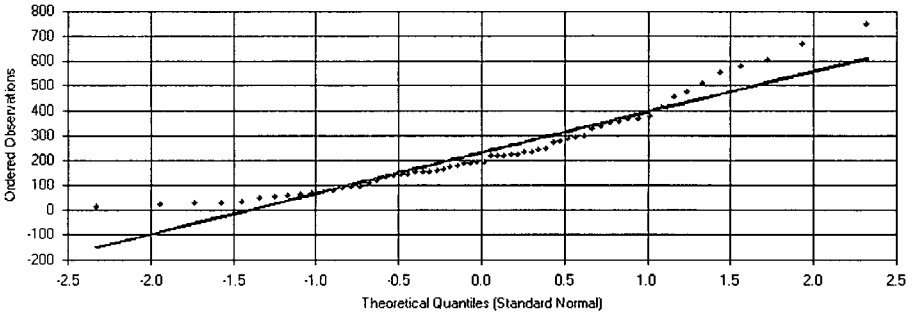
Summary Statistics for	Lead
Number of Samples	62
Minimum	8.3
Maximum	112000
Mean	2726.465
Median	414.5
Standard Deviation	14232.28
Variance	2.03E+08
Coefficient of Variation	5.22005
Skewness	7.668109
95 % UCL (Assuming Normal Data)	
Student's-t	5745.388
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	7580.378
Modified-t	6038.761
95 % Non-parametric UCL	
CLT	5699.54
Jackknife	5745.388
Standard Bootstrap	5706.972
Bootstrap-t	25141.86
Chebyshev (Mean, Std)	10605.18
97.5 % Non-parametric UCL	
CLT	6269.102
Jackknife	6340.786
Standard Bootstrap	6283.24
Bootstrap-t	41617.45
Chebyshev (Mean, Std)	14014.31

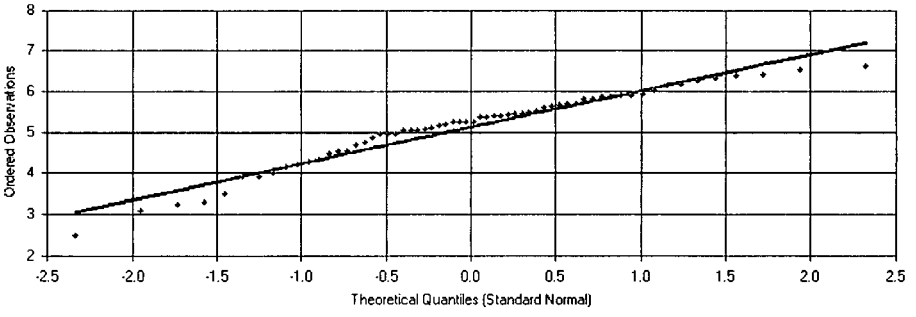
Summary Statistics for	ln(Lead)
Minimum	2.116256
Maximum	11.62625
Mean	6.031903
Standard Deviation	1.511388
Variance	2.284294
Lilliefors Test Statisitic	0.121077
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1305.119
MLE Standard Deviation	3875.731
MLE Coefficient of Variation	2.969638
MLE Skewness	35.09742
MLE Median	416.5067
MLE 80% Quantile	1493.721
MLE 90% Quantile	2904.557
MLE 95% Quantile	5004.716
MLE 99% Quantile	14008.1
MVU Estimate of Median	408.902
MVU Estimate of Mean	1256.963
MVU Estimate of Std. Dev.	3217.032
MVU Estimate of SE of Mean	326.3604
UCL Assuming Lognormal Distribution	
95% H-UCL	2259.357
95% Chebyshev (MVUE) UCL	2679.535
99% Chebyshev (MVUE) UCL	4504.208

Normal Q-Q Plot for Manganese



N = 62, Mean = 230.6645, Stdv = 168.6472
Slope = 163.7880, Intercept = 230.6645, Correlation, R = 0.95595107
Lilliefors Statistic = 0.134, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Manganese



N = 62, Mean = 5.1240, Stdv = 0.8983
Slope = 0.8911, Intercept = 5.1240, Correlation, R = 0.97647269
Lilliefors Statistic = 0.120, Critical Value(0.05) = 0.113, Data not Lognormal

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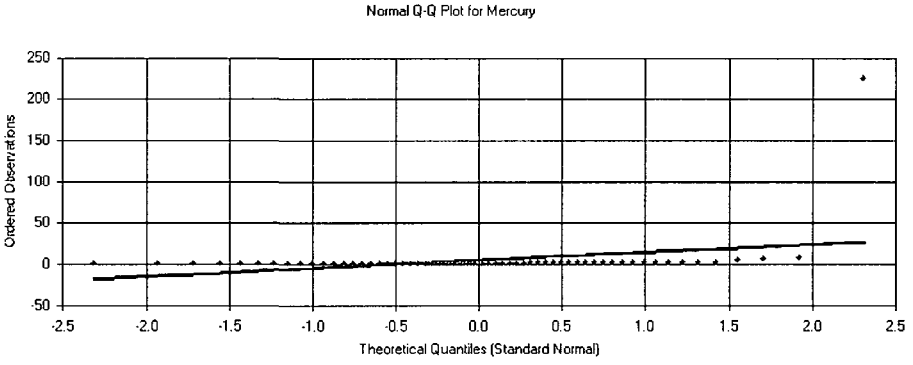
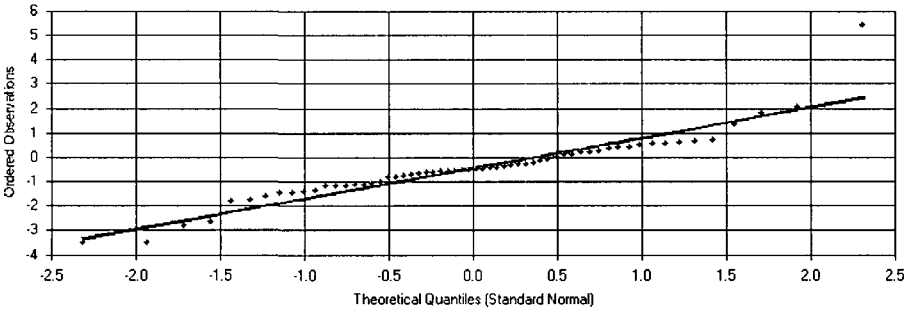
Summary Statistics for	Manganese
Number of Samples	62
Minimum	11.8
Maximum	744
Mean	230.6645
Median	188.25
Standard Deviation	168.6472
Variance	28441.89
Coefficient of Variation	0.731136
Skewness	1.099744
95 % UCL (Assuming Normal Data)	
Student's-t	266.4376
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	269.0907
Modified-t	266.9362
95 % Non-parametric UCL	
CLT	265.8944
Jackknife	266.4376
Standard Bootstrap	265.181
Bootstrap-t	271.526
Chebyshev (Mean, Std)	324.0244

Summary Statistics for	ln(Manganese)
Minimum	2.4681
Maximum	6.612041
Mean	5.124027
Standard Deviation	0.898263
Variance	0.806877
Lilliefors Test Statisitic	0.119829
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	251.5057
MLE Standard Deviation	280.1664
MLE Coefficient of Variation	1.113956
MLE Skewness	4.724176
MLE Median	168.0106
MLE 80% Quantile	358.9057
MLE 90% Quantile	532.8796
MLE 95% Quantile	736.3241
MLE 99% Quantile	1357.483
MVU Estimate of Median	166.9208
MVU Estimate of Mean	249.2603
MVU Estimate of Std. Dev.	268.2407
MVU Estimate of SE of Mean	32.80536
UCL Assuming Lognormal Distribution	
95% H-UCL	322.9611
95% Chebyshev (MVUE) UCL	392.2555
99% Chebyshev (MVUE) UCL	575.6695



N = 60, Mean = 4.6871, Stdv = 28.8212
Slope = 9.9226, Intercept = 4.6871, Correlation, R = 0.33874075
Lilliefors Statistic = 0.470, Critical Value(0.05) = 0.114, Data not Normal



N = 60, Mean = -0.4573, Stdv = 1.3144
Slope = 1.2489, Intercept = -0.4573, Correlation, R = 0.93485197
Lilliefors Statistic = 0.124, Critical Value(0.05) = 0.114, Data not Lognormal

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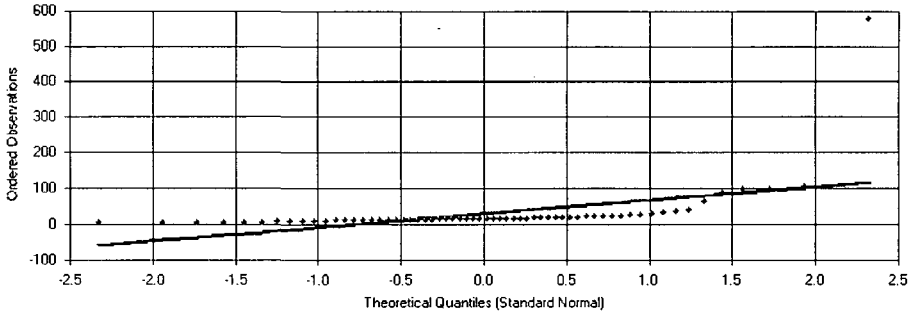
Summary Statistics for	Mercury
Number of Samples	60
Minimum	0.03
Maximum	224
Mean	4.68715
Median	0.6
Standard Deviation	28.82116
Variance	830.6591
Coefficient of Variation	6.148972
Skewness	7.722866
95 % UCL (Assuming Normal Data)	
Student's-t	10.90494
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	14.77118
Modified-t	11.52323
95 % Non-parametric UCL	
CLT	10.80731
Jackknife	10.90494
Standard Bootstrap	10.72277
Bootstrap-t	139.7694
Chebyshev (Mean, Std)	20.90572
97.5 % Non-parametric UCL	
CLT	11.97977
Jackknife	12.13244
Standard Bootstrap	11.78558
Bootstrap-t	172.4115
Chebyshev (Mean, Std)	27.92351

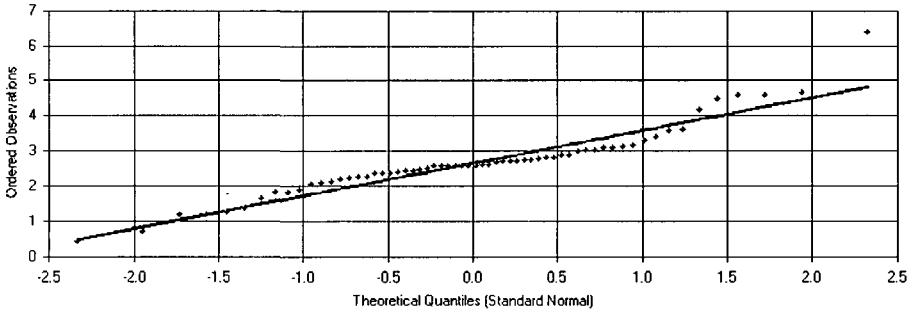
Summary Statistics for	ln(Mercury)
Minimum	-3.506558
Maximum	5.411646
Mean	-0.457316
Standard Deviation	1.314401
Variance	1.727651
Lilliefors Test Statisitic	0.124045
Lilliefors 5% Critical Value	0.114382
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.501568
MLE Standard Deviation	3.230089
MLE Coefficient of Variation	2.151144
MLE Skewness	16.40768
MLE Median	0.63298
MLE 80% Quantile	1.921975
MLE 90% Quantile	3.427017
MLE 95% Quantile	5.500696
MLE 99% Quantile	13.4635
MVU Estimate of Median	0.623931
MVU Estimate of Mean	1.463294
MVU Estimate of Std. Dev.	2.846477
MVU Estimate of SE of Mean	0.319096
UCL Assuming Lognormal Distribution	
95% H-UCL	2.348725
95% Chebyshev (MVUE) UCL	2.854202
99% Chebyshev (MVUE) UCL	4.638261

Normal Q-Q Plot for Nickel



N = 62, Mean = 28.6097, Stdv = 74.0620
Slope = 37.9607, Intercept = 28.6097, Correlation, R = 0.50451277
Lilliefors Statistic = 0.370, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Nickel



N = 62, Mean = 2.6531, Stdv = 0.9669
Slope = 0.9345, Intercept = 2.6531, Correlation, R = 0.95139931
Lilliefors Statistic = 0.151, Critical Value(0.05) = 0.113, Data not Lognormal

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Summary Statistics for	Nickel
Number of Samples	62
Minimum	1.5
Maximum	576
Mean	28.60968
Median	13
Standard Deviation	74.06198
Variance	5485.178
Coefficient of Variation	2.588704
Skewness	6.878456

95 % UCL (Assuming Normal Data)	
Student's-t	44.31956

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	52.86058
Modified-t	45.689

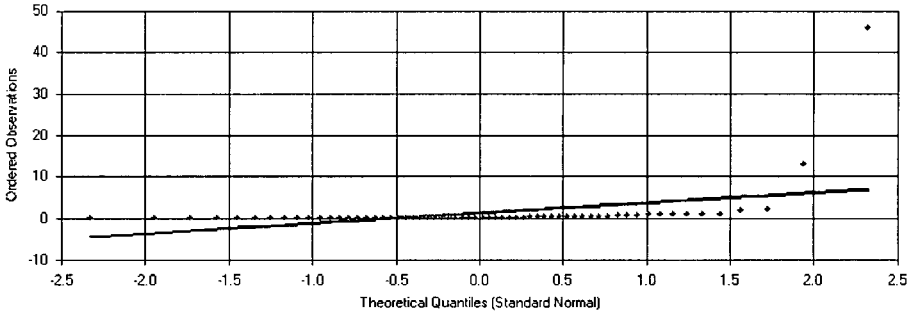
95 % Non-parametric UCL	
CLT	44.08098
Jackknife	44.31956
Standard Bootstrap	44.09743
Bootstrap-t	81.80173
Chebyshev (Mean, Std)	69.60896

Summary Statistics for	ln(Nickel)
Minimum	0.405465
Maximum	6.356108
Mean	2.653083
Standard Deviation	0.966856
Variance	0.934811
Lilliefors Test Statisitic	0.150807
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	

Estimates Assuming Lognormal Distribution	
MLE Mean	22.65744
MLE Standard Deviation	28.17854
MLE Coefficient of Variation	1.243677
MLE Skewness	5.654667
MLE Median	14.19774
MLE 80% Quantile	32.1392
MLE 90% Quantile	49.1803
MLE 95% Quantile	69.65549
MLE 99% Quantile	134.5574
MVU Estimate of Median	14.0911
MVU Estimate of Mean	22.4133
MVU Estimate of Std. Dev.	26.73466
MVU Estimate of SE of Mean	3.23247

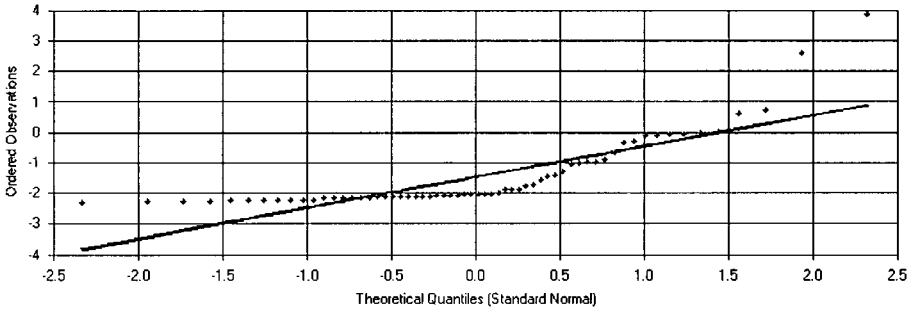
UCL Assuming Lognormal Distribution	
95% H-UCL	29.89698
95% Chebyshev (MVUE) UCL	36.50331
99% Chebyshev (MVUE) UCL	54.57597

Normal Q-Q Plot for Silver



N = 62, Mean = 1.2474, Stdv = 5.9692
Slope = 2.4600, Intercept = 1.2474, Correlation, R = 0.40565035
Lilliefors Statistic = 0.452, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Silver



N = 62, Mean = -1.4657, Stdv = 1.2004
Slope = 1.0132, Intercept = -1.4657, Correlation, R = 0.83078983
Lilliefors Statistic = 0.264, Critical Value(0.05) = 0.113, Data not Lognormal

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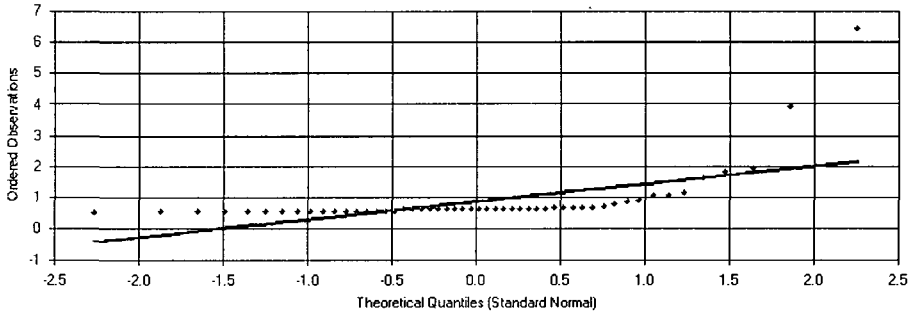
Summary Statistics for	Silver
Number of Samples	62
Minimum	0.095
Maximum	45.7
Mean	1.247379
Median	0.125
Standard Deviation	5.969158
Variance	35.63085
Coefficient of Variation	4.78536
Skewness	7.117019
95 % UCL (Assuming Normal Data)	
Student's-t	2.513545
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.226466
Modified-t	2.627746
95 % Non-parametric UCL	
CLT	2.494316
Jackknife	2.513545
Standard Bootstrap	2.500325
Bootstrap-t	16.53737
Chebyshev (Mean, Std)	4.55179
97.5 % Non-parametric UCL	
CLT	2.733196
Jackknife	2.763261
Standard Bootstrap	2.751208
Bootstrap-t	19.87023
Chebyshev (Mean, Std)	5.981611

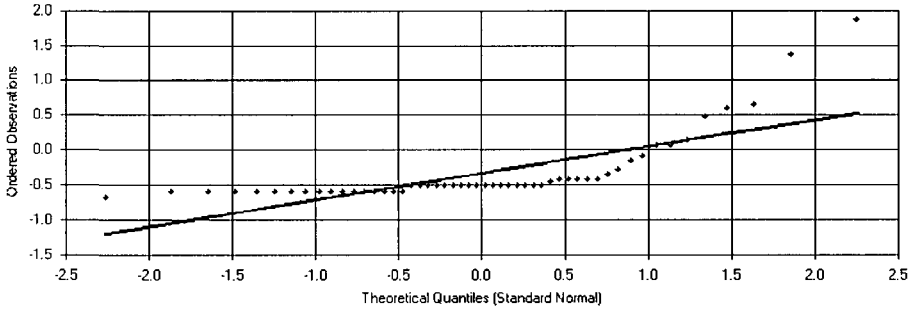
Summary Statistics for	ln(Silver)
Minimum	-2.353878
Maximum	3.822098
Mean	-1.465739
Standard Deviation	1.200425
Variance	1.441019
Lilliefors Test Statisitic	0.263746
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.474625
MLE Standard Deviation	0.852345
MLE Coefficient of Variation	1.795828
MLE Skewness	11.17903
MLE Median	0.230907
MLE 80% Quantile	0.636748
MLE 90% Quantile	1.079833
MLE 95% Quantile	1.663558
MLE 99% Quantile	3.767637
MVU Estimate of Median	0.228239
MVU Estimate of Mean	0.465518
MVU Estimate of Std. Dev.	0.775351
MVU Estimate of SE of Mean	0.088681
UCL Assuming Lognormal Distribution	
95% H-UCL	0.69491
95% Chebyshev (MVUE) UCL	0.85207
99% Chebyshev (MVUE) UCL	1.347885

Normal Q-Q Plot for Thallium



N = 52, Mean = 0.8731, Stdv = 0.9467
Slope = 0.5705, Intercept = 0.8731, Correlation, R = 0.59181805
Lilliefors Statistic = 0.362, Critical Value(0.05) = 0.123, Data not Normal

Lognormal Q-Q Plot for Thallium



N = 52, Mean = -0.3336, Stdv = 0.4959
Slope = 0.3816, Intercept = -0.3336, Correlation, R = 0.75573543
Lilliefors Statistic = 0.347, Critical Value(0.05) = 0.123, Data not Lognormal

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Summary Statistics for	Thallium
Number of Samples	52
Minimum	0.5
Maximum	6.4
Mean	0.873077
Median	0.6
Standard Deviation	0.946729
Variance	0.896295
Coefficient of Variation	1.084359
Skewness	4.754424

95 % UCL (Assuming Normal Data)	
Student's-t	1.093021

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.181517
Modified-t	1.107448

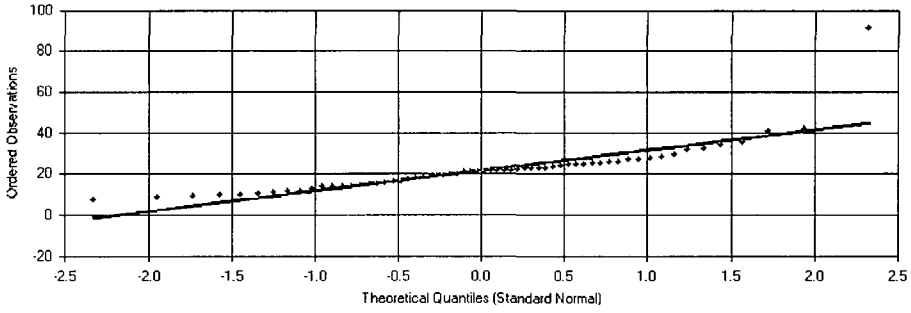
95 % Non-parametric UCL	
CLT	1.089026
Jackknife	1.093021
Standard Bootstrap	1.083376
Bootstrap-t	1.497188
Chebyshev (Mean, Std)	1.445347

Summary Statistics for	ln(Thallium)
Minimum	-0.693147
Maximum	1.856298
Mean	-0.333586
Standard Deviation	0.495863
Variance	0.24588
Lilliefors Test Statisitic	0.346932
Lilliefors 5% Critical Value	0.122866
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	

Estimates Assuming Lognormal Distribution	
MLE Mean	0.810061
MLE Standard Deviation	0.427683
MLE Coefficient of Variation	0.527964
MLE Skewness	1.73106
MLE Median	0.716351
MLE 80% Quantile	1.089173
MLE 90% Quantile	1.354724
MLE 95% Quantile	1.619486
MLE 99% Quantile	2.270026
MVU Estimate of Median	0.714659
MVU Estimate of Mean	0.807928
MVU Estimate of Std. Dev.	0.422269
MVU Estimate of SE of Mean	0.058328

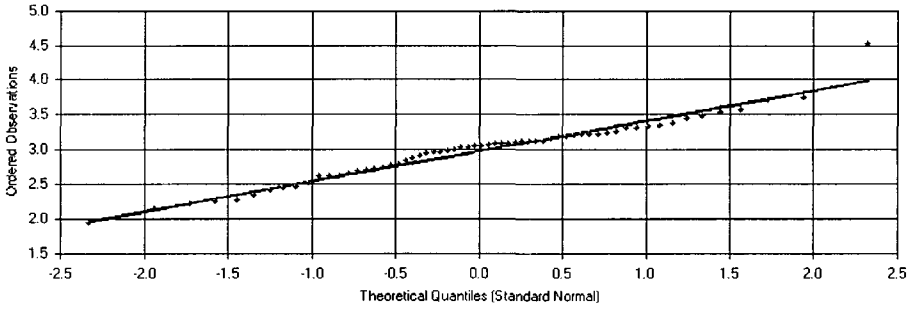
UCL Assuming Lognormal Distribution	
95% H-UCL	0.922484
95% Chebyshev (MVUE) UCL	1.062175
99% Chebyshev (MVUE) UCL	1.388288

Normal Q-Q Plot for Vanadium



N = 62, Mean = 21.6113, Stdv = 11.6702
Slope = 9.8865, Intercept = 21.6113, Correlation, R = 0.83387464
Lilliefors Statistic = 0.173, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Vanadium



N = 62, Mean = 2.9728, Stdv = 0.4380
Slope = 0.4355, Intercept = 2.9728, Correlation, R = 0.97887921
Lilliefors Statistic = 0.096, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Vanadium
Number of Samples	62
Minimum	6.9
Maximum	90.8
Mean	21.61129
Median	20.8
Standard Deviation	11.67015
Variance	136.1925
Coefficient of Variation	0.540003
Skewness	3.549877

95 % UCL (Assuming Normal Data)	
Student's-t	24.08674

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	24.76311
Modified-t	24.19811

95 % Non-parametric UCL	
CLT	24.04915
Jackknife	24.08674
Standard Bootstrap	24.01459
Bootstrap-t	25.23339
Chebyshev (Mean, Std)	28.07166

Summary Statistics for	ln(Vanadium)
Minimum	1.931521
Maximum	4.508659
Mean	2.972769
Standard Deviation	0.437952
Variance	0.191802
Lilliefors Test Statisitic	0.096116
Lilliefors 5% Critical Value	0.112522

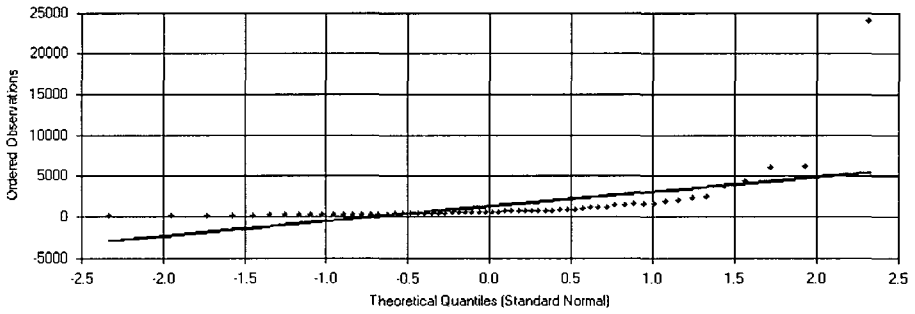
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	21.51328
MLE Standard Deviation	9.89216
MLE Coefficient of Variation	0.459816
MLE Skewness	1.476668
MLE Median	19.54598
MLE 80% Quantile	28.29936
MLE 90% Quantile	34.31348
MLE 95% Quantile	40.17325
MLE 99% Quantile	54.13316
MVU Estimate of Median	19.51577
MVU Estimate of Mean	21.47701
MVU Estimate of Std. Dev.	9.811291
MVU Estimate of SE of Mean	1.242919

UCL Assuming Lognormal Distribution	
95% H-UCL	23.82806
95% Chebyshev (MVUE) UCL	26.89477
99% Chebyshev (MVUE) UCL	33.8439

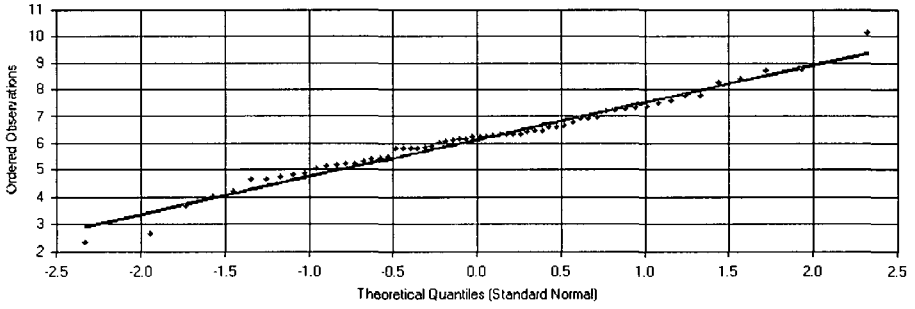
Recommended UCL to use:
Student's-t or H-UCL

Normal Q-Q Plot for Zinc



N = 62, Mean = 1258.6419, Stdv = 3177.4001
Slope = 1822.4586, Intercept = 1258.6419, Correlation, R = 0.56457112
Lilliefors Statistic = 0.347, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Zinc



N = 62, Mean = 6.1321, Stdv = 1.3828
Slope = 1.3862, Intercept = 6.1321, Correlation, R = 0.98673701
Lilliefors Statistic = 0.089, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Zinc
Number of Samples	62
Minimum	9.9
Maximum	23900
Mean	1258.642
Median	501.5
Standard Deviation	3177.4
Variance	10095871
Coefficient of Variation	2.524467
Skewness	6.246597

95 % UCL (Assuming Normal Data)	
Student's-t	1932.626

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2264.452
Modified-t	1985.98

95 % Non-parametric UCL	
CLT	1922.39
Jackknife	1932.626
Standard Bootstrap	1922.632
Bootstrap-t	3013.841
Chebyshev (Mean, Std)	3017.589

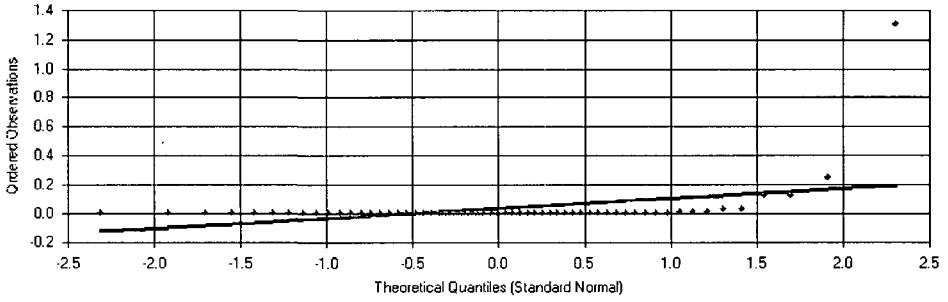
Summary Statistics for	ln(Zinc)
Minimum	2.292535
Maximum	10.08163
Mean	6.13211
Standard Deviation	1.382802
Variance	1.912141
Lilliefors Test Statisitic	0.08892
Lilliefors 5% Critical Value	0.112522
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	1197.727
MLE Standard Deviation	2876.432
MLE Coefficient of Variation	2.401575
MLE Skewness	21.05596
MLE Median	460.4068
MLE 80% Quantile	1481.156
MLE 90% Quantile	2721.697
MLE 95% Quantile	4477.497
MLE 99% Quantile	11481.68
MVU Estimate of Median	453.3599
MVU Estimate of Mean	1163.55
MVU Estimate of Std. Dev.	2494.257
MVU Estimate of SE of Mean	267.7135

UCL Assuming Lognormal Distribution	
95% H-UCL	1926.501
95% Chebyshev (MVUE) UCL	2330.486
99% Chebyshev (MVUE) UCL	3827.266

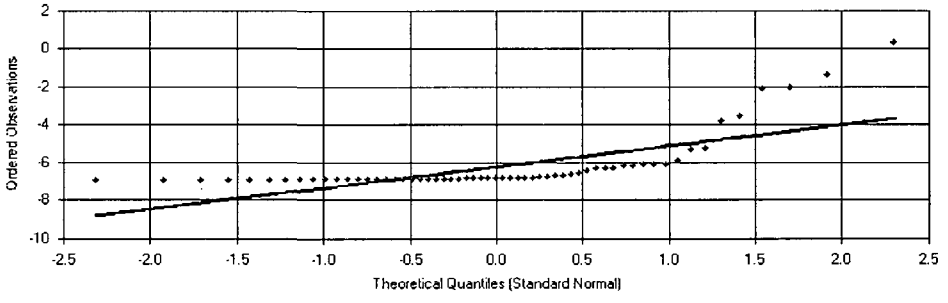
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Aldrin



N = 59, Mean = 0.0323, Stdv = 0.1721
Slope = 0.0701, Intercept = 0.0323, Correlation, R = 0.40062242
Lilliefors Statistic = 0.461, Critical Value(0.05) = 0.115, Data not Normal

Lognormal Q-Q Plot for Aldrin



N = 59, Mean = -6.2484, Stdv = 1.5112
Slope = 1.1157, Intercept = -6.2484, Correlation, R = 0.72624944
Lilliefors Statistic = 0.313, Critical Value(0.05) = 0.115, Data not Lognormal

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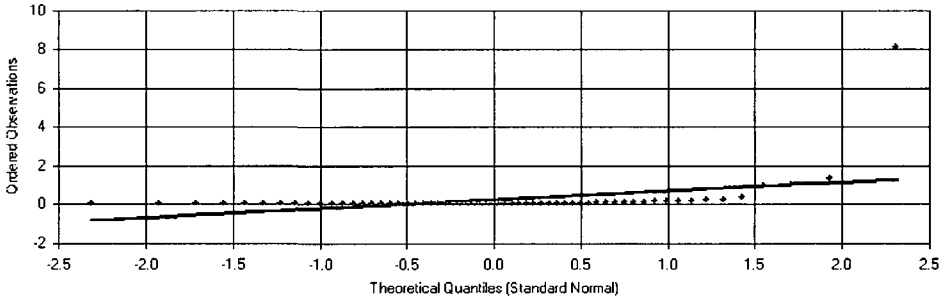
Summary Statistics for	Aldrin
Number of Samples	59
Minimum	0.0009
Maximum	1.3
Mean	0.032288
Median	0.00105
Standard Deviation	0.17208
Variance	0.029612
Coefficient of Variation	5.329514
Skewness	7.166436
95 % UCL (Assuming Normal Data)	
Student's-t	0.069736
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.091471
Modified-t	0.073219
95 % Non-parametric UCL	
CLT	0.069138
Jackknife	0.069736
Standard Bootstrap	0.069694
Bootstrap-t	0.236512
Chebyshev (Mean, Std)	0.12994
97.5 % Non-parametric UCL	
CLT	0.076197
Jackknife	0.077132
Standard Bootstrap	0.075306
Bootstrap-t	0.331595
Chebyshev (Mean, Std)	0.172194

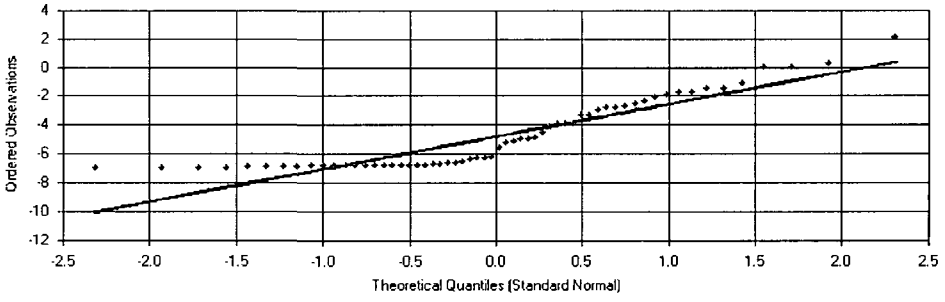
Summary Statistics for	ln(Aldrin)
Minimum	-7.01312
Maximum	0.262364
Mean	-6.24841
Standard Deviation	1.511196
Variance	2.283714
Lilliefors Test Statisitic	0.313414
Lilliefors 5% Critical Value	0.115347
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.006057
MLE Standard Deviation	0.017981
MLE Coefficient of Variation	2.968679
MLE Skewness	35.06917
MLE Median	0.001934
MLE 80% Quantile	0.006933
MLE 90% Quantile	0.01348
MLE 95% Quantile	0.023226
MLE 99% Quantile	0.065
MVU Estimate of Median	0.001896
MVU Estimate of Mean	0.005823
MVU Estimate of Std. Dev.	0.014806
MVU Estimate of SE of Mean	0.001544
UCL Assuming Lognormal Distribution	
95% H-UCL	0.010664
95% Chebyshev (MVUE) UCL	0.012553
99% Chebyshev (MVUE) UCL	0.021186

Normal Q-Q Plot for Chlordane - alpha



N = 60, Mean = 0.2212, Stdv = 1.0619
Slope = 0.4610, Intercept = 0.2212, Correlation, R = 0.42712836
Lilliefors Statistic = 0.418, Critical Value(0.05) = 0.114, Data not Normal

Lognormal Q-Q Plot for Chlordane - alpha



N = 60, Mean = -4.8168, Stdv = 2.4096
Slope = 2.2505, Intercept = -4.8168, Correlation, R = 0.91897866
Lilliefors Statistic = 0.219, Critical Value(0.05) = 0.114, Data not Lognormal

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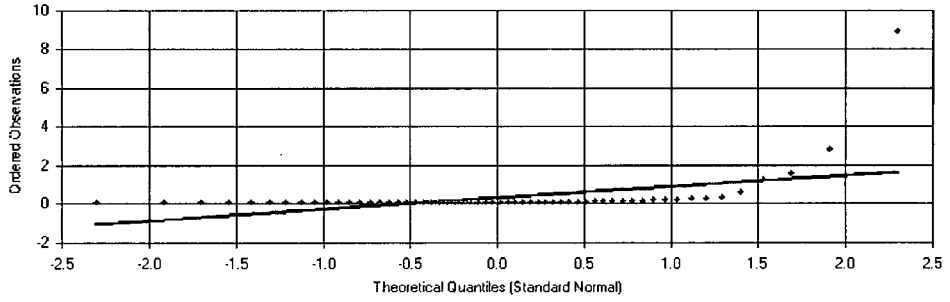
Summary Statistics for	Chlordane
Number of Samples	60
Minimum	0.0009
Maximum	8.1
Mean	0.221172
Median	0.00275
Standard Deviation	1.061925
Variance	1.127685
Coefficient of Variation	4.801361
Skewness	7.184724
95 % UCL (Assuming Normal Data)	
Student's-t	0.450268
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.582544
Modified-t	0.471462
95 % Non-parametric UCL	
CLT	0.446671
Jackknife	0.450268
Standard Bootstrap	0.440289
Bootstrap-t	1.473079
Chebyshev (Mean, Std)	0.81875
99 % Non-parametric UCL	
CLT	0.5401
Jackknife	0.548995
Standard Bootstrap	0.530388
Bootstrap-t	3.089154
Chebyshev (Mean, Std)	1.585239

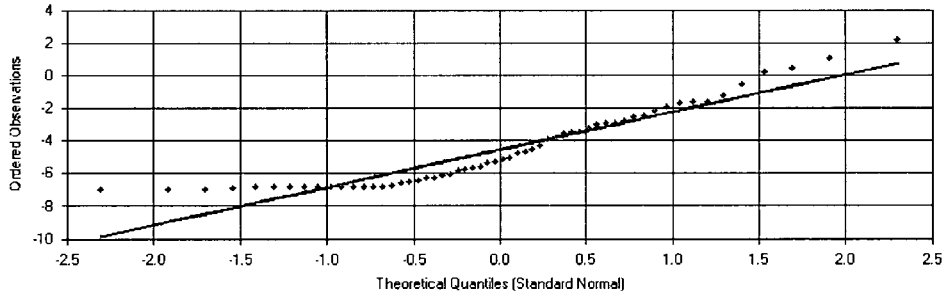
Summary Statistics for	ln(Chlordane - alpha)
Minimum	-7.01312
Maximum	2.091864
Mean	-4.81677
Standard Deviation	2.409554
Variance	5.805949
Lilliefors Test Statisitic	0.219084
Lilliefors 5% Critical Value	0.114382
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.147519
MLE Standard Deviation	2.684976
MLE Coefficient of Variation	18.20083
MLE Skewness	6084
MLE Median	0.008093
MLE 80% Quantile	0.061995
MLE 90% Quantile	0.178978
MLE 95% Quantile	0.426111
MLE 99% Quantile	2.198668
MVU Estimate of Median	0.00771
MVU Estimate of Mean	0.124697
MVU Estimate of Std. Dev.	1.149146
MVU Estimate of SE of Mean	0.061648
UCL Assuming Lognormal Distribution	
95% H-UCL	0.519778
95% Chebyshev (MVUE) UCL	0.393412
99% Chebyshev (MVUE) UCL	0.738083

Normal Q-Q Plot for Chlordane - gamma (technical mixture)



N = 58, Mean = 0.2869, Stdv = 1.2319
Slope = 0.5895, Intercept = 0.2869, Correlation, R = 0.47059649
Lilliefors Statistic = 0.428, Critical Value(0.05) = 0.116, Data not Normal

Lognormal Q-Q Plot for Chlordane - gamma (technical mixture)



N = 58, Mean = -4.5542, Stdv = 2.4098
Slope = 2.3097, Intercept = -4.5542, Correlation, R = 0.94262040
Lilliefors Statistic = 0.154, Critical Value(0.05) = 0.116, Data not Lognormal

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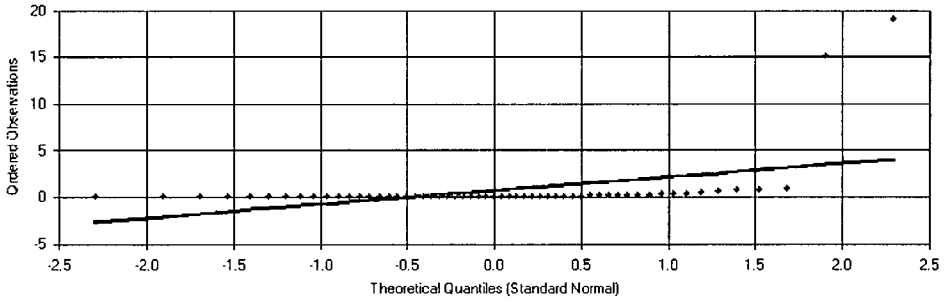
Summary Statistics for	Chlordane
Number of Samples	58
Minimum	0.0009
Maximum	8.9
Mean	0.286945
Median	0.005125
Standard Deviation	1.231905
Variance	1.51759
Coefficient of Variation	4.293177
Skewness	6.379757
95 % UCL (Assuming Normal Data)	
Student's-t	0.557407
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.6978
Modified-t	0.579991
95 % Non-parametric UCL	
CLT	0.553012
Jackknife	0.557407
Standard Bootstrap	0.546639
Bootstrap-t	1.565654
Chebyshev (Mean, Std)	0.992027
99 % Non-parametric UCL	
CLT	0.663248
Jackknife	0.674121
Standard Bootstrap	0.670831
Bootstrap-t	3.394095
Chebyshev (Mean, Std)	1.896407

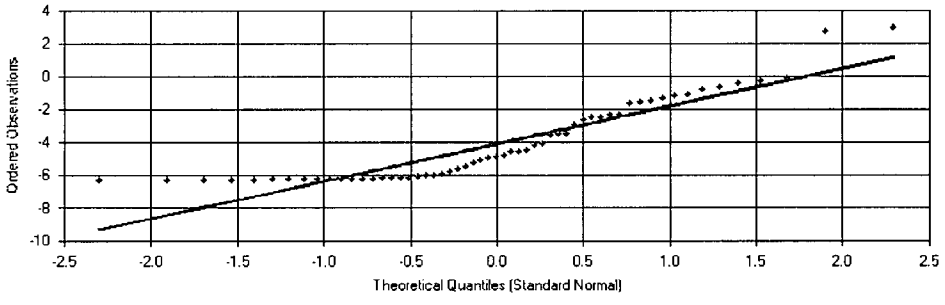
Summary Statistics for	ln(Chlordane - gamma (technical mixture))
Minimum	-7.01312
Maximum	2.186051
Mean	-4.55415
Standard Deviation	2.409809
Variance	5.807178
Lilliefors Test Statisitic	0.15377
Lilliefors 5% Critical Value	0.116337
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.191942
MLE Standard Deviation	3.495655
MLE Coefficient of Variation	18.21205
MLE Skewness	6095.189
MLE Median	0.010523
MLE 80% Quantile	0.080632
MLE 90% Quantile	0.232807
MLE 95% Quantile	0.554318
MLE 99% Quantile	2.860691
MVU Estimate of Median	0.010009
MVU Estimate of Mean	0.161398
MVU Estimate of Std. Dev.	1.46435
MVU Estimate of SE of Mean	0.08069
UCL Assuming Lognormal Distribution	
95% H-UCL	0.695609
95% Chebyshev (MVUE) UCL	0.513119
99% Chebyshev (MVUE) UCL	0.964257

Normal Q-Q Plot for DDE-4,4'



N = 57, Mean = 0.6897, Stdv = 3.1662
Slope = 1.4486, Intercept = 0.6897, Correlation, R = 0.44986167
Lilliefors Statistic = 0.445, Critical Value(0.05) = 0.117, Data not Normal

Lognormal Q-Q Plot for DDE-4,4'



N = 57, Mean = -4.0818, Stdv = 2.4338
Slope = 2.2863, Intercept = -4.0818, Correlation, R = 0.92368645
Lilliefors Statistic = 0.173, Critical Value(0.05) = 0.117, Data not Lognormal

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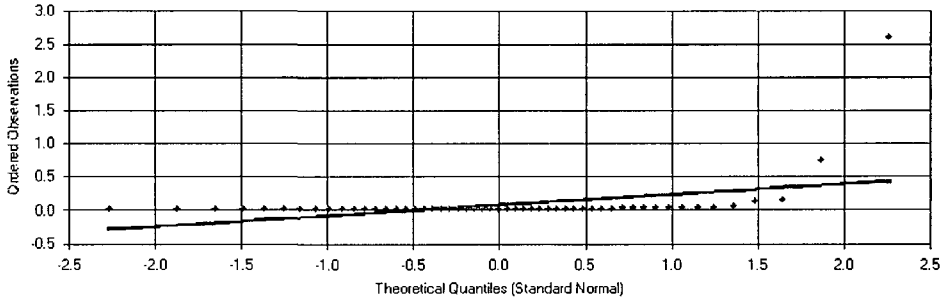
Summary Statistics for	DDE-4,4'
Number of Samples	57
Minimum	0.0017
Maximum	19
Mean	0.689674
Median	0.0072
Standard Deviation	3.166244
Variance	10.0251
Coefficient of Variation	4.590928
Skewness	5.279524
95 % UCL (Assuming Normal Data)	
Student's-t	1.391095
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.692853
Modified-t	1.439973
95 % Non-parametric UCL	
CLT	1.379492
Jackknife	1.391095
Standard Bootstrap	1.383227
Bootstrap-t	11.46132
Chebyshev (Mean, Std)	2.517706
99 % Non-parametric UCL	
CLT	1.665296
Jackknife	1.694004
Standard Bootstrap	1.663359
Bootstrap-t	15.6006
Chebyshev (Mean, Std)	4.862445

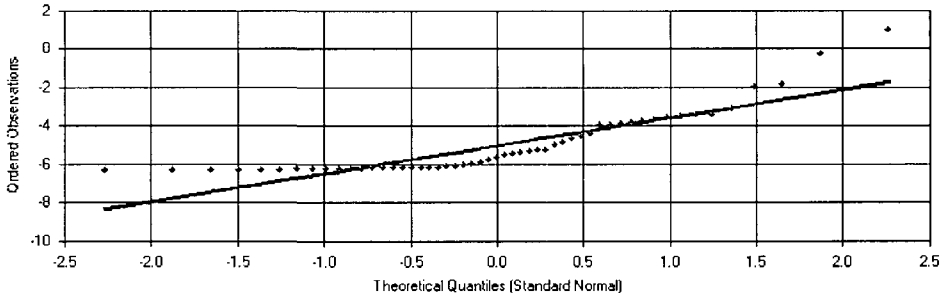
Summary Statistics for	ln(DDE-4,4')
Minimum	-6.37713
Maximum	2.944439
Mean	-4.08183
Standard Deviation	2.433806
Variance	5.923413
Lilliefors Test Statisitic	0.172818
Lilliefors 5% Critical Value	0.117354
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.326239
MLE Standard Deviation	6.298057
MLE Coefficient of Variation	19.30505
MLE Skewness	7252.616
MLE Median	0.016877
MLE 80% Quantile	0.131959
MLE 90% Quantile	0.385047
MLE 95% Quantile	0.92476
MLE 99% Quantile	4.85108
MVU Estimate of Median	0.016021
MVU Estimate of Mean	0.271997
MVU Estimate of Std. Dev.	2.535505
MVU Estimate of SE of Mean	0.138478
UCL Assuming Lognormal Distribution	
95% H-UCL	1.228512
95% Chebyshev (MVUE) UCL	0.875609
99% Chebyshev (MVUE) UCL	1.649835

Normal Q-Q Plot for DDT-4,4'



N = 53, Mean = 0.0759, Stdv = 0.3678
Slope = 0.1589, Intercept = 0.0759, Correlation, R = 0.42437663
Lilliefors Statistic = 0.460, Critical Value(0.05) = 0.122, Data not Normal

Lognormal Q-Q Plot for DDT-4,4'



N = 53, Mean = -5.0401, Stdv = 1.6196
Slope = 1.4570, Intercept = -5.0401, Correlation, R = 0.88369968
Lilliefors Statistic = 0.205, Critical Value(0.05) = 0.122, Data not Lognormal

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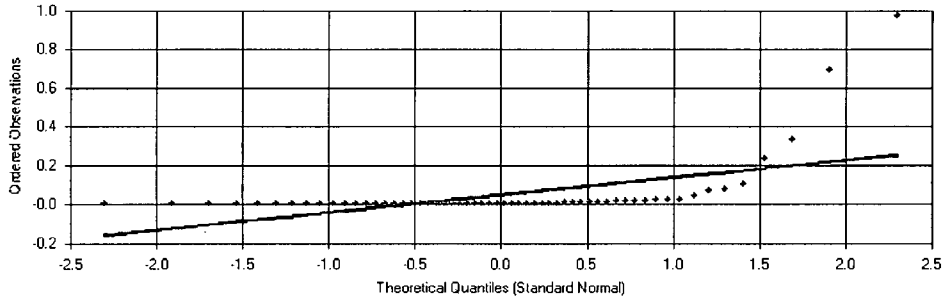
Summary Statistics for	DDT-4,4'
Number of Samples	53
Minimum	0.0017
Maximum	2.6
Mean	0.075947
Median	0.00345
Standard Deviation	0.367824
Variance	0.135295
Coefficient of Variation	4.843193
Skewness	6.563827
95 % UCL (Assuming Normal Data)	
Student's-t	0.16056
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.207727
Modified-t	0.168152
95 % Non-parametric UCL	
CLT	0.159052
Jackknife	0.16056
Standard Bootstrap	0.156888
Bootstrap-t	1.092991
Chebyshev (Mean, Std)	0.296178
97.5 % Non-parametric UCL	
CLT	0.174973
Jackknife	0.177332
Standard Bootstrap	0.172404
Bootstrap-t	1.26477
Chebyshev (Mean, Std)	0.391473

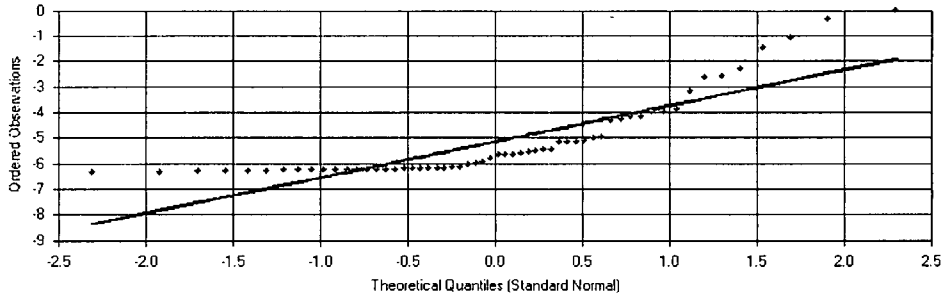
Summary Statistics for	ln(DDT-4,4')
Minimum	-6.37713
Maximum	0.955511
Mean	-5.04007
Standard Deviation	1.619617
Variance	2.623158
Lilliefors Test Statisitic	0.204532
Lilliefors 5% Critical Value	0.121701
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.024029
MLE Standard Deviation	0.085899
MLE Coefficient of Variation	3.574797
MLE Skewness	56.40732
MLE Median	0.006473
MLE 80% Quantile	0.025438
MLE 90% Quantile	0.051878
MLE 95% Quantile	0.09294
MLE 99% Quantile	0.280035
MVU Estimate of Median	0.006315
MVU Estimate of Mean	0.022773
MVU Estimate of Std. Dev.	0.066045
MVU Estimate of SE of Mean	0.006938
UCL Assuming Lognormal Distribution	
95% H-UCL	0.047344
95% Chebyshev (MVUE) UCL	0.053014
99% Chebyshev (MVUE) UCL	0.091803

Normal Q-Q Plot for Dieldrin



N = 58, Mean = 0.0472, Stdv = 0.1608
Slope = 0.0889, Intercept = 0.0472, Correlation, R = 0.54407647
Lilliefors Statistic = 0.429, Critical Value(0.05) = 0.116, Data not Normal

Lognormal Q-Q Plot for Dieldrin



N = 58, Mean = -5.1409, Stdv = 1.5962
Slope = 1.4031, Intercept = -5.1409, Correlation, R = 0.86452152
Lilliefors Statistic = 0.225, Critical Value(0.05) = 0.116, Data not Lognormal

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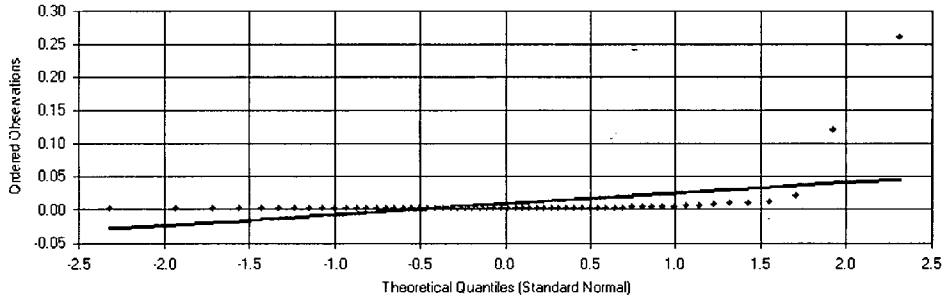
Summary Statistics for	Dieldrin
Number of Samples	58
Minimum	0.00175
Maximum	0.97
Mean	0.047212
Median	0.003225
Standard Deviation	0.160758
Variance	0.025843
Coefficient of Variation	3.40505
Skewness	4.707358
95 % UCL (Assuming Normal Data)	
Student's-t	0.082506
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.095873
Modified-t	0.08468
95 % Non-parametric UCL	
CLT	0.081932
Jackknife	0.082506
Standard Bootstrap	0.082639
Bootstrap-t	0.146113
Chebyshev (Mean, Std)	0.139222
97.5 % Non-parametric UCL	
CLT	0.088584
Jackknife	0.089481
Standard Bootstrap	0.088531
Bootstrap-t	0.224839
Chebyshev (Mean, Std)	0.179035

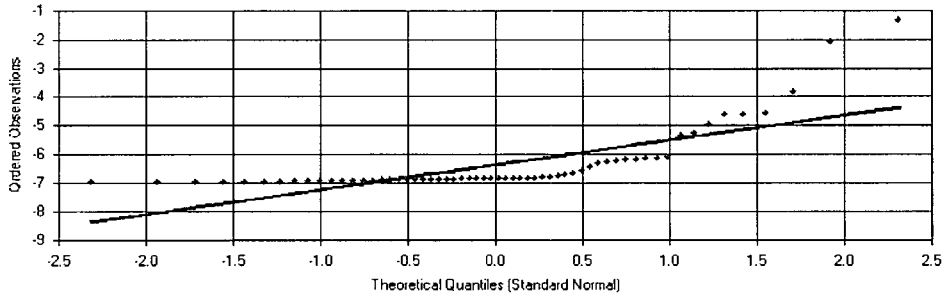
Summary Statistics for	ln(Dieldrin)
Minimum	-6.34814
Maximum	-0.03046
Mean	-5.14095
Standard Deviation	1.596175
Variance	2.547775
Lilliefors Test Statisitic	0.224734
Lilliefors 5% Critical Value	0.116337
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.02092
MLE Standard Deviation	0.071797
MLE Coefficient of Variation	3.432003
MLE Skewness	50.72035
MLE Median	0.005852
MLE 80% Quantile	0.022546
MLE 90% Quantile	0.045508
MLE 95% Quantile	0.080844
MLE 99% Quantile	0.23973
MVU Estimate of Median	0.005725
MVU Estimate of Mean	0.019956
MVU Estimate of Std. Dev.	0.056869
MVU Estimate of SE of Mean	0.005742
UCL Assuming Lognormal Distribution	
95% H-UCL	0.039117
95% Chebyshev (MVUE) UCL	0.044986
99% Chebyshev (MVUE) UCL	0.07709

Normal Q-Q Plot for Heptachlor



N = 60, Mean = 0.0084, Stdv = 0.0365
Slope = 0.0162, Intercept = 0.0084, Correlation, R = 0.43603720
Lilliefors Statistic = 0.433, Critical Value(0.05) = 0.114, Data not Normal

Lognormal Q-Q Plot for Heptachlor



N = 60, Mean = -6.3815, Stdv = 1.1260
Slope = 0.8667, Intercept = -6.3815, Correlation, R = 0.75732596
Lilliefors Statistic = 0.289, Critical Value(0.05) = 0.114, Data not Lognormal

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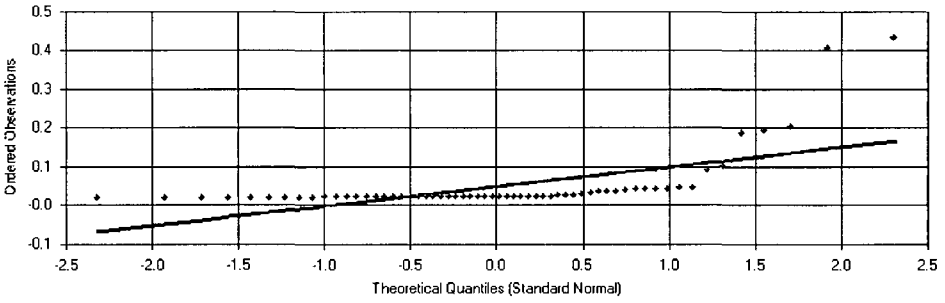
Summary Statistics for	Heptachlor
Number of Samples	60
Minimum	0.0009
Maximum	0.26
Mean	0.00844
Median	0.00105
Standard Deviation	0.036503
Variance	0.001332
Coefficient of Variation	4.325041
Skewness	6.232569
95 % UCL (Assuming Normal Data)	
Student's-t	0.016315
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.020243
Modified-t	0.016947
95 % Non-parametric UCL	
CLT	0.016191
Jackknife	0.016315
Standard Bootstrap	0.016119
Bootstrap-t	0.089518
Chebyshev (Mean, Std)	0.028982
97.5 % Non-parametric UCL	
CLT	0.017676
Jackknife	0.01787
Standard Bootstrap	0.017535
Bootstrap-t	0.11581
Chebyshev (Mean, Std)	0.03787

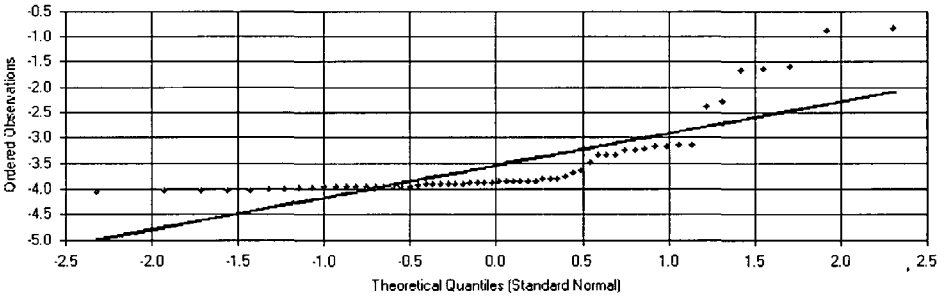
Summary Statistics for	ln(Heptachlor)
Minimum	-7.01312
Maximum	-1.34707
Mean	-6.38148
Standard Deviation	1.126023
Variance	1.267928
Lilliefors Test Statisitic	0.289446
Lilliefors 5% Critical Value	0.114382
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.003191
MLE Standard Deviation	0.005099
MLE Coefficient of Variation	1.597961
MLE Skewness	8.874247
MLE Median	0.001693
MLE 80% Quantile	0.004383
MLE 90% Quantile	0.007194
MLE 95% Quantile	0.01079
MLE 99% Quantile	0.023229
MVU Estimate of Median	0.001675
MVU Estimate of Mean	0.003138
MVU Estimate of Std. Dev.	0.004699
MVU Estimate of SE of Mean	0.000558
UCL Assuming Lognormal Distribution	
95% H-UCL	0.004541
95% Chebyshev (MVUE) UCL	0.00557
99% Chebyshev (MVUE) UCL	0.00869

Normal Q-Q Plot for Pcb-araclor 1248



N = 60, Mean = 0.0474, Stdv = 0.0797
Slope = 0.0509, Intercept = 0.0474, Correlation, R = 0.62829078
Lilliefors Statistic = 0.408, Critical Value(0.05) = 0.114, Data not Normal

Lognormal Q-Q Plot for Pcb-araclor 1248



N = 60, Mean = -3.5424, Stdv = 0.7736
Slope = 0.6291, Intercept = -3.5424, Correlation, R = 0.80011295
Lilliefors Statistic = 0.289, Critical Value(0.05) = 0.114, Data not Lognormal

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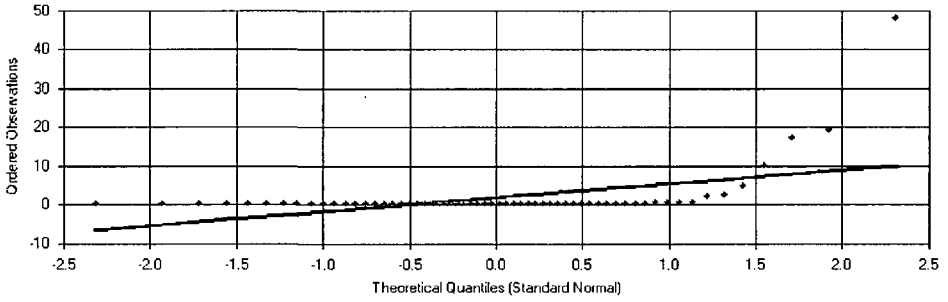
Summary Statistics for	Pcb-araclo
Number of Samples	60
Minimum	0.017
Maximum	0.43025
Mean	0.047421
Median	0.02025
Standard Deviation	0.079732
Variance	0.006357
Coefficient of Variation	1.681362
Skewness	3.811605
95 % UCL (Assuming Normal Data)	
Student's-t	0.064622
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.069764
Modified-t	0.065466
95 % Non-parametric UCL	
CLT	0.064352
Jackknife	0.064622
Standard Bootstrap	0.064405
Bootstrap-t	0.080811
Chebyshev (Mean, Std)	0.092288

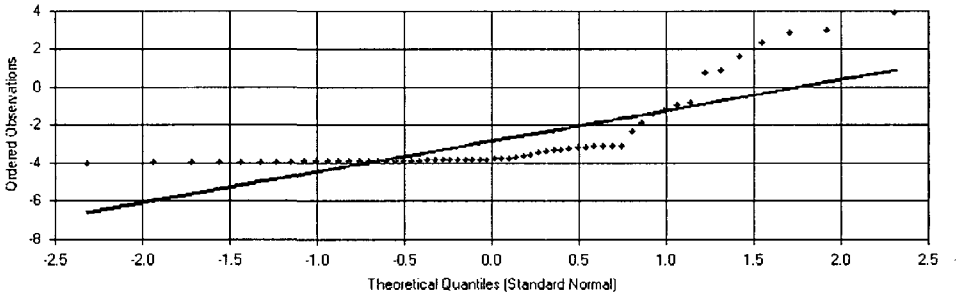
Summary Statistics for	ln(Pcb-araclor 1248)
Minimum	-4.07454
Maximum	-0.84339
Mean	-3.54239
Standard Deviation	0.773583
Variance	0.598431
Lilliefors Test Statisitic	0.288562
Lilliefors 5% Critical Value	0.114382
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.03904
MLE Standard Deviation	0.035336
MLE Coefficient of Variation	0.905131
MLE Skewness	3.456934
MLE Median	0.028944
MLE 80% Quantile	0.055648
MLE 90% Quantile	0.078212
MLE 95% Quantile	0.103329
MLE 99% Quantile	0.174989
MVU Estimate of Median	0.0288
MVU Estimate of Mean	0.038791
MVU Estimate of Std. Dev.	0.03426
MVU Estimate of SE of Mean	0.004328
UCL Assuming Lognormal Distribution	
95% H-UCL	0.048078
95% Chebyshev (MVUE) UCL	0.057657
99% Chebyshev (MVUE) UCL	0.081854

Normal Q-Q Plot for Pcb-araclor 1254



N = 60, Mean = 1.7611, Stdv = 7.0106
Slope = 3.6032, Intercept = 1.7611, Correlation, R = 0.50569562
Lilliefors Statistic = 0.460, Critical Value(0.05) = 0.114, Data not Normal

Lognormal Q-Q Plot for Pcb-araclor 1254



N = 60, Mean = -2.8559, Stdv = 2.0177
Slope = 1.6175, Intercept = -2.8559, Correlation, R = 0.78875704
Lilliefors Statistic = 0.343, Critical Value(0.05) = 0.114, Data not Lognormal

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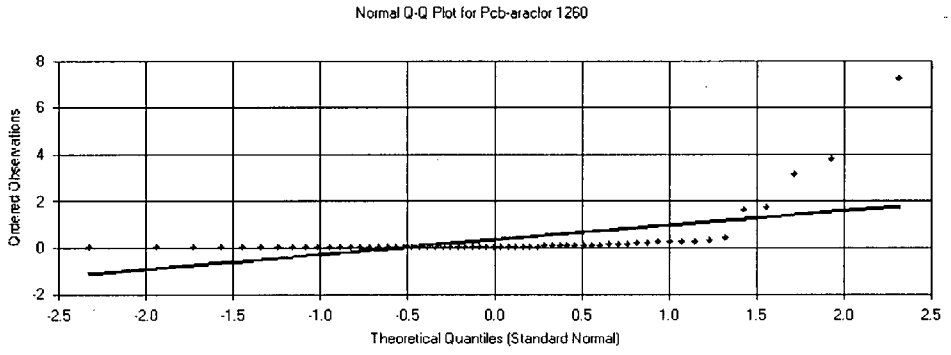
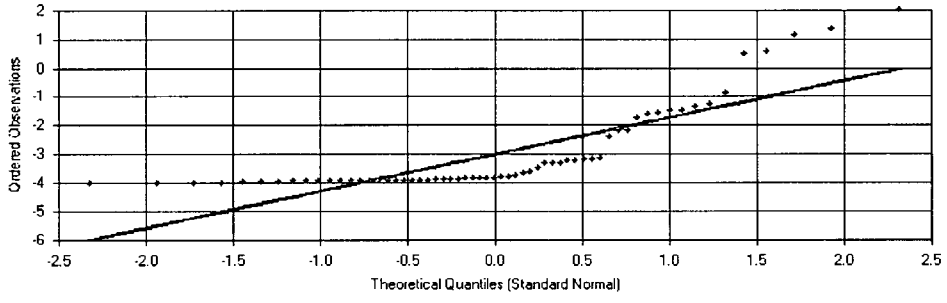
Summary Statistics for	Pcb-araclo
Number of Samples	60
Minimum	0.017
Maximum	48
Mean	1.761129
Median	0.021
Standard Deviation	7.010631
Variance	49.14895
Coefficient of Variation	3.980759
Skewness	5.487551
95 % UCL (Assuming Normal Data)	
Student's-t	3.273583
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.934952
Modified-t	3.380447
95 % Non-parametric UCL	
CLT	3.249835
Jackknife	3.273583
Standard Bootstrap	3.252842
Bootstrap-t	5.454445
Chebyshev (Mean, Std)	5.706232
99 % Non-parametric UCL	
CLT	3.866634
Jackknife	3.925355
Standard Bootstrap	3.789272
Bootstrap-t	13.18474
Chebyshev (Mean, Std)	10.76645

Summary Statistics for	ln(Pcb-araclor 1254)
Minimum	-4.07454
Maximum	3.871201
Mean	-2.85589
Standard Deviation	2.017697
Variance	4.071101
Lilliefors Test Statisitic	0.342893
Lilliefors 5% Critical Value	0.114382
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.440281
MLE Standard Deviation	3.342124
MLE Coefficient of Variation	7.590881
MLE Skewness	460.1704
MLE Median	0.057505
MLE 80% Quantile	0.31634
MLE 90% Quantile	0.768626
MLE 95% Quantile	1.589183
MLE 99% Quantile	6.279382
MVU Estimate of Median	0.055585
MVU Estimate of Mean	0.400536
MVU Estimate of Std. Dev.	2.075373
MVU Estimate of SE of Mean	0.156533
UCL Assuming Lognormal Distribution	
95% H-UCL	1.100317
95% Chebyshev (MVUE) UCL	1.082847
99% Chebyshev (MVUE) UCL	1.958019



N = 61, Mean = 0.3392, Stdv = 1.1172
Slope = 0.6262, Intercept = 0.3392, Correlation, R = 0.55161814
Lilliefors Statistic = 0.423, Critical Value(0.05) = 0.113, Data not Normal



N = 61, Mean = -3.0176, Stdv = 1.5188
Slope = 1.2853, Intercept = -3.0176, Correlation, R = 0.83281038
Lilliefors Statistic = 0.275, Critical Value(0.05) = 0.113, Data not Lognormal

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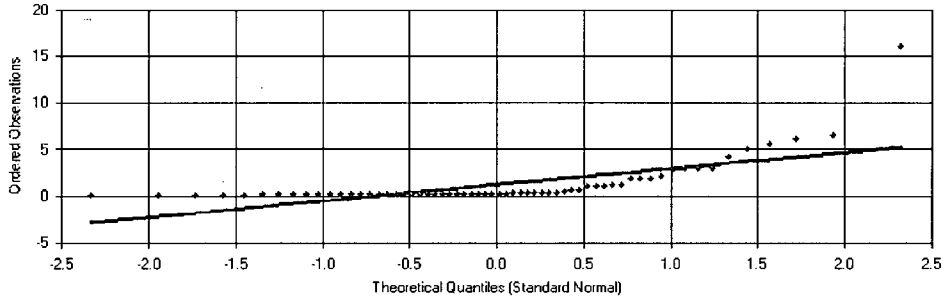
Summary Statistics for	Pcb-araclo
Number of Samples	61
Minimum	0.0175
Maximum	7.2
Mean	0.339197
Median	0.0205
Standard Deviation	1.117194
Variance	1.248124
Coefficient of Variation	3.293648
Skewness	4.800796
95 % UCL (Assuming Normal Data)	
Student's-t	0.57817
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.668429
Modified-t	0.592824
95 % Non-parametric UCL	
CLT	0.57448
Jackknife	0.57817
Standard Bootstrap	0.576397
Bootstrap-t	0.880565
Chebyshev (Mean, Std)	0.962703
97.5 % Non-parametric UCL	
CLT	0.619554
Jackknife	0.625323
Standard Bootstrap	0.611597
Bootstrap-t	1.159464
Chebyshev (Mean, Std)	1.232494

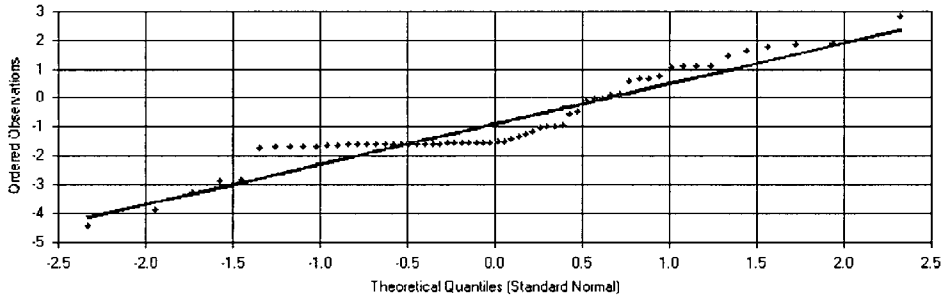
Summary Statistics for	ln(Pcb-araclor 1260)
Minimum	-4.04555
Maximum	1.974081
Mean	-3.01759
Standard Deviation	1.518835
Variance	2.30686
Lilliefors Test Statisitic	0.2746
Lilliefors 5% Critical Value	0.113441
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.155027
MLE Standard Deviation	0.466187
MLE Coefficient of Variation	3.007132
MLE Skewness	36.21441
MLE Median	0.048919
MLE 80% Quantile	0.176547
MLE 90% Quantile	0.344424
MLE 95% Quantile	0.595055
MLE 99% Quantile	1.674015
MVU Estimate of Median	0.048003
MVU Estimate of Mean	0.149135
MVU Estimate of Std. Dev.	0.384843
MVU Estimate of SE of Mean	0.039255
UCL Assuming Lognormal Distribution	
95% H-UCL	0.271009
95% Chebyshev (MVUE) UCL	0.320246
99% Chebyshev (MVUE) UCL	0.539722

Normal Q-Q Plot for Acetophenone



N = 62, Mean = 1.2284, Stdv = 2.4518
Slope = 1.7263, Intercept = 1.2284, Correlation, R = 0.69305987
Lilliefors Statistic = 0.310, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Acetophenone



N = 62, Mean = -0.9100, Stdv = 1.4482
Slope = 1.3964, Intercept = -0.9100, Correlation, R = 0.94908167
Lilliefors Statistic = 0.200, Critical Value(0.05) = 0.113, Data not Lognormal

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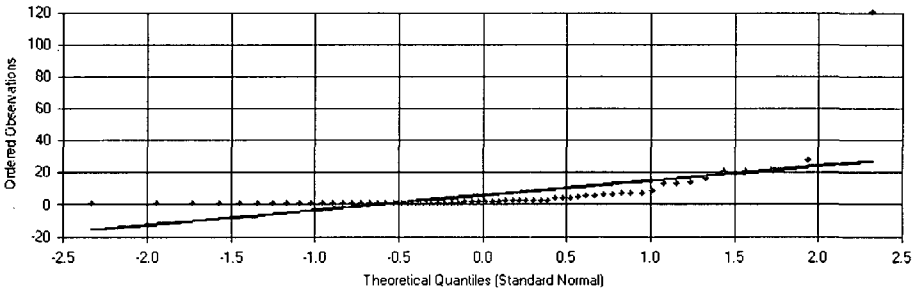
Summary Statistics for	Acetophen
Number of Samples	62
Minimum	0.011
Maximum	16
Mean	1.228371
Median	0.21
Standard Deviation	2.451771
Variance	6.011183
Coefficient of Variation	1.995953
Skewness	4.143073
95 % UCL (Assuming Normal Data)	
Student's-t	1.748436
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.915599
Modified-t	1.775742
95 % Non-parametric UCL	
CLT	1.740538
Jackknife	1.748436
Standard Bootstrap	1.733869
Bootstrap-t	2.141386
Chebyshev (Mean, Std)	2.585624
97.5 % Non-parametric UCL	
CLT	1.838655
Jackknife	1.851004
Standard Bootstrap	1.800647
Bootstrap-t	2.27179
Chebyshev (Mean, Std)	3.172909

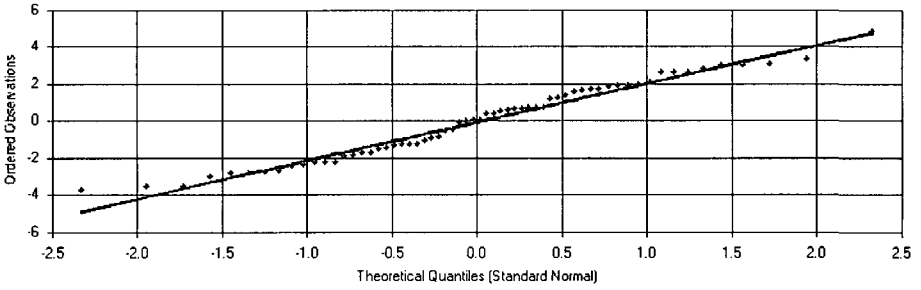
Summary Statistics for	ln(Acetophenone)
Minimum	-4.50986
Maximum	2.772589
Mean	-0.91002
Standard Deviation	1.448225
Variance	2.097357
Lilliefors Test Statisitic	0.199753
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.148727
MLE Standard Deviation	3.070479
MLE Coefficient of Variation	2.672941
MLE Skewness	27.11596
MLE Median	0.402514
MLE 80% Quantile	1.368515
MLE 90% Quantile	2.588155
MLE 95% Quantile	4.359278
MLE 99% Quantile	11.68783
MVU Estimate of Median	0.395762
MVU Estimate of Mean	1.111287
MVU Estimate of Std. Dev.	2.606898
MVU Estimate of SE of Mean	0.272224
UCL Assuming Lognormal Distribution	
95% H-UCL	1.916621
95% Chebyshev (MVUE) UCL	2.297883
99% Chebyshev (MVUE) UCL	3.819879

Normal Q-Q Plot for Benzo(a)anthracene



N = 62, Mean = 5.6719, Stdv = 15.9616
Slope = 9.2089, Intercept = 5.6719, Correlation, R = 0.56788698
Lilliefors Statistic = 0.362, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Benzo(a)anthracene



N = 62, Mean = -0.0786, Stdv = 2.0698
Slope = 2.0787, Intercept = -0.0786, Correlation, R = 0.98850574
Lilliefors Statistic = 0.095, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Benzo(a)a
Number of Samples	62
Minimum	0.023
Maximum	120
Mean	5.671935
Median	1
Standard Deviation	15.96163
Variance	254.7736
Coefficient of Variation	2.814141
Skewness	6.29118

95 % UCL (Assuming Normal Data)	
Student's-t	9.057685

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	10.73687
Modified-t	9.327624

95 % Non-parametric UCL	
CLT	9.006266
Jackknife	9.057685
Standard Bootstrap	9.032271
Bootstrap-t	14.28637
Chebyshev (Mean, Std)	14.50798

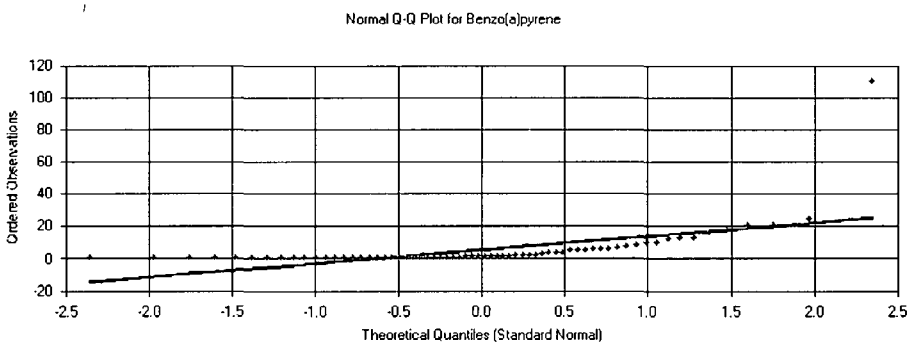
Summary Statistics for	ln(Benzo(a)anthracene)
Minimum	-3.772261
Maximum	4.787492
Mean	-0.078621
Standard Deviation	2.069849
Variance	4.284275
Lilliefors Test Statisitic	0.094909
Lilliefors 5% Critical Value	0.112522

Data are Lognormal at 5% Significance Level

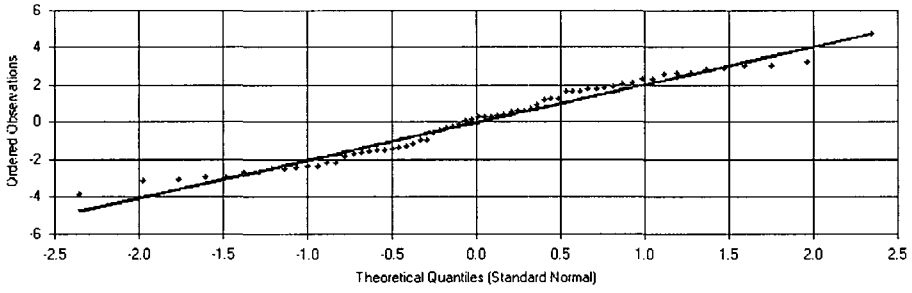
Estimates Assuming Lognormal Distribution	
MLE Mean	7.873609
MLE Standard Deviation	66.60064
MLE Coefficient of Variation	8.458718
MLE Skewness	630.5967
MLE Median	0.92439
MLE 80% Quantile	5.314301
MLE 90% Quantile	13.21213
MLE 95% Quantile	27.83462
MLE 99% Quantile	113.96
MVU Estimate of Median	0.892981
MVU Estimate of Mean	7.127206
MVU Estimate of Std. Dev.	40.21454
MVU Estimate of SE of Mean	2.848255

UCL Assuming Lognormal Distribution	
95% H-UCL	20.12982
95% Chebyshev (MVUE) UCL	19.54246
99% Chebyshev (MVUE) UCL	35.46698

Recommended UCL to use:
95 % Chebyshev (MVUE) UCL



N = 66, Mean = 5.3415, Stdv = 14.2471
Slope = 8.3989, Intercept = 5.3415, Correlation, R = 0.58070827
Lilliefors Statistic = 0.354, Critical Value(0.05) = 0.109, Data not Normal



N = 66, Mean = -0.0413, Stdv = 2.0261
Slope = 2.0292, Intercept = -0.0413, Correlation, R = 0.98656684
Lilliefors Statistic = 0.095, Critical Value(0.05) = 0.109, Data are Lognormal

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Summary Statistics for	Benzo(a)py
Number of Samples	62
Minimum	0.02
Maximum	110
Mean	5.349492
Median	1.1
Standard Deviation	14.58153
Variance	212.6211
Coefficient of Variation	2.725779
Skewness	6.315189

95 % UCL (Assuming Normal Data)	
Student's-t	8.442498

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	9.98253
Modified-t	8.690039

95 % Non-parametric UCL	
CLT	8.395525
Jackknife	8.442498
Standard Bootstrap	8.341466
Bootstrap-t	13.02816
Chebyshev (Mean, Std)	13.42155

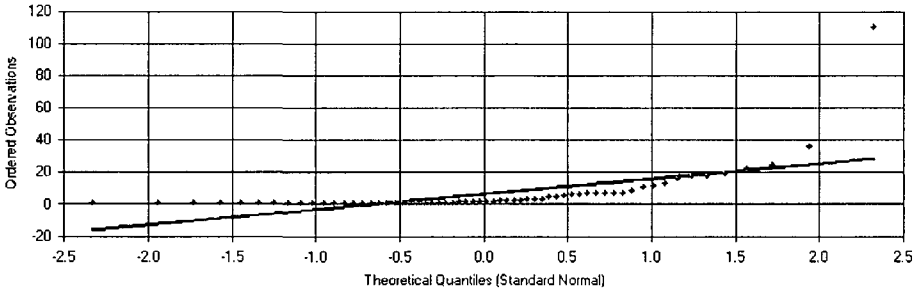
Summary Statistics for	ln(Benzo(a)pyrene)
Minimum	-3.912023
Maximum	4.70048
Mean	-0.056247
Standard Deviation	2.025241
Variance	4.101599
Lilliefors Test Statisitic	0.099163
Lilliefors 5% Critical Value	0.112522
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	7.348912
MLE Standard Deviation	56.65667
MLE Coefficient of Variation	7.709531
MLE Skewness	481.359
MLE Median	0.945305
MLE 80% Quantile	5.233503
MLE 90% Quantile	12.75836
MLE 95% Quantile	26.45045
MLE 99% Quantile	105.0527
MVU Estimate of Median	0.914533
MVU Estimate of Mean	6.697034
MVU Estimate of Std. Dev.	35.41049
MVU Estimate of SE of Mean	2.598311

UCL Assuming Lognormal Distribution	
95% H-UCL	18.13537
95% Chebyshev (MVUE) UCL	18.02281
99% Chebyshev (MVUE) UCL	32.54991

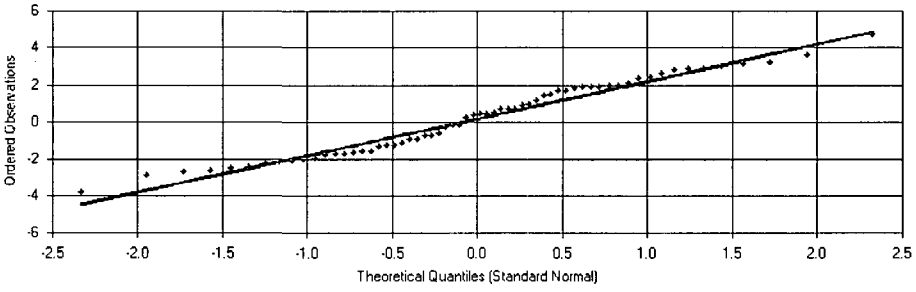
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(b)fluoranthene



N = 62, Mean = 6.2851, Stdv = 15.1794
Slope = 9.6446, Intercept = 6.2851, Correlation, R = 0.62540441
Lilliefors Statistic = 0.340, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Benzo(b)fluoranthene



N = 62, Mean = 0.1814, Stdv = 2.0013
Slope = 2.0061, Intercept = 0.1814, Correlation, R = 0.98668434
Lilliefors Statistic = 0.089, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Benzo(b)flu
Number of Samples	62
Minimum	0.021
Maximum	110
Mean	6.285065
Median	1.45
Standard Deviation	15.17939
Variance	230.414
Coefficient of Variation	2.415153
Skewness	5.570253

95 % UCL (Assuming Normal Data)	
Student's-t	9.504887

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	10.91318
Modified-t	9.732181

95 % Non-parametric UCL	
CLT	9.455988
Jackknife	9.504887
Standard Bootstrap	9.47038
Bootstrap-t	13.49468
Chebyshev (Mean, Std)	14.68808

Summary Statistics for	ln(Benzo(b)fluoranthene)
Minimum	-3.863233
Maximum	4.70048
Mean	0.181418
Standard Deviation	2.001274
Variance	4.005098
Lilliefors Test Statisitic	0.088885
Lilliefors 5% Critical Value	0.112522

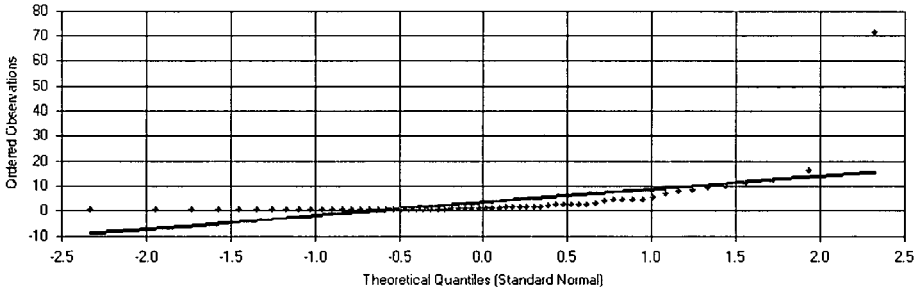
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	8.88147
MLE Standard Deviation	65.19094
MLE Coefficient of Variation	7.340107
MLE Skewness	417.4846
MLE Median	1.198917
MLE 80% Quantile	6.504504
MLE 90% Quantile	15.6905
MLE 95% Quantile	32.24987
MLE 99% Quantile	126.0126
MVU Estimate of Median	1.160792
MVU Estimate of Mean	8.121716
MVU Estimate of Std. Dev.	41.47639
MVU Estimate of SE of Mean	3.100382

UCL Assuming Lognormal Distribution	
95% H-UCL	21.51151
95% Chebyshev (MVUE) UCL	21.63597
99% Chebyshev (MVUE) UCL	38.97012

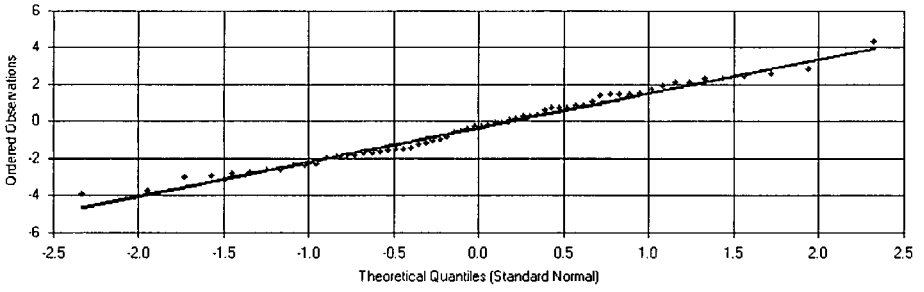
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(k)fluoranthene



N = 62, Mean = 3.3337, Stdv = 9.3762
Slope = 5.3347, Intercept = 3.3337, Correlation, R = 0.96003393
Lilliefors Statistic = 0.362, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Benzo(k)fluoranthene



N = 62, Mean = -0.3667, Stdv = 1.8355
Slope = 1.8512, Intercept = -0.3667, Correlation, R = 0.99270217
Lilliefors Statistic = 0.081, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Benzo(k)flu
Number of Samples	62
Minimum	0.019
Maximum	71
Mean	3.333694
Median	0.72
Standard Deviation	9.376203
Variance	87.91317
Coefficient of Variation	2.812557
Skewness	6.422738

95 % UCL (Assuming Normal Data)	
Student's-t	5.322555

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6.330204
Modified-t	5.484439

95 % Non-parametric UCL	
CLT	5.292351
Jackknife	5.322555
Standard Bootstrap	5.240631
Bootstrap-t	8.717981
Chebyshev (Mean, Std)	8.524178

Summary Statistics for	ln(Benzo(k)fluoranthene)
Minimum	-3.963316
Maximum	4.26268
Mean	-0.366667
Standard Deviation	1.83552
Variance	3.369133
Lilliefors Test Statisitic	0.080894
Lilliefors 5% Critical Value	0.112522

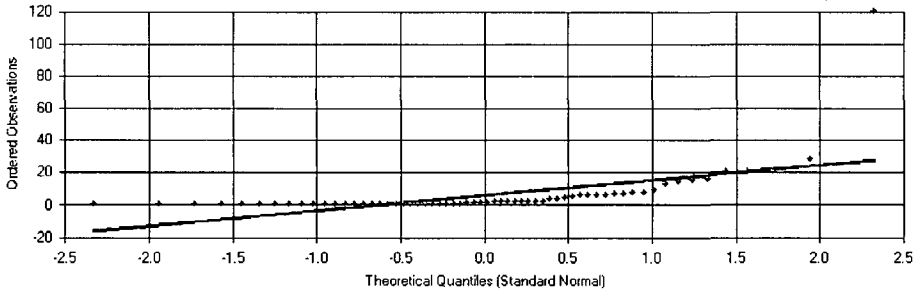
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	3.735566
MLE Standard Deviation	19.78557
MLE Coefficient of Variation	5.296538
MLE Skewness	164.4751
MLE Median	0.69304
MLE 80% Quantile	3.268552
MLE 90% Quantile	7.330003
MLE 95% Quantile	14.1932
MLE 99% Quantile	49.53859
MVU Estimate of Median	0.674456
MVU Estimate of Mean	3.48979
MVU Estimate of Std. Dev.	14.05134
MVU Estimate of SE of Mean	1.183391

UCL Assuming Lognormal Distribution	
95% H-UCL	7.998084
95% Chebyshev (MVUE) UCL	8.648071
99% Chebyshev (MVUE) UCL	15.26438

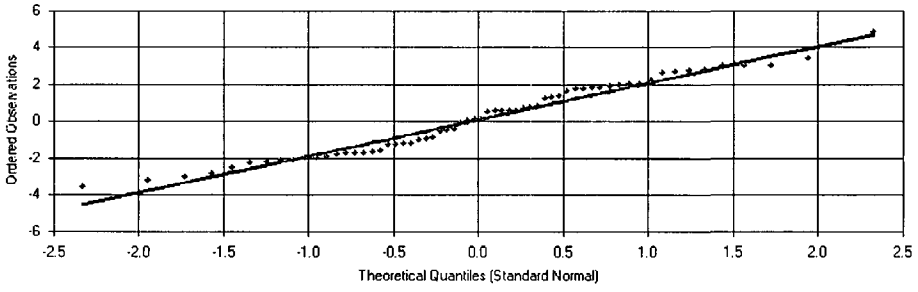
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Chrysene



N = 62, Mean = 5.9116, Stdv = 15.9727
Slope = 9.3679, Intercept = 5.9116, Correlation, R = 0.57729654
Lilliefors Statistic = 0.356, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Chrysene



N = 62, Mean = 0.0810, Stdv = 1.9804
Slope = 1.9843, Intercept = 0.0810, Correlation, R = 0.98626934
Lilliefors Statistic = 0.097, Critical Value(0.05) = 0.113, Data are Lognormal

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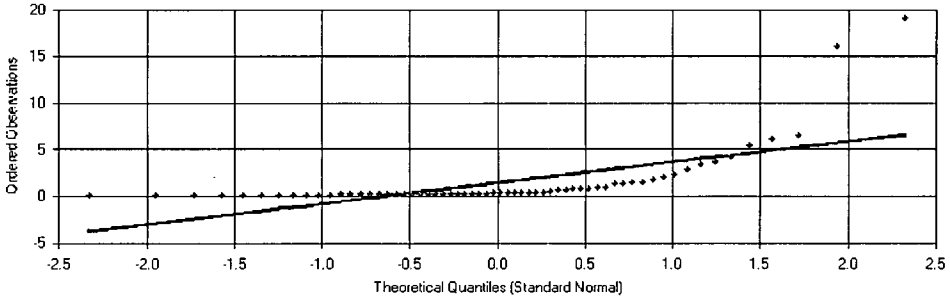
Summary Statistics for	Chrysene
Number of Samples	62
Minimum	0.027
Maximum	120
Mean	5.911597
Median	1.1
Standard Deviation	15.97266
Variance	255.1258
Coefficient of Variation	2.701919
Skewness	6.237964
95 % UCL (Assuming Normal Data)	
Student's-t	9.299685
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	10.96538
Modified-t	9.567526
95 % Non-parametric UCL	
CLT	9.248231
Jackknife	9.299685
Standard Bootstrap	9.215348
Bootstrap-t	14.18607
Chebyshev (Mean, Std)	14.75375

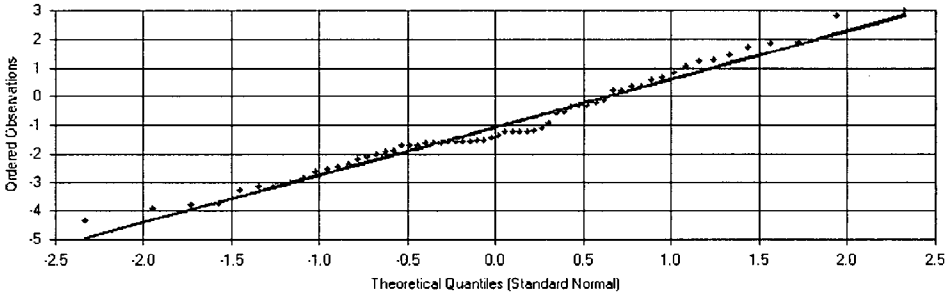
Summary Statistics for	ln(Chrysene)
Minimum	-3.611918
Maximum	4.787492
Mean	0.080988
Standard Deviation	1.980352
Variance	3.921796
Lilliefors Test Statisitic	0.096623
Lilliefors 5% Critical Value	0.112522
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	7.70513
MLE Standard Deviation	54.20548
MLE Coefficient of Variation	7.034986
MLE Skewness	369.2737
MLE Median	1.084358
MLE 80% Quantile	5.779899
MLE 90% Quantile	13.81481
MLE 95% Quantile	28.18157
MLE 99% Quantile	108.5584
MVU Estimate of Median	1.050583
MVU Estimate of Mean	7.066767
MVU Estimate of Std. Dev.	35.01315
MVU Estimate of SE of Mean	2.659266
UCL Assuming Lognormal Distribution	
95% H-UCL	18.36376
95% Chebyshev (MVUE) UCL	18.65824
99% Chebyshev (MVUE) UCL	33.52613
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Dibenzo(a,h)anthracene



N = 62, Mean = 1.4307, Stdv = 3.3098
Slope = 2.2150, Intercept = 1.4307, Correlation, R = 0.65873346
Lilliefors Statistic = 0.334, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Dibenzo(a,h)anthracene



N = 62, Mean = -1.0707, Stdv = 1.6652
Slope = 1.6733, Intercept = -1.0707, Correlation, R = 0.98910755
Lilliefors Statistic = 0.129, Critical Value(0.05) = 0.113, Data not Lognormal

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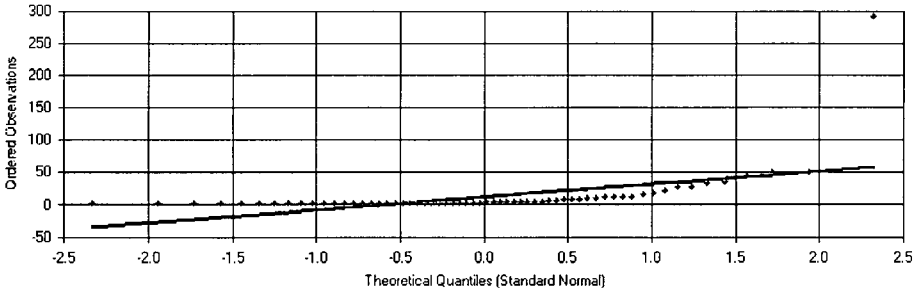
Summary Statistics for	Dibenzo(a,
Number of Samples	62
Minimum	0.012
Maximum	19
Mean	1.430677
Median	0.24
Standard Deviation	3.309791
Variance	10.95472
Coefficient of Variation	2.313444
Skewness	4.091449
95 % UCL (Assuming Normal Data)	
Student's-t	2.132744
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.355463
Modified-t	2.169147
95 % Non-parametric UCL	
CLT	2.122082
Jackknife	2.132744
Standard Bootstrap	2.118635
Bootstrap-t	2.846438
Chebyshev (Mean, Std)	3.262914
97.5 % Non-parametric UCL	
CLT	2.254536
Jackknife	2.271207
Standard Bootstrap	2.23726
Bootstrap-t	3.191733
Chebyshev (Mean, Std)	4.055724

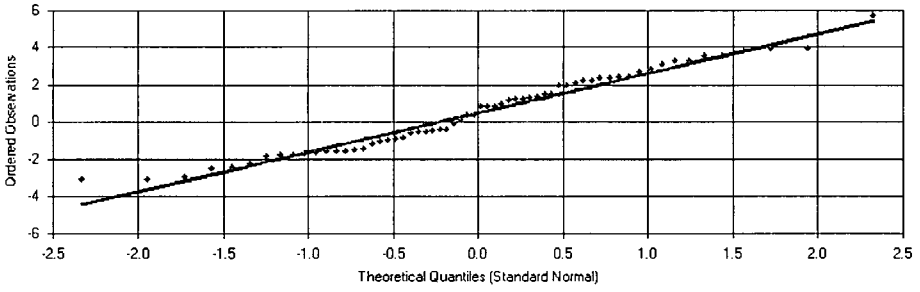
Summary Statistics for	ln(Dibenzo(a,h)anthracene)
Minimum	-4.42285
Maximum	2.944439
Mean	-1.07071
Standard Deviation	1.665184
Variance	2.772836
Lilliefors Test Statisitic	0.128667
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.371229
MLE Standard Deviation	5.311447
MLE Coefficient of Variation	3.873495
MLE Skewness	69.73827
MLE Median	0.342765
MLE 80% Quantile	1.399855
MLE 90% Quantile	2.912611
MLE 95% Quantile	5.30429
MLE 99% Quantile	16.48591
MVU Estimate of Median	0.335182
MVU Estimate of Mean	1.303884
MVU Estimate of Std. Dev.	4.130892
MVU Estimate of SE of Mean	0.386682
UCL Assuming Lognormal Distribution	
95% H-UCL	2.612868
95% Chebyshev (MVUE) UCL	2.989391
99% Chebyshev (MVUE) UCL	5.15132

Normal Q-Q Plot for Fluoranthene



N = 62, Mean = 11.6837, Stdv = 37.8356
Slope = 20.0296, Intercept = 11.6837, Correlation, R = 0.52108152
Lilliefors Statistic = 0.379, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Fluoranthene



N = 62, Mean = 0.4824, Stdv = 2.1096
Slope = 2.1154, Intercept = 0.4824, Correlation, R = 0.98706158
Lilliefors Statistic = 0.100, Critical Value(0.05) = 0.113, Data are Lognormal

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Summary Statistics for	Fluoranthe
Number of Samples	62
Minimum	0.043
Maximum	290
Mean	11.68371
Median	1.8
Standard Deviation	37.83559
Variance	1431.532
Coefficient of Variation	3.23832
Skewness	6.774561

95 % UCL (Assuming Normal Data)	
Student's-t	19.70932

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	24.00487
Modified-t	20.39835

95 % Non-parametric UCL	
CLT	19.58744
Jackknife	19.70932
Standard Bootstrap	19.44804
Bootstrap-t	36.10641
Chebyshev (Mean, Std)	32.62876

Summary Statistics for	ln(Fluoranthene)
Minimum	-3.146555
Maximum	5.669881
Mean	0.48238
Standard Deviation	2.109557
Variance	4.450229
Lilliefors Test Statisitic	0.100296
Lilliefors 5% Critical Value	0.112522

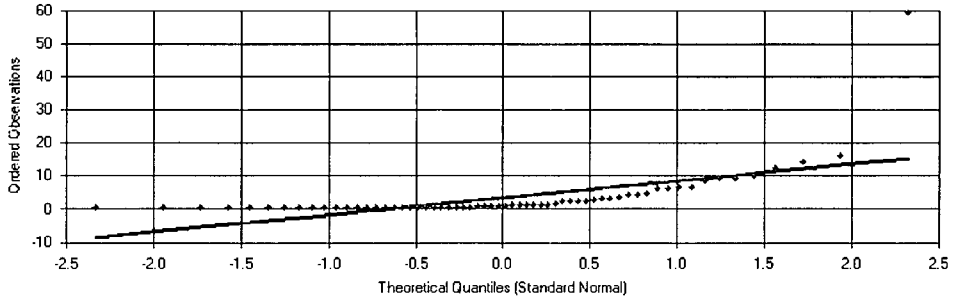
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	14.99167
MLE Standard Deviation	137.9287
MLE Coefficient of Variation	9.200357
MLE Skewness	806.3797
MLE Median	1.619925
MLE 80% Quantile	9.630694
MLE 90% Quantile	24.36531
MLE 95% Quantile	52.07061
MLE 99% Quantile	219.03
MVU Estimate of Median	1.562787
MVU Estimate of Mean	13.48565
MVU Estimate of Std. Dev.	80.64495
MVU Estimate of SE of Mean	5.529636

UCL Assuming Lognormal Distribution	
95% H-UCL	39.5795
95% Chebyshev (MVUE) UCL	37.58877
99% Chebyshev (MVUE) UCL	68.50483

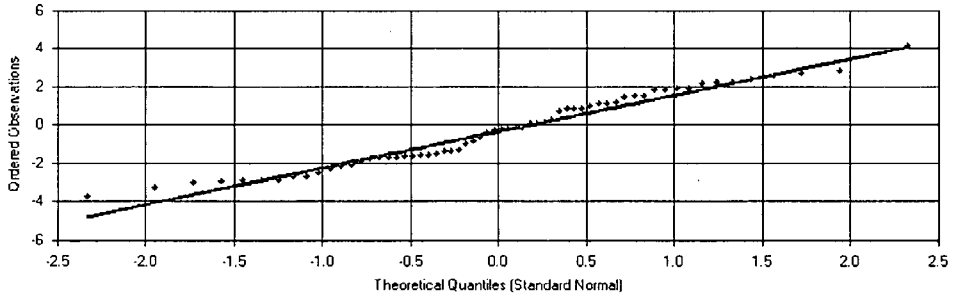
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 62, Mean = 3.3565, Stdv = 8.0680
Slope = 5.1077, Intercept = 3.3565, Correlation, R = 0.62315431
Lilliefors Statistic = 0.340, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 62, Mean = -0.3610, Stdv = 1.8974
Slope = 1.8987, Intercept = -0.3610, Correlation, R = 0.98497876
Lilliefors Statistic = 0.118, Critical Value(0.05) = 0.113, Data not Lognormal

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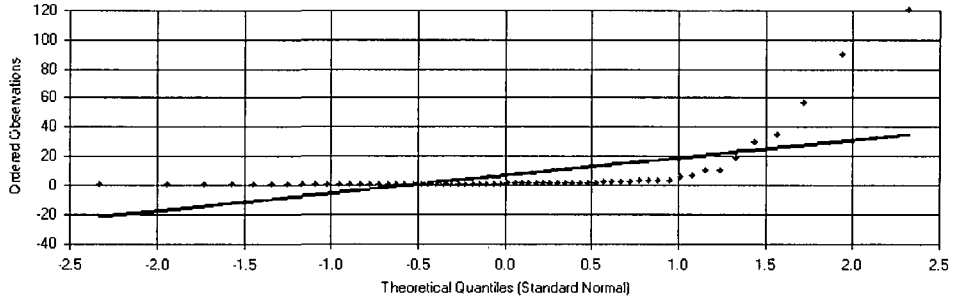
Summary Statistics for	Indeno(1,2
Number of Samples	62
Minimum	0.023
Maximum	59
Mean	3.3565
Median	0.745
Standard Deviation	8.067967
Variance	65.09208
Coefficient of Variation	2.403684
Skewness	5.672987
95 % UCL (Assuming Normal Data)	
Student's-t	5.067861
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	5.830667
Modified-t	5.190897
95 % Non-parametric UCL	
CLT	5.041871
Jackknife	5.067861
Standard Bootstrap	5.005431
Bootstrap-t	6.909537
Chebyshev (Mean, Std)	7.822771
97.5 % Non-parametric UCL	
CLT	5.364743
Jackknife	5.405379
Standard Bootstrap	5.405369
Bootstrap-t	7.917081
Chebyshev (Mean, Std)	9.75533

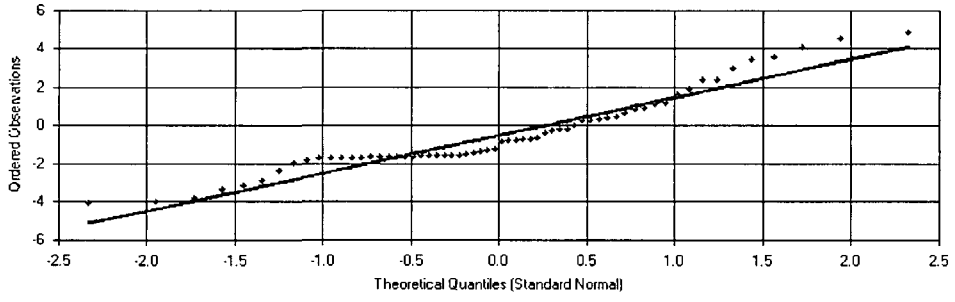
Summary Statistics for	ln(Indeno(1,2,3-cd)pyrene)
Minimum	-3.77226
Maximum	4.077537
Mean	-0.36097
Standard Deviation	1.89744
Variance	3.600278
Lilliefors Test Statisitic	0.117718
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	4.217171
MLE Standard Deviation	25.16503
MLE Coefficient of Variation	5.967279
MLE Skewness	230.3872
MLE Median	0.696997
MLE 80% Quantile	3.463785
MLE 90% Quantile	7.982372
MLE 95% Quantile	15.8048
MLE 99% Quantile	57.53944
MVU Estimate of Median	0.677042
MVU Estimate of Mean	3.910376
MVU Estimate of Std. Dev.	17.19753
MVU Estimate of SE of Mean	1.387832
UCL Assuming Lognormal Distribution	
95% H-UCL	9.44369
95% Chebyshev (MVUE) UCL	9.959795
99% Chebyshev (MVUE) UCL	17.71913

Normal Q-Q Plot for Naphthalene



N = 62, Mean = 6.5788, Stdv = 20.4082
Slope = 12.1364, Intercept = 6.5788, Correlation, R = 0.58535425
Lilliefors Statistic = 0.408, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Naphthalene



N = 62, Mean = -0.5270, Stdv = 2.0244
Slope = 1.9819, Intercept = -0.5270, Correlation, R = 0.96362962
Lilliefors Statistic = 0.150, Critical Value(0.05) = 0.113, Data not Lognormal

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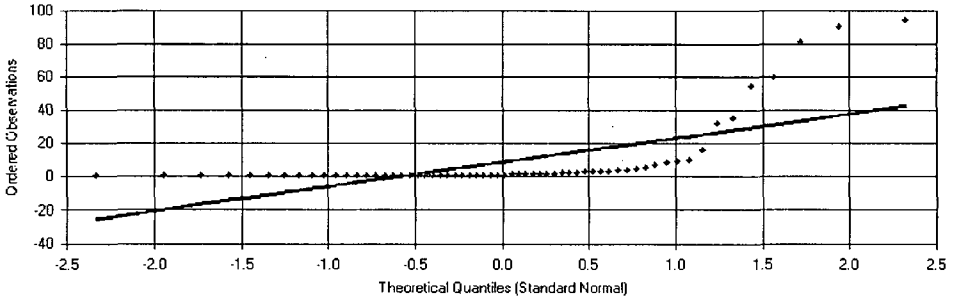
Summary Statistics for	Naphthaler
Number of Samples	62
Minimum	0.016
Maximum	120
Mean	6.578823
Median	0.335
Standard Deviation	20.40823
Variance	416.496
Coefficient of Variation	3.10211
Skewness	4.307772
95 % UCL (Assuming Normal Data)	
Student's-t	10.90778
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	12.35715
Modified-t	11.14411
95 % Non-parametric UCL	
CLT	10.84203
Jackknife	10.90778
Standard Bootstrap	10.80894
Bootstrap-t	15.28184
Chebyshev (Mean, Std)	17.87643
99 % Non-parametric UCL	
CLT	12.60836
Jackknife	12.77087
Standard Bootstrap	12.55294
Bootstrap-t	26.59943
Chebyshev (Mean, Std)	32.36739

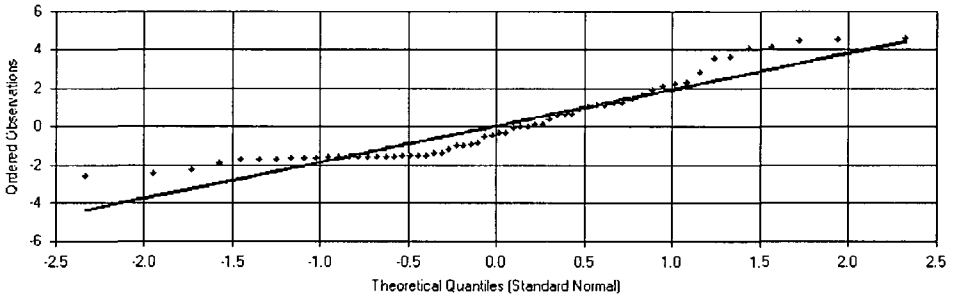
Summary Statistics for	ln(Naphthalene)
Minimum	-4.13517
Maximum	4.787492
Mean	-0.52697
Standard Deviation	2.024448
Variance	4.09839
Lilliefors Test Statisitic	0.15042
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	4.582392
MLE Standard Deviation	35.2705
MLE Coefficient of Variation	7.696963
MLE Skewness	479.0838
MLE Median	0.590389
MLE 80% Quantile	3.266388
MLE 90% Quantile	7.960102
MLE 95% Quantile	16.49807
MLE 99% Quantile	65.48966
MVU Estimate of Median	0.571185
MVU Estimate of Mean	4.1764
MVU Estimate of Std. Dev.	22.05726
MVU Estimate of SE of Mean	1.619495
UCL Assuming Lognormal Distribution	
95% H-UCL	11.30123
95% Chebyshev (MVUE) UCL	11.23561
99% Chebyshev (MVUE) UCL	20.29017

Normal Q-Q Plot for Phthalate, bis(2-ethylhexyl) (DEHP)



N = 62, Mean = 8.7235, Stdv = 21.4505
Slope = 14.5350, Intercept = 8.7235, Correlation, R = 0.66897822
Lilliefors Statistic = 0.377, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Phthalate, bis(2-ethylhexyl) (DEHP)



N = 62, Mean = 0.0393, Stdv = 1.9673
Slope = 1.8923, Intercept = 0.0393, Correlation, R = 0.94680509
Lilliefors Statistic = 0.156, Critical Value(0.05) = 0.113, Data not Lognormal

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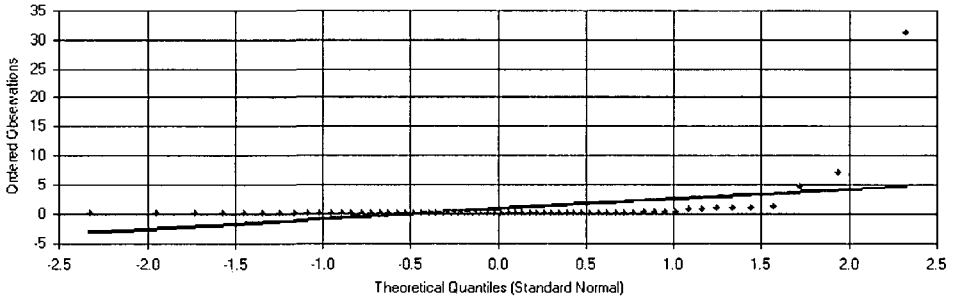
Summary Statistics for	Phthalate,
Number of Samples	62
Minimum	0.075
Maximum	94
Mean	8.72346
Median	0.64
Standard Deviation	21.45047
Variance	460.1226
Coefficient of Variation	2.45894
Skewness	3.02179
95 % UCL (Assuming Normal Data)	
Student's-t	13.27349
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	14.32148
Modified-t	13.44773
95 % Non-parametric UCL	
CLT	13.20439
Jackknife	13.27349
Standard Bootstrap	13.16395
Bootstrap-t	15.28727
Chebyshev (Mean, Std)	20.59803
97.5 % Non-parametric UCL	
CLT	14.06282
Jackknife	14.17086
Standard Bootstrap	14.14685
Bootstrap-t	18.82869
Chebyshev (Mean, Std)	25.73616

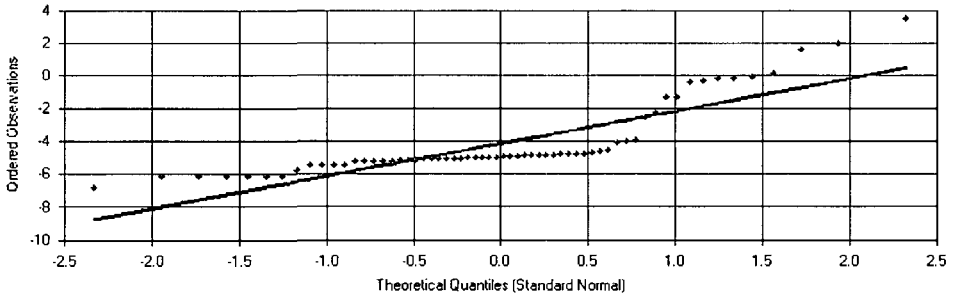
Summary Statistics for	ln(Phthalate, bis(2-ethylhexyl) (DEHP))
Minimum	-2.59027
Maximum	4.543295
Mean	0.039339
Standard Deviation	1.967289
Variance	3.870227
Lilliefors Test Statisitic	0.155908
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	7.202673
MLE Standard Deviation	49.35448
MLE Coefficient of Variation	6.852245
MLE Skewness	342.2919
MLE Median	1.040123
MLE 80% Quantile	5.483251
MLE 90% Quantile	13.03067
MLE 95% Quantile	26.45723
MLE 99% Quantile	101.0134
MVU Estimate of Median	1.008145
MVU Estimate of Mean	6.61784
MVU Estimate of Std. Dev.	32.17637
MVU Estimate of SE of Mean	2.467922
UCL Assuming Lognormal Distribution	
95% H-UCL	16.99566
95% Chebyshev (MVUE) UCL	17.37526
99% Chebyshev (MVUE) UCL	31.17336

Normal Q-Q Plot for Benzene



N = 62, Mean = 0.7808, Stdv = 4.0423
Slope = 1.7027, Intercept = 0.7808, Correlation, R = 0.41460856
Lilliefors Statistic = 0.429, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Benzene



N = 62, Mean = -4.1421, Stdv = 2.2599
Slope = 1.9808, Intercept = -4.1421, Correlation, R = 0.86273631
Lilliefors Statistic = 0.323, Critical Value(0.05) = 0.113, Data not Lognormal

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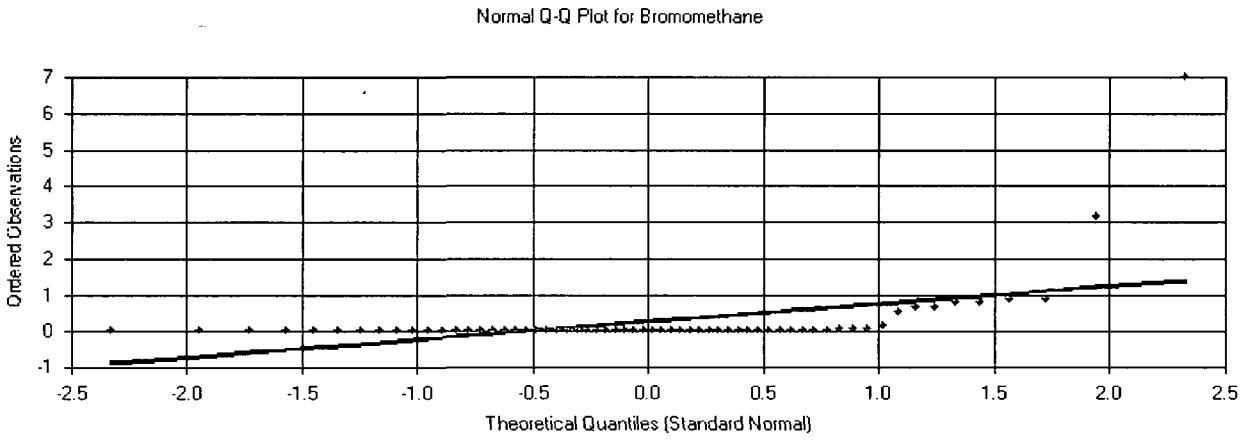
Summary Statistics for	Benzene
Number of Samples	62
Minimum	0.001
Maximum	31
Mean	0.780806
Median	0.006625
Standard Deviation	4.042256
Variance	16.33983
Coefficient of Variation	5.177027
Skewness	7.146445
95 % UCL (Assuming Normal Data)	
Student's-t	1.638242
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.123075
Modified-t	1.715897
95 % Non-parametric UCL	
CLT	1.62522
Jackknife	1.638242
Standard Bootstrap	1.612091
Bootstrap-t	5.254119
Chebyshev (Mean, Std)	3.018521
99 % Non-parametric UCL	
CLT	1.975077
Jackknife	2.007264
Standard Bootstrap	1.997468
Bootstrap-t	14.41661
Chebyshev (Mean, Std)	5.888744

Summary Statistics for	ln(Benzene)
Minimum	-6.90776
Maximum	3.433987
Mean	-4.14213
Standard Deviation	2.25994
Variance	5.10733
Lilliefors Test Statisitic	0.323106
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.204239
MLE Standard Deviation	2.617353
MLE Coefficient of Variation	12.81517
MLE Skewness	2143.063
MLE Median	0.015889
MLE 80% Quantile	0.107262
MLE 90% Quantile	0.289932
MLE 95% Quantile	0.654078
MLE 99% Quantile	3.048013
MVU Estimate of Median	0.015247
MVU Estimate of Mean	0.178926
MVU Estimate of Std. Dev.	1.336727
MVU Estimate of SE of Mean	0.080452
UCL Assuming Lognormal Distribution	
95% H-UCL	0.612392
95% Chebyshev (MVUE) UCL	0.529609
99% Chebyshev (MVUE) UCL	0.979415



N = 62, Mean = 0.2542, Stdv = 0.9816
Slope = 0.5016, Intercept = 0.2542, Correlation, R = 0.50298015
Lilliefors Statistic = 0.433, Critical Value(0.05) = 0.113, Data not Normal

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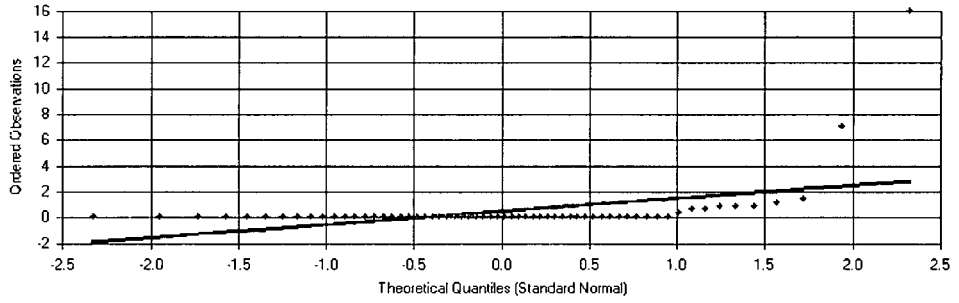
Summary Statistics for	Bromometh
Number of Samples	62
Minimum	0.003
Maximum	7
Mean	0.254234
Median	0.007
Standard Deviation	0.981576
Variance	0.963491
Coefficient of Variation	3.860917
Skewness	5.935155
95 % UCL (Assuming Normal Data)	
Student's-t	0.462444
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.559684
Modified-t	0.478105
95 % Non-parametric UCL	
CLT	0.459282
Jackknife	0.462444
Standard Bootstrap	0.457897
Bootstrap-t	1.007896
Chebyshev (Mean, Std)	0.797615
97.5 % Non-parametric UCL	
CLT	0.498564
Jackknife	0.503507
Standard Bootstrap	0.500872
Bootstrap-t	1.197905
Chebyshev (Mean, Std)	1.032737

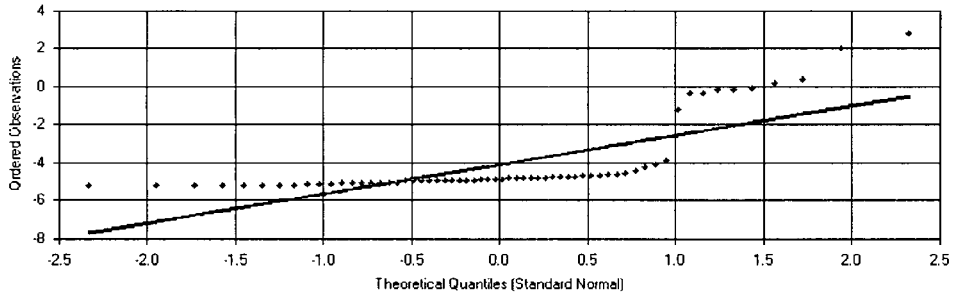
Summary Statistics for	ln(Bromomethane)
Minimum	-5.80914
Maximum	1.94591
Mean	-4.20491
Standard Deviation	1.867873
Variance	3.488948
Lilliefors Test Statisitic	0.385835
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.085398
MLE Standard Deviation	0.481203
MLE Coefficient of Variation	5.634846
MLE Skewness	195.8193
MLE Median	0.014922
MLE 80% Quantile	0.072327
MLE 90% Quantile	0.164525
MLE 95% Quantile	0.322304
MLE 99% Quantile	1.150001
MVU Estimate of Median	0.014508
MVU Estimate of Mean	0.079474
MVU Estimate of Std. Dev.	0.335071
MVU Estimate of SE of Mean	0.027605
UCL Assuming Lognormal Distribution	
95% H-UCL	0.187147
95% Chebyshev (MVUE) UCL	0.1998
99% Chebyshev (MVUE) UCL	0.354137

Normal Q-Q Plot for Chloroform



N = 62, Mean = 0.4825, Stdv = 2.2053
Slope = 1.0143, Intercept = 0.4825, Correlation, R = 0.45270265
Lilliefors Statistic = 0.422, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Chloroform



N = 62, Mean = -4.1143, Stdv = 1.9978
Slope = 1.5482, Intercept = -4.1143, Correlation, R = 0.76281187
Lilliefors Statistic = 0.371, Critical Value(0.05) = 0.113, Data not Lognormal

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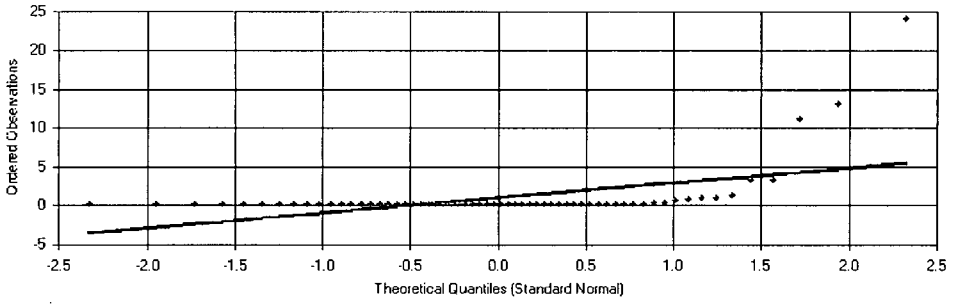
Summary Statistics for	Chloroform
Number of Samples	62
Minimum	0.005
Maximum	16
Mean	0.4825
Median	0.007125
Standard Deviation	2.205303
Variance	4.863363
Coefficient of Variation	4.570577
Skewness	6.331849
95 % UCL (Assuming Normal Data)	
Student's-t	0.950285
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.183831
Modified-t	0.987821
95 % Non-parametric UCL	
CLT	0.94318
Jackknife	0.950285
Standard Bootstrap	0.944965
Bootstrap-t	3.694095
Chebyshev (Mean, Std)	1.703313
97.5 % Non-parametric UCL	
CLT	1.031435
Jackknife	1.042542
Standard Bootstrap	1.031542
Bootstrap-t	4.206136
Chebyshev (Mean, Std)	2.23156

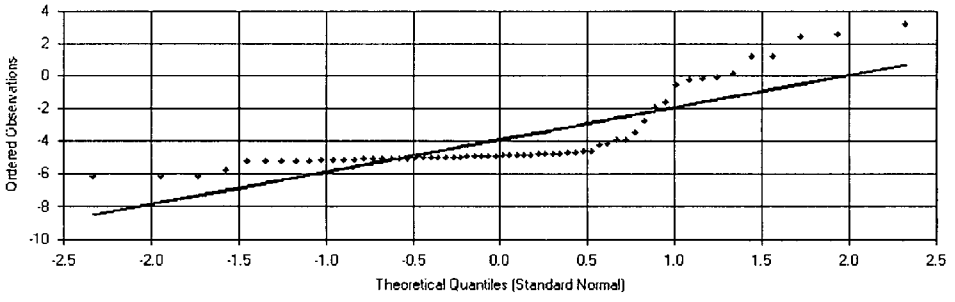
Summary Statistics for	ln(Chloroform)
Minimum	-5.29832
Maximum	2.772589
Mean	-4.1143
Standard Deviation	1.997764
Variance	3.99106
Lilliefors Test Statisitic	0.37124
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.120179
MLE Standard Deviation	0.875846
MLE Coefficient of Variation	7.287814
MLE Skewness	408.9355
MLE Median	0.016337
MLE 80% Quantile	0.088373
MLE 90% Quantile	0.212849
MLE 95% Quantile	0.436932
MLE 99% Quantile	1.703184
MVU Estimate of Median	0.01582
MVU Estimate of Mean	0.109954
MVU Estimate of Std. Dev.	0.55867
MVU Estimate of SE of Mean	0.041873
UCL Assuming Lognormal Distribution	
95% H-UCL	0.290293
95% Chebyshev (MVUE) UCL	0.292475
99% Chebyshev (MVUE) UCL	0.526588

Normal Q-Q Plot for Dichloroethylene-1,2 cis



N = 62, Mean = 0.9536, Stdv = 3.6959
Slope = 1.9412, Intercept = 0.9536, Correlation, R = 0.51700244
Lilliefors Statistic = 0.422, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Dichloroethylene-1,2 cis



N = 62, Mean = -3.9073, Stdv = 2.3274
Slope = 1.9724, Intercept = -3.9073, Correlation, R = 0.83418913
Lilliefors Statistic = 0.336, Critical Value(0.05) = 0.113, Data not Lognormal

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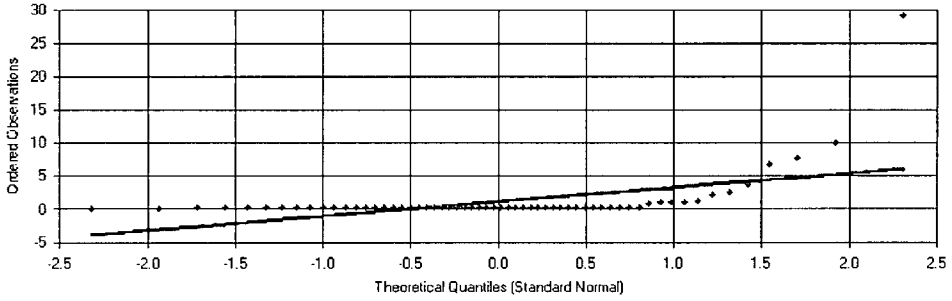
Summary Statistics for	Dichloroeth
Number of Samples	62
Minimum	0.002
Maximum	24
Mean	0.953621
Median	0.007125
Standard Deviation	3.695901
Variance	13.65968
Coefficient of Variation	3.87565
Skewness	5.026952
95 % UCL (Assuming Normal Data)	
Student's-t	1.737588
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.045877
Modified-t	1.787532
95 % Non-parametric UCL	
CLT	1.725682
Jackknife	1.737588
Standard Bootstrap	1.707966
Bootstrap-t	2.719306
Chebyshev (Mean, Std)	2.9996
99 % Non-parametric UCL	
CLT	2.045562
Jackknife	2.074992
Standard Bootstrap	2.023091
Bootstrap-t	7.877003
Chebyshev (Mean, Std)	5.623892

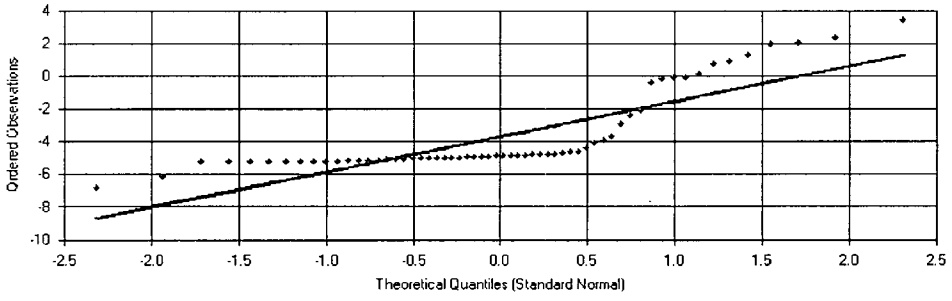
Summary Statistics for	ln(Dichloroethylene-1,2 cis)
Minimum	-6.21461
Maximum	3.178054
Mean	-3.90733
Standard Deviation	2.32741
Variance	5.416836
Lilliefors Test Statisitic	0.335903
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.301521
MLE Standard Deviation	4.514418
MLE Coefficient of Variation	14.97216
MLE Skewness	3401.159
MLE Median	0.020094
MLE 80% Quantile	0.143607
MLE 90% Quantile	0.399871
MLE 95% Quantile	0.924275
MLE 99% Quantile	4.509656
MVU Estimate of Median	0.019235
MVU Estimate of Mean	0.260653
MVU Estimate of Std. Dev.	2.154418
MVU Estimate of SE of Mean	0.121838
UCL Assuming Lognormal Distribution	
95% H-UCL	0.959998
95% Chebyshev (MVUE) UCL	0.791733
99% Chebyshev (MVUE) UCL	1.472927

Normal Q-Q Plot for Ethylbenzene



N = 60, Mean = 1.0959, Stdv = 4.1003
Slope = 2.1761, Intercept = 1.0959, Correlation, R = 0.52218128
Lilliefors Statistic = 0.395, Critical Value(0.05) = 0.114, Data not Normal

Lognormal Q-Q Plot for Ethylbenzene



N = 60, Mean = -3.7037, Stdv = 2.5064
Slope = 2.1604, Intercept = -3.7037, Correlation, R = 0.84808079
Lilliefors Statistic = 0.331, Critical Value(0.05) = 0.114, Data not Lognormal

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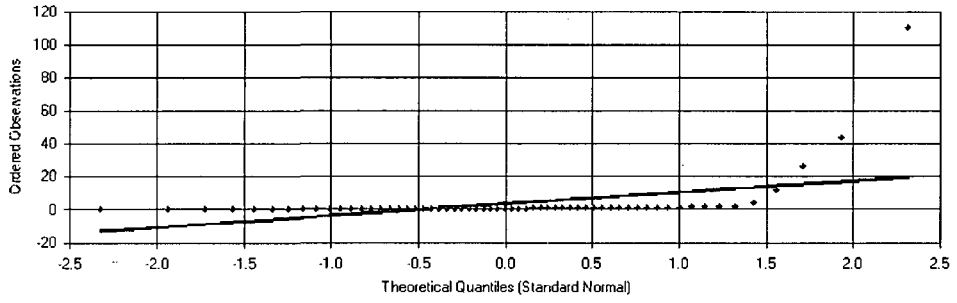
Summary Statistics for	Ethylbenze
Number of Samples	60
Minimum	0.001
Maximum	29
Mean	1.095867
Median	0.0075
Standard Deviation	4.100255
Variance	16.81209
Coefficient of Variation	3.741564
Skewness	5.794425
95 % UCL (Assuming Normal Data)	
Student's-t	1.980444
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.389662
Modified-t	2.04644
95 % Non-parametric UCL	
CLT	1.966555
Jackknife	1.980444
Standard Bootstrap	1.94122
Bootstrap-t	3.396143
Chebyshev (Mean, Std)	3.403209
99 % Non-parametric UCL	
CLT	2.327297
Jackknife	2.361641
Standard Bootstrap	2.307877
Bootstrap-t	7.064096
Chebyshev (Mean, Std)	6.36274

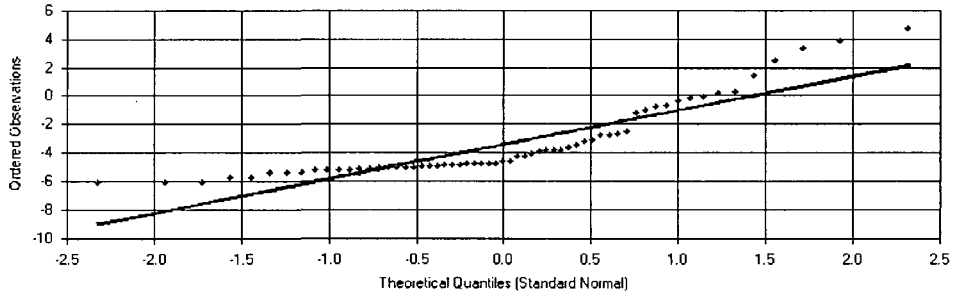
Summary Statistics for	ln(Ethylbenzene)
Minimum	-6.90776
Maximum	3.367296
Mean	-3.7037
Standard Deviation	2.506369
Variance	6.281885
Lilliefors Test Statisitic	0.331411
Lilliefors 5% Critical Value	0.114382
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.569635
MLE Standard Deviation	13.16085
MLE Coefficient of Variation	23.10402
MLE Skewness	12402.15
MLE Median	0.024632
MLE 80% Quantile	0.20478
MLE 90% Quantile	0.616918
MLE 95% Quantile	1.520857
MLE 99% Quantile	8.382208
MVU Estimate of Median	0.023375
MVU Estimate of Mean	0.47044
MVU Estimate of Std. Dev.	5.01557
MVU Estimate of SE of Mean	0.244541
UCL Assuming Lognormal Distribution	
95% H-UCL	2.205244
95% Chebyshev (MVUE) UCL	1.536368
99% Chebyshev (MVUE) UCL	2.90359

Normal Q-Q Plot for Tetrachloroethylene



N = 61, Mean = 3.2868, Stdv = 15.3328
Slope = 7.0956, Intercept = 3.2868, Correlation, R = 0.45542066
Lilliefors Statistic = 0.472, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Tetrachloroethylene



N = 61, Mean = -3.4443, Stdv = 2.6253
Slope = 2.4051, Intercept = -3.4443, Correlation, R = 0.90157179
Lilliefors Statistic = 0.210, Critical Value(0.05) = 0.113, Data not Lognormal

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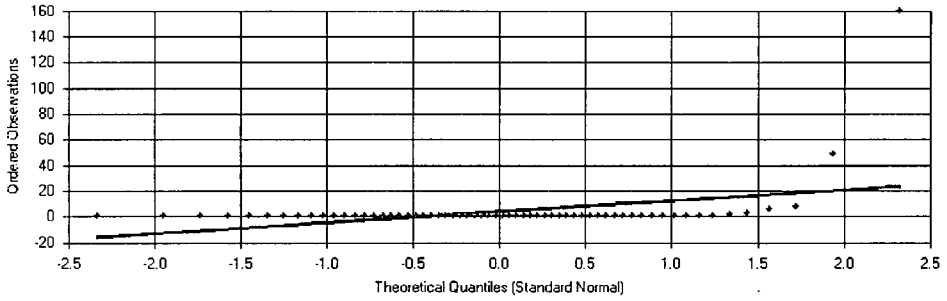
Summary Statistics for	Tetrachlorc
Number of Samples	61
Minimum	0.002
Maximum	110
Mean	3.286832
Median	0.009
Standard Deviation	15.33283
Variance	235.0958
Coefficient of Variation	4.664928
Skewness	6.158106
95 % UCL (Assuming Normal Data)	
Student's-t	6.566596
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	8.169898
Modified-t	6.824578
95 % Non-parametric UCL	
CLT	6.515956
Jackknife	6.566596
Standard Bootstrap	6.54388
Bootstrap-t	15.9353
Chebyshev (Mean, Std)	11.84408
99 % Non-parametric UCL	
CLT	7.853844
Jackknife	7.979038
Standard Bootstrap	7.942394
Bootstrap-t	71.5469
Chebyshev (Mean, Std)	22.82011

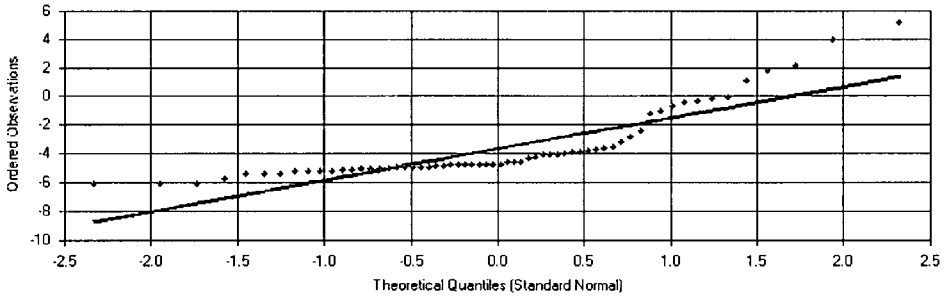
Summary Statistics for	ln(Tetrachloroethylene)
Minimum	-6.21461
Maximum	4.70048
Mean	-3.44431
Standard Deviation	2.625275
Variance	6.892069
Lilliefors Test Statisitic	0.2098
Lilliefors 5% Critical Value	0.113441
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.001725
MLE Standard Deviation	31.41388
MLE Coefficient of Variation	31.35979
MLE Skewness	30934.43
MLE Median	0.031927
MLE 80% Quantile	0.293478
MLE 90% Quantile	0.931618
MLE 95% Quantile	2.397116
MLE 99% Quantile	14.32604
MVU Estimate of Median	0.030172
MVU Estimate of Mean	0.804083
MVU Estimate of Std. Dev.	10.3697
MVU Estimate of SE of Mean	0.440608
UCL Assuming Lognormal Distribution	
95% H-UCL	4.261733
95% Chebyshev (MVUE) UCL	2.724649
99% Chebyshev (MVUE) UCL	5.188079

Normal Q-Q Plot for Toluene



N = 62, Mean = 3.6998, Stdv = 21.1361
Slope = 8.4175, Intercept = 3.6998, Correlation, R = 0.39200677
Lilliefors Statistic = 0.473, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Toluene



N = 62, Mean = -3.6963, Stdv = 2.4684
Slope = 2.1783, Intercept = -3.6963, Correlation, R = 0.86861389
Lilliefors Statistic = 0.254, Critical Value(0.05) = 0.113, Data not Lognormal

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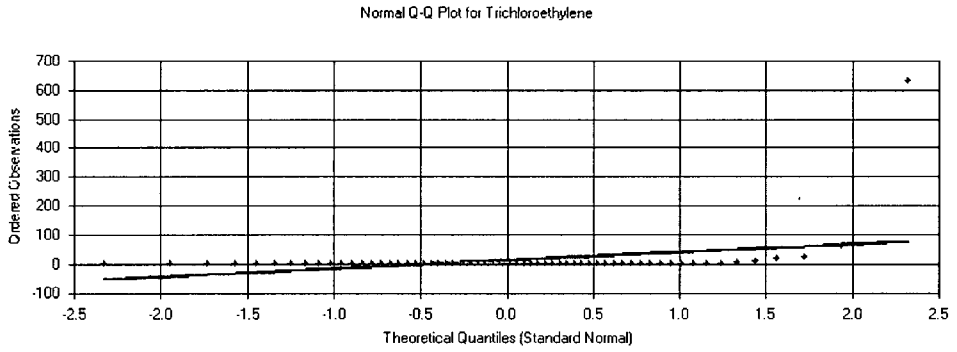
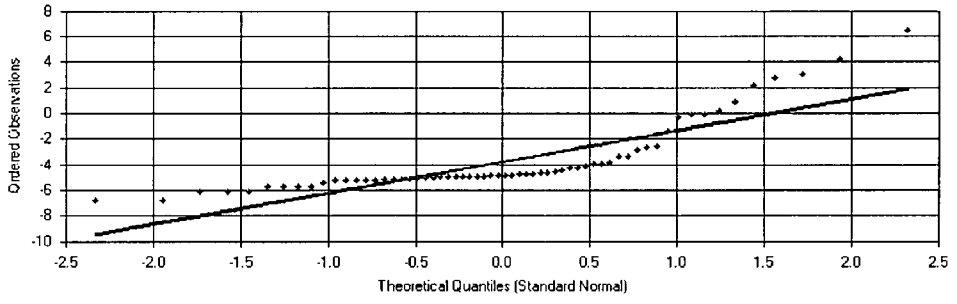
Summary Statistics for	Toluene
Number of Samples	62
Minimum	0.002
Maximum	160
Mean	3.699794
Median	0.008
Standard Deviation	21.13608
Variance	446.7338
Coefficient of Variation	5.712771
Skewness	7.012406
95 % UCL (Assuming Normal Data)	
Student's-t	8.183138
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	10.6694
Modified-t	8.581565
95 % Non-parametric UCL	
CLT	8.11505
Jackknife	8.183138
Standard Bootstrap	7.9727
Bootstrap-t	72.21321
Chebyshev (Mean, Std)	15.40032
99 % Non-parametric UCL	
CLT	9.944374
Jackknife	10.11268
Standard Bootstrap	9.946349
Bootstrap-t	206.0793
Chebyshev (Mean, Std)	30.40809

Summary Statistics for	ln(Toluene)
Minimum	-6.21461
Maximum	5.075174
Mean	-3.69625
Standard Deviation	2.468424
Variance	6.093119
Lilliefors Test Statisitic	0.254218
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.522206
MLE Standard Deviation	10.97628
MLE Coefficient of Variation	21.01905
MLE Skewness	9349.286
MLE Median	0.024816
MLE 80% Quantile	0.199801
MLE 90% Quantile	0.591953
MLE 95% Quantile	1.439514
MLE 99% Quantile	7.731498
MVU Estimate of Median	0.023625
MVU Estimate of Mean	0.437629
MVU Estimate of Std. Dev.	4.478317
MVU Estimate of SE of Mean	0.220787
UCL Assuming Lognormal Distribution	
95% H-UCL	1.896044
95% Chebyshev (MVUE) UCL	1.400018
99% Chebyshev (MVUE) UCL	2.634433



N = 62, Mean = 11.9267, Stdv = 80.2023
Slope = 28.0542, Intercept = 11.9267, Correlation, R = 0.34430585
Lilliefors Statistic = 0.467, Critical Value(0.05) = 0.113, Data not Normal



N = 62, Mean = -3.7923, Stdv = 2.7955
Slope = 2.4461, Intercept = -3.7923, Correlation, R = 0.86130838
Lilliefors Statistic = 0.266, Critical Value(0.05) = 0.113, Data not Lognormal

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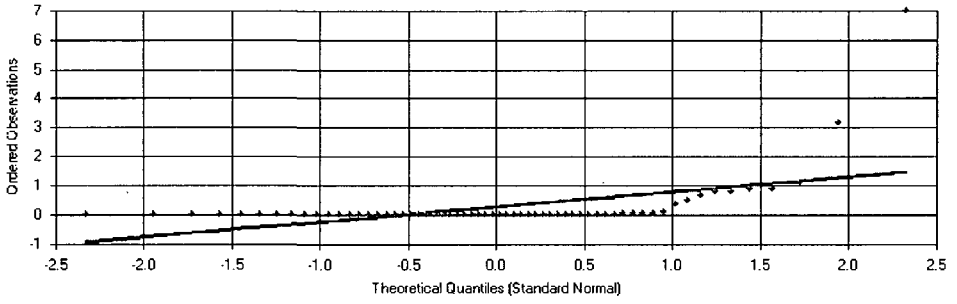
Summary Statistics for	Trichloroet
Number of Samples	62
Minimum	0.001
Maximum	630
Mean	11.92666
Median	0.007
Standard Deviation	80.20227
Variance	6432.404
Coefficient of Variation	6.72462
Skewness	7.753587
95 % UCL (Assuming Normal Data)	
Student's-t	28.93901
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	39.39776
Modified-t	30.61066
95 % Non-parametric UCL	
CLT	28.68064
Jackknife	28.93901
Standard Bootstrap	28.53197
Bootstrap-t	342.9775
Chebyshev (Mean, Std)	56.32509
99 % Non-parametric UCL	
CLT	35.62214
Jackknife	36.26077
Standard Bootstrap	35.07572
Bootstrap-t	841.2298
Chebyshev (Mean, Std)	113.2731

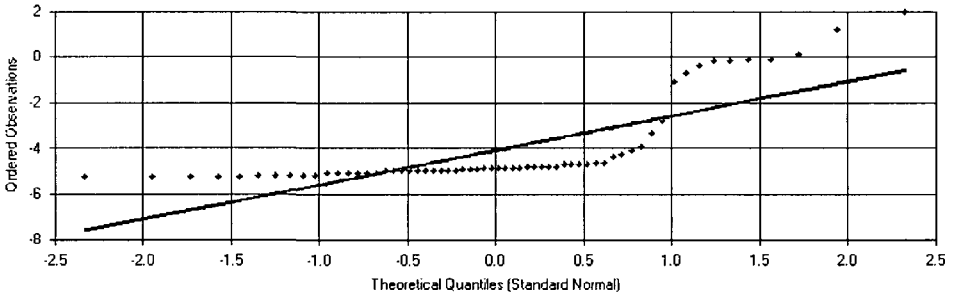
Summary Statistics for	ln(Trichloroethylene)
Minimum	-6.90776
Maximum	6.44572
Mean	-3.79234
Standard Deviation	2.795477
Variance	7.814694
Lilliefors Test Statisitic	0.26632
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.121879
MLE Standard Deviation	55.821
MLE Coefficient of Variation	49.7567
MLE Skewness	123333.4
MLE Median	0.022543
MLE 80% Quantile	0.23927
MLE 90% Quantile	0.818605
MLE 95% Quantile	2.239423
MLE 99% Quantile	15.02835
MVU Estimate of Median	0.021165
MVU Estimate of Mean	0.858971
MVU Estimate of Std. Dev.	14.57048
MVU Estimate of SE of Mean	0.505511
UCL Assuming Lognormal Distribution	
95% H-UCL	5.511577
95% Chebyshev (MVUE) UCL	3.062441
99% Chebyshev (MVUE) UCL	5.888739

Normal Q-Q Plot for Vinyl chloride



N = 62, Mean = 0.2656, Stdv = 0.9855
Slope = 0.5170, Intercept = 0.2656, Correlation, R = 0.51640980
Lilliefors Statistic = 0.422, Critical Value(0.05) = 0.113, Data not Normal

Lognormal Q-Q Plot for Vinyl chloride



N = 62, Mean = -4.0818, Stdv = 1.8894
Slope = 1.5135, Intercept = -4.0818, Correlation, R = 0.78848973
Lilliefors Statistic = 0.361, Critical Value(0.05) = 0.113, Data not Lognormal

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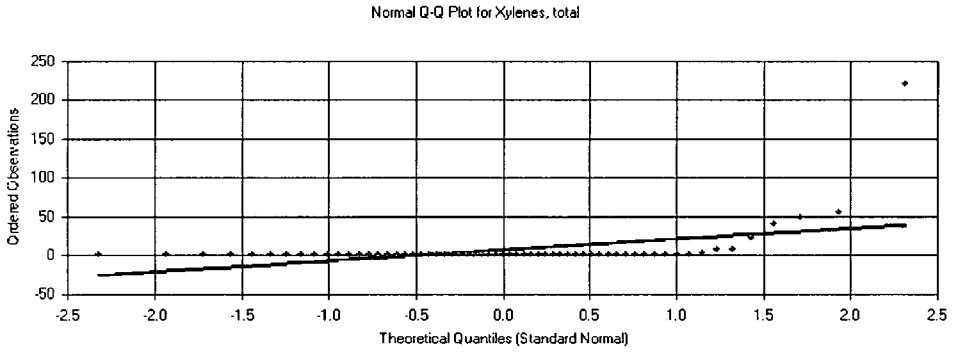
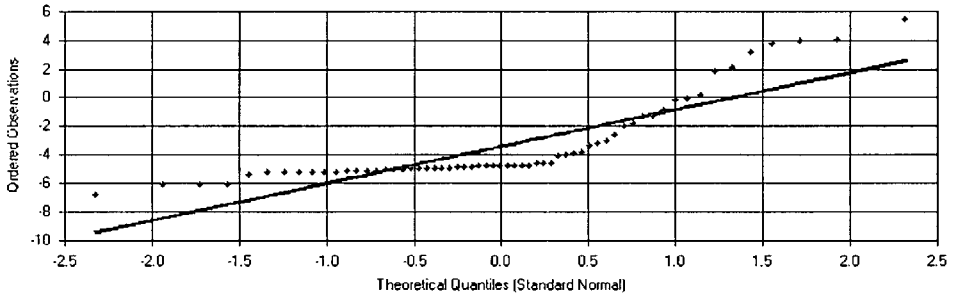
Summary Statistics for	Vinyl chlori
Number of Samples	62
Minimum	0.005
Maximum	7
Mean	0.265621
Median	0.0075
Standard Deviation	0.98552
Variance	0.971251
Coefficient of Variation	3.710251
Skewness	5.838151
95 % UCL (Assuming Normal Data)	
Student's-t	0.474668
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.570651
Modified-t	0.490134
95 % Non-parametric UCL	
CLT	0.471493
Jackknife	0.474668
Standard Bootstrap	0.470848
Bootstrap-t	0.968403
Chebyshev (Mean, Std)	0.811186
97.5 % Non-parametric UCL	
CLT	0.510932
Jackknife	0.515896
Standard Bootstrap	0.504527
Bootstrap-t	1.160061
Chebyshev (Mean, Std)	1.047253

Summary Statistics for	ln(Vinyl chloride)
Minimum	-5.29832
Maximum	1.94591
Mean	-4.0818
Standard Deviation	1.889351
Variance	3.569645
Lilliefors Test Statisitic	0.361432
Lilliefors 5% Critical Value	0.112522
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.100562
MLE Standard Deviation	0.590703
MLE Coefficient of Variation	5.874011
MLE Skewness	220.2989
MLE Median	0.016877
MLE 80% Quantile	0.0833
MLE 90% Quantile	0.191286
MLE 95% Quantile	0.377637
MLE 99% Quantile	1.367285
MVU Estimate of Median	0.016398
MVU Estimate of Mean	0.093341
MVU Estimate of Std. Dev.	0.405784
MVU Estimate of SE of Mean	0.032934
UCL Assuming Lognormal Distribution	
95% H-UCL	0.223859
95% Chebyshev (MVUE) UCL	0.236896
99% Chebyshev (MVUE) UCL	0.421029



N = 61, Mean = 6.5917, Stdv = 29.7633
Slope = 13.9874, Intercept = 6.5917, Correlation, R = 0.46248844
Lilliefors Statistic = 0.458, Critical Value(0.05) = 0.113, Data not Normal



N = 61, Mean = -3.4399, Stdv = 2.9340
Slope = 2.5946, Intercept = -3.4399, Correlation, R = 0.87027778
Lilliefors Statistic = 0.284, Critical Value(0.05) = 0.113, Data not Lognormal

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Summary Statistics for	Xylenes, tc
Number of Samples	61
Minimum	0.001
Maximum	220
Mean	6.591713
Median	0.0075
Standard Deviation	29.76326
Variance	885.8515
Coefficient of Variation	4.515254
Skewness	6.485157
95 % UCL (Assuming Normal Data)	
Student's-t	12.95821
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	16.24096
Modified-t	13.48559
95 % Non-parametric UCL	
CLT	12.85991
Jackknife	12.95821
Standard Bootstrap	12.72944
Bootstrap-t	25.74309
Chebyshev (Mean, Std)	23.20258
99 % Non-parametric UCL	
CLT	15.45695
Jackknife	15.69997
Standard Bootstrap	15.33238
Bootstrap-t	61.30302
Chebyshev (Mean, Std)	44.50864

Summary Statistics for	ln(Xylenes, total)
Minimum	-6.90776
Maximum	5.393628
Mean	-3.43994
Standard Deviation	2.934004
Variance	8.608382
Lilliefors Test Statisitic	0.283744
Lilliefors 5% Critical Value	0.113441
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	2.373231
MLE Standard Deviation	175.6251
MLE Coefficient of Variation	74.00255
MLE Skewness	405487.8
MLE Median	0.032067
MLE 80% Quantile	0.382623
MLE 90% Quantile	1.391326
MLE 95% Quantile	4.000817
MLE 99% Quantile	29.50488
MVU Estimate of Median	0.02988
MVU Estimate of Mean	1.726214
MVU Estimate of Std. Dev.	35.93292
MVU Estimate of SE of Mean	1.079463
UCL Assuming Lognormal Distribution	
95% H-UCL	13.41338
95% Chebyshev (MVUE) UCL	6.431482
99% Chebyshev (MVUE) UCL	12.46673

Row Homes and Industrial Area - Subsurface Soil

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Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	15	1900	12300	4319.667	3720	2585.949	0.598645	2.213431	6687130
Antimony	15	0.36	3.5	1.318	1.1	1.045217	0.793032	1.122302	1.092478
Arsenic	15	1.5	365	89.32	24	133.5838	1.495565	1.48327	17844.64
Barium	15	22.4	39700	6727.24	888	11116.65	1.652482	2.26059	1.24E+08
Cadmium	15	0.04	4.25	1.030333	0.47	1.223117	1.187108	1.401981	1.496016
Chromium	15	6.6	413	97.10667	33.8	122	1.25635	1.569806	14884
Copper	15	5.1	410	92.17333	40.3	128.1768	1.390606	1.902778	16429.3
Iron	15	4440	39000	14573.33	12100	9133.15	0.626703	1.601592	83414424
Lead	15	26.6	1140	337.0933	277	320.366	0.950378	1.03968	102634.4
Manganese	15	30.2	287	119.5733	103.5	71.03577	0.594077	1.025762	5046.081
Mercury	15	0.0255	5.7	0.743167	0.22	1.430056	1.924274	3.385648	2.045061
Thallium	13	0.5	1.5	0.648077	0.6	0.257888	0.397929	3.508781	0.066506
Aldrin	15	0.0009	0.073	0.009822	0.00095	0.020739	2.111598	2.527383	0.00043
Chlordane - alpha	13	0.0009	7.5	0.578575	0.00095	2.079631	3.594402	3.60554	4.324866
Chlordane - gamma (technical mixtu	15	0.0009	9.9	0.665899	0.00096	2.554553	3.836247	3.872901	6.52574
Dieldrin	15	0.0017	0.44	0.042077	0.00185	0.11455	2.722422	3.438446	0.013122
Heptachlor Epoxide	15	0.0009	0.9	0.061098	0.00095	0.232076	3.798396	3.872954	0.053859
Pcb-araclor 1254	15	0.017	3.2	0.379667	0.0185	0.94576	2.491027	2.625687	0.894462
Pcb-araclor 1260	15	0.017	1.3	0.114267	0.0185	0.330495	2.892309	3.780513	0.109227
Acetophenone	16	0.015	6	2.024188	1.375	2.335523	1.153808	0.966669	5.454668
Benzo(a)anthracene	16	0.052	24	4.731125	0.83	7.487821	1.582672	1.948624	56.06746
Benzo(a)pyrene	16	0.075	18	3.745	0.82	5.794621	1.547295	1.911981	33.57763
Benzo(b)fluoranthene	16	0.081	16	3.335375	1.4	5.024216	1.506342	2.043313	25.24274
Benzo(k)fluoranthene	16	0.033	19	4.091438	0.565	6.246464	1.526716	1.745147	39.01831
Dibenzo(a,h)anthracene	16	0.013	6	1.513313	0.835	1.846174	1.219956	1.653186	3.408359
Indeno(1,2,3-cd)pyrene	16	0.028	6.4	1.834188	0.87	2.167056	1.18148	1.285846	4.69613
Naphthalene	16	0.1	5.9	1.58125	1.35	1.821744	1.152091	1.541994	3.318752

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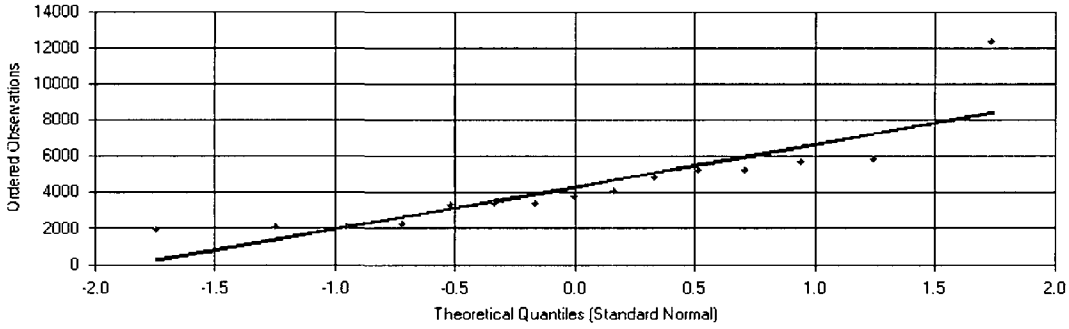
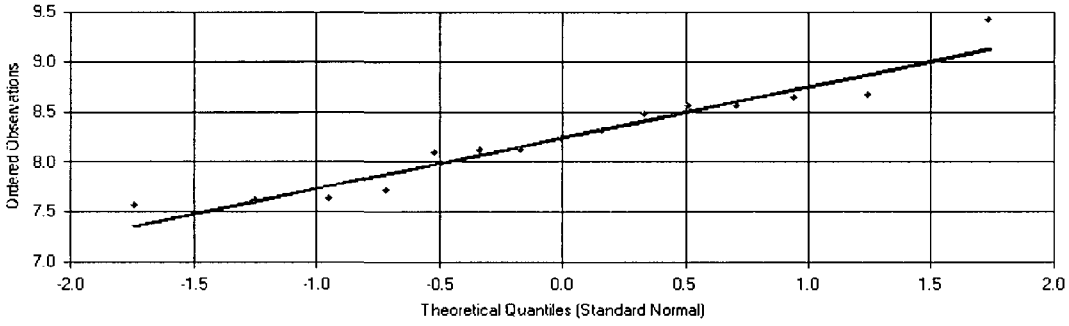
Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	15	7.549609	9.417355	8.242144	8.221479	0.505938	0.061384	0.537642	0.255973
Antimony	15	-1.021651	1.252763	-0.022804	0.09531	0.81314	-35.65756	0.151946	0.661196
Arsenic	15	0.405465	5.899897	3.157648	3.178054	1.860986	0.589358	0.11965	3.463268
Barium	15	3.109061	10.58911	6.81733	6.788972	2.573796	0.377537	-0.081272	6.624427
Cadmium	15	-3.218876	1.446919	-1.091663	-0.755023	1.82969	-1.676059	-0.104391	3.347767
Chromium	15	1.88707	6.023448	3.7486	3.520461	1.392821	0.371558	0.258745	1.939949
Copper	15	1.629241	6.016157	3.662175	3.696351	1.406842	0.384155	0.191849	1.979203
Iron	15	8.39841	10.57132	9.42828	9.400961	0.57707	0.061206	0.185358	0.33301
Lead	15	3.280911	7.038784	5.193373	5.624018	1.312563	0.252738	-0.291545	1.722821
Manganese	15	3.407842	5.659482	4.619367	4.639572	0.60573	0.131128	-0.127506	0.366909
Mercury	15	-3.669077	1.740466	-1.27774	-1.514128	1.381803	-1.081443	0.473401	1.909379
Thallium	13	-0.693147	0.405465	-0.47772	-0.510826	0.271279	-0.567862	3.32006	0.073592
Aldrin	15	-7.013116	-2.617296	-6.213553	-6.959049	1.573749	-0.253277	1.750155	2.476687
Chlordane - alpha	13	-7.013116	2.014903	-6.078878	-6.959049	2.524442	-0.415281	3.223612	6.372807
Chlordane - gamma (technical mixt	15	-7.013116	2.292535	-5.545401	-6.948577	2.560996	-0.461823	2.308332	6.5587
Dieldrin	15	-6.377127	-0.820981	-5.390475	-6.29257	1.816992	-0.337075	1.850068	3.301461
Heptachlor Epoxide	15	-7.013116	-0.105361	-6.358264	-6.959049	1.758481	-0.276566	3.670224	3.092254
Pcb-araclor 1254	15	-4.074542	1.163151	-3.189082	-3.989985	1.780738	-0.558386	2.039949	3.171027
Pcb-araclor 1260	15	-4.074542	0.262364	-3.562818	-3.989985	1.207603	-0.338946	2.850365	1.458305
Acetophenone	16	-4.199705	1.791759	-0.385708	0.279808	1.863486	-4.831344	-0.478925	3.472581
Benzo(a)anthracene	16	-2.956512	3.178054	0.061907	-0.189899	2.02819	32.76212	0.026185	4.113556
Benzo(a)pyrene	16	-2.590267	2.890372	0.002692	-0.220417	1.825635	678.2377	0.192381	3.332943
Benzo(b)fluoranthene	16	-2.513306	2.772589	0.065106	0.312969	1.707451	26.22568	0.035619	2.915389
Benzo(k)fluoranthene	16	-3.411248	2.944439	-0.124997	-0.570969	2.076956	-16.61598	0.021058	4.313746
Dibenzo(a,h)anthracene	16	-4.342806	1.791759	-0.492719	-0.200239	1.640177	-3.328827	-0.622222	2.690179
Indeno(1,2,3-cd)pyrene	16	-3.575551	1.856298	-0.291369	-0.175488	1.601322	-5.495851	-0.40223	2.564231
Naphthalene	16	-2.302585	1.774952	-0.317298	0.265314	1.408343	-4.438555	-0.005062	1.98343

Normal Q-Q Plot for Aluminum



N = 15, Mean = 4319.6667, Stdv = 2585.9486
Slope = 2344.5002, Intercept = 4319.6667, Correlation, R = 0.86582730
Shapiro-Wilk Statistic = 0.769, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Aluminum



N = 15, Mean = 8.2421, Stdv = 0.5059
Slope = 0.5112, Intercept = 8.2421, Correlation, R = 0.96489880
Shapiro-Wilk Statistic = 0.933, Critical Value(0.05) = 0.881, Data are Lognormal

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Summary Statistics for	Aluminum
Number of Samples	15
Minimum	1900
Maximum	12300
Mean	4319.667
Median	3720
Standard Deviation	2585.949
Variance	6687130
Coefficient of Variation	0.598645
Skewness	2.213431

95 % UCL (Assuming Normal Data)	
Student's-t	5495.674

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	5825.65
Modified-t	5559.272

95 % Non-parametric UCL	
CLT	5417.917
Jackknife	5495.674
Standard Bootstrap	5365.584
Bootstrap-t	6259.886
Chebyshev (Mean, Std)	7230.056

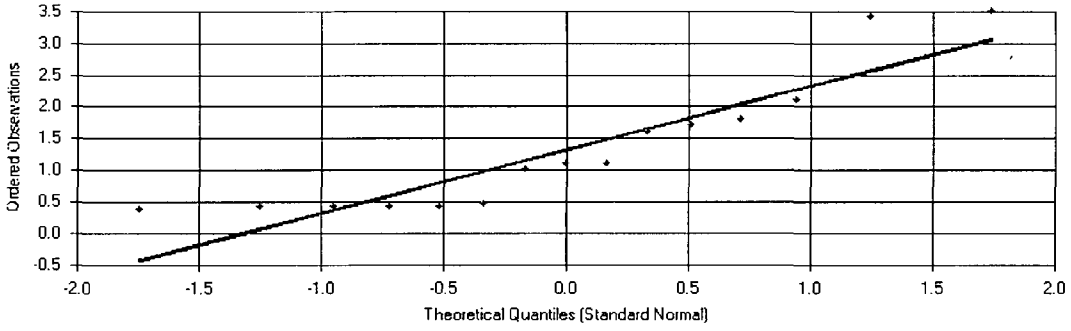
Summary Statistics for	ln(Aluminum)
Minimum	7.549609
Maximum	9.417355
Mean	8.242144
Standard Deviation	0.505938
Variance	0.255973
Shapiro-Wilk Test Statisitic	0.932583
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	4316.201
MLE Standard Deviation	2331.222
MLE Coefficient of Variation	0.54011
MLE Skewness	1.777889
MLE Median	3797.675
MLE 80% Quantile	5823.531
MLE 90% Quantile	7275.551
MLE 95% Quantile	8729.056
MLE 99% Quantile	12319.72
MVU Estimate of Median	3765.392
MVU Estimate of Mean	4275.781
MVU Estimate of Std. Dev.	2235.517
MVU Estimate of SE of Mean	575.6408

UCL Assuming Lognormal Distribution	
95% H-UCL	5713.684
95% Chebyshev (MVUE) UCL	6784.941
99% Chebyshev (MVUE) UCL	10003.34

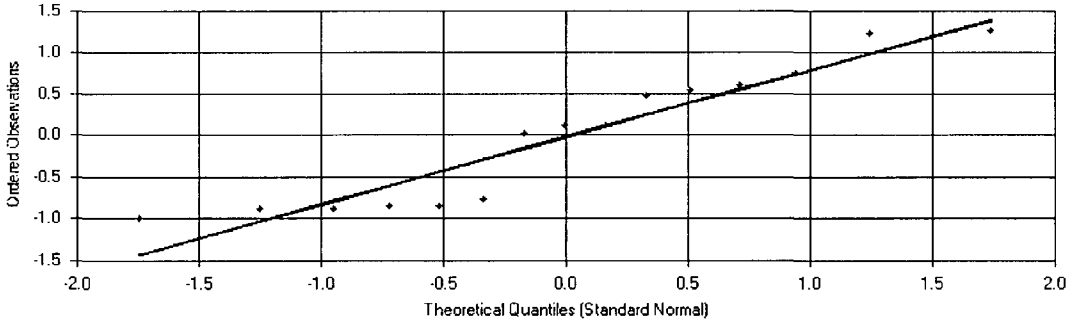
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Antimony



N = 15, Mean = 1.3180, Stdv = 1.0452
Slope = 1.0051, Intercept = 1.3180, Correlation, R = 0.91831860
Shapiro-Wilk Statistic = 0.832, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Antimony



N = 15, Mean = -0.0228, Stdv = 0.8131
Slope = 0.8103, Intercept = -0.0228, Correlation, R = 0.95161416
Shapiro-Wilk Statistic = 0.883, Critical Value(0.05) = 0.881, Data are Lognormal

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Summary Statistics for	Antimony
Number of Samples	15
Minimum	0.36
Maximum	3.5
Mean	1.318
Median	1.1
Standard Deviation	1.045217
Variance	1.092478
Coefficient of Variation	0.793032
Skewness	1.122302

95 % UCL (Assuming Normal Data)	
Student's-t	1.793331

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.845464
Modified-t	1.806365

95 % Non-parametric UCL	
CLT	1.761903
Jackknife	1.793331
Standard Bootstrap	1.744813
Bootstrap-t	1.920596
Chebyshev (Mean, Std)	2.494353

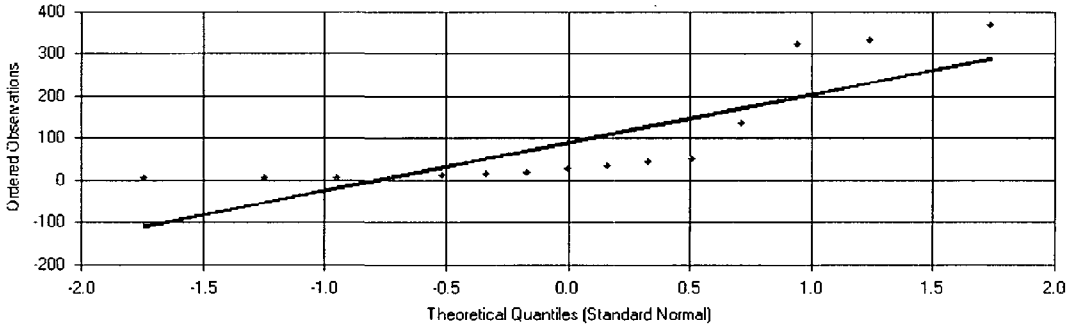
Summary Statistics for	ln(Antimony)
Minimum	-1.02165
Maximum	1.252763
Mean	-0.0228
Standard Deviation	0.81314
Variance	0.661196
Shapiro-Wilk Test Statisitic	0.883354
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	1.360421
MLE Standard Deviation	1.316946
MLE Coefficient of Variation	0.968043
MLE Skewness	3.81129
MLE Median	0.977454
MLE 80% Quantile	1.943128
MLE 90% Quantile	2.77897
MLE 95% Quantile	3.724045
MLE 99% Quantile	6.47895
MVU Estimate of Median	0.956118
MVU Estimate of Mean	1.32321
MVU Estimate of Std. Dev.	1.167987
MVU Estimate of SE of Mean	0.296863

UCL Assuming Lognormal Distribution	
95% H-UCL	2.322782
95% Chebyshev (MVUE) UCL	2.617207
99% Chebyshev (MVUE) UCL	4.276962

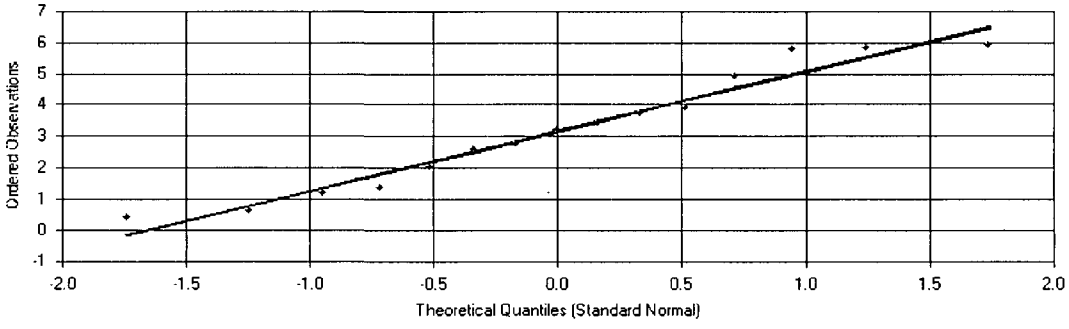
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Arsenic



N = 15, Mean = 89.3200, Stdv = 133.5838
Slope = 114.9285, Intercept = 89.3200, Correlation, R = 0.82162675
Shapiro-Wilk Statistic = 0.667, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Arsenic



N = 15, Mean = 3.1576, Stdv = 1.8610
Slope = 1.9099, Intercept = 3.1576, Correlation, R = 0.98011358
Shapiro-Wilk Statistic = 0.940, Critical Value(0.05) = 0.881, Data are Lognormal

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Summary Statistics for	Arsenic
Number of Samples	15
Minimum	1.5
Maximum	365
Mean	89.32
Median	24
Standard Deviation	133.5838
Variance	17844.64
Coefficient of Variation	1.495565
Skewness	1.48327

95 % UCL (Assuming Normal Data)	
Student's-t	150.0697

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	160.1674
Modified-t	152.2713

95 % Non-parametric UCL	
CLT	146.053
Jackknife	150.0697
Standard Bootstrap	145.0889
Bootstrap-t	175.7792
Chebyshev (Mean, Std)	239.6636

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	432.5031

Summary Statistics for	ln(Arsenic)
Minimum	0.405465
Maximum	5.899897
Mean	3.157648
Standard Deviation	1.860986
Variance	3.463268
Shapiro-Wilk Test Statisitic	0.939605
Shapiro-Wilk 5% Critical Value	0.881

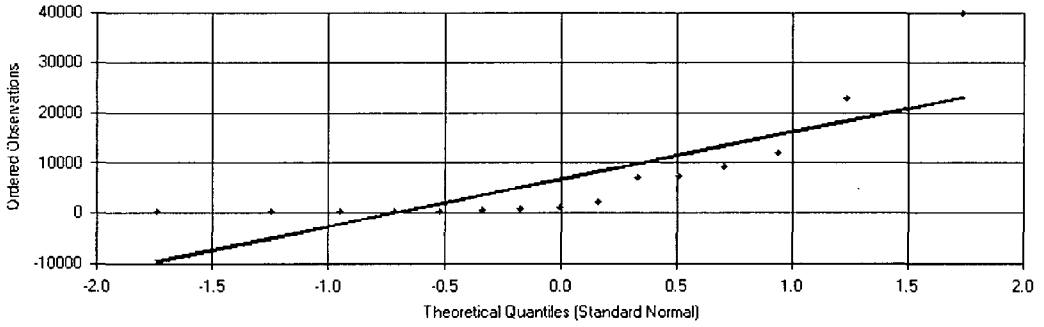
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	132.8581
MLE Standard Deviation	738.7811
MLE Coefficient of Variation	5.560676
MLE Skewness	188.6243
MLE Median	23.51523
MLE 80% Quantile	113.3161
MLE 90% Quantile	256.9842
MLE 95% Quantile	502.1855
MLE 99% Quantile	1783.443
MVU Estimate of Median	20.93366
MVU Estimate of Mean	103.6101
MVU Estimate of Std. Dev.	276.4682
MVU Estimate of SE of Mean	57.34485

UCL Assuming Lognormal Distribution	
95% H-UCL	1124.209
95% Chebyshev (MVUE) UCL	353.5705
99% Chebyshev (MVUE) UCL	674.1841

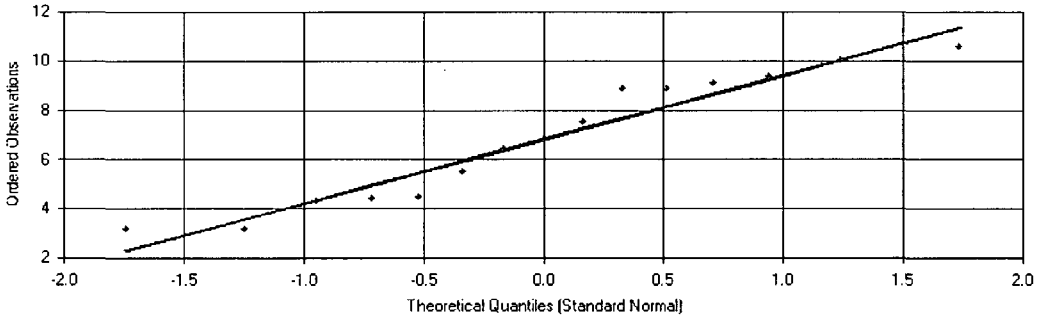
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Barium



N = 15, Mean = 6727.2400, Stdv = 11116.6457
Slope = 9444.3165, Intercept = 6727.2400, Correlation, R = 0.81133023
Shapiro-Wilk Statistic = 0.671, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Barium



N = 15, Mean = 6.8173, Stdv = 2.5738
Slope = 2.6179, Intercept = 6.8173, Correlation, R = 0.97135014
Shapiro-Wilk Statistic = 0.922, Critical Value(0.05) = 0.881, Data are Lognormal

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Summary Statistics for	Barium
Number of Samples	15
Minimum	22.4
Maximum	39700
Mean	6727.24
Median	888
Standard Deviation	11116.65
Variance	1.24E+08
Coefficient of Variation	1.652482
Skewness	2.26059

95 % UCL (Assuming Normal Data)	
Student's-t	11782.74

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	13238.6
Modified-t	12061.96

95 % Non-parametric UCL	
CLT	11448.47
Jackknife	11782.74
Standard Bootstrap	11354.76
Bootstrap-t	18114.67
Chebyshev (Mean, Std)	19238.61

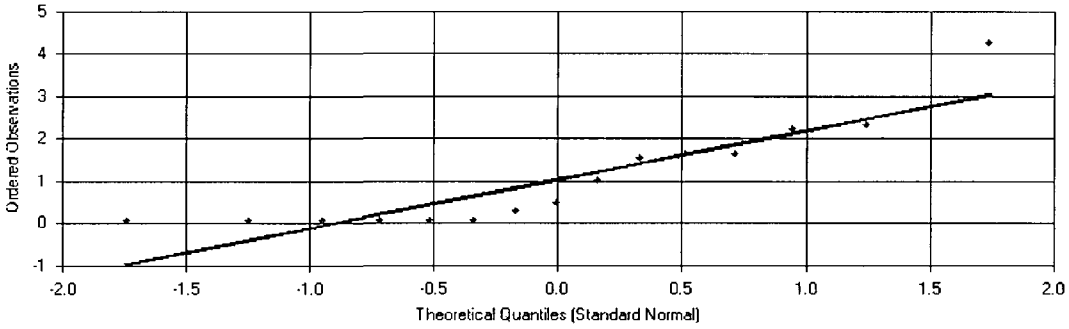
99 % Non-parametric UCL	
Chebyshev (Mean, Std)	35286.42

Summary Statistics for	ln(Barium)
Minimum	3.109061
Maximum	10.58911
Mean	6.81733
Standard Deviation	2.573796
Variance	6.624427
Shapiro-Wilk Test Statisitic	0.92188
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	25072.92
MLE Standard Deviation	687689.5
MLE Coefficient of Variation	27.42759
MLE Skewness	20715.3
MLE Median	913.5426
MLE 80% Quantile	8040.028
MLE 90% Quantile	24950.72
MLE 95% Quantile	63021.1
MLE 99% Quantile	363662
MVU Estimate of Median	730.2334
MVU Estimate of Mean	13179.4
MVU Estimate of Std. Dev.	61670.46
MVU Estimate of SE of Mean	9735.181

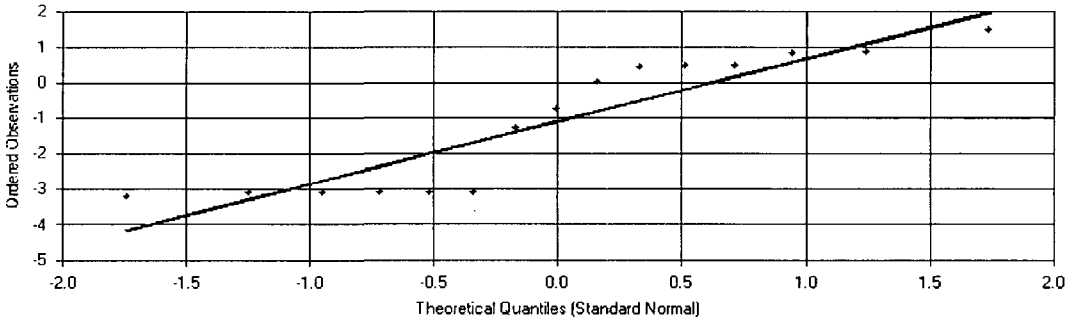
UCL Assuming Lognormal Distribution	
95% H-UCL	1269394
95% Chebyshev (MVUE) UCL	55614.07
99% Chebyshev (MVUE) UCL	110043.2
Recommended UCL to use:	
Greater of	
99 % Chebyshev (MVUE) UCL	
99 % Chebyshev (Mean, Std)	

Normal Q-Q Plot for Cadmium



N = 15, Mean = 1.0303, Stdv = 1.2231
Slope = 1.1503, Intercept = 1.0303, Correlation, R = 0.89812154
Shapiro-Wilk Statistic = 0.808, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Cadmium



N = 15, Mean = -1.0917, Stdv = 1.8297
Slope = 1.7599, Intercept = -1.0917, Correlation, R = 0.91856086
Shapiro-Wilk Statistic = 0.818, Critical Value(0.05) = 0.881, Data not Lognormal

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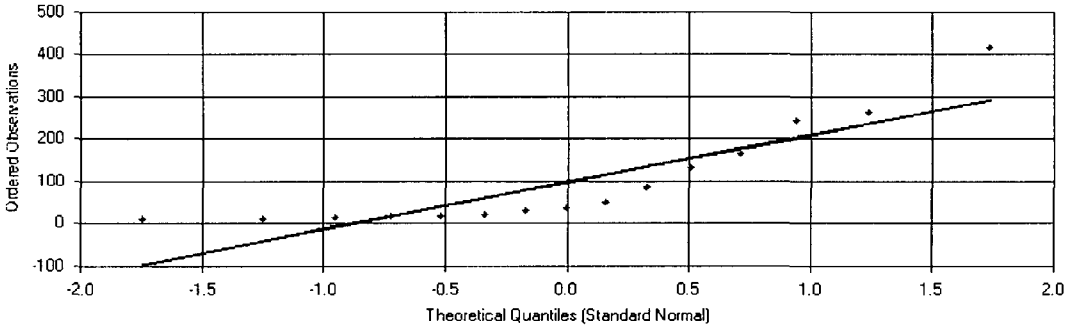
Summary Statistics for	Cadmium
Number of Samples	15
Minimum	0.04
Maximum	4.25
Mean	1.030333
Median	0.47
Standard Deviation	1.223117
Variance	1.496016
Coefficient of Variation	1.187108
Skewness	1.401981
95 % UCL (Assuming Normal Data)	
Student's-t	1.586568
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.671942
Modified-t	1.605621
95 % Non-parametric UCL	
CLT	1.54979
Jackknife	1.586568
Standard Bootstrap	1.532214
Bootstrap-t	1.80189
Chebyshev (Mean, Std)	2.406906
97.5 % Non-parametric UCL	
CLT	1.649305
Jackknife	1.707673
Standard Bootstrap	1.634414
Bootstrap-t	1.981894
Chebyshev (Mean, Std)	3.002551

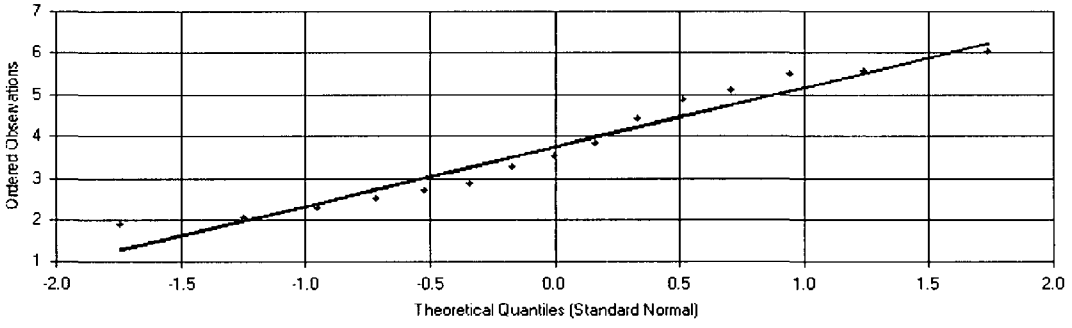
Summary Statistics for	ln(Cadmium)
Minimum	-3.21888
Maximum	1.446919
Mean	-1.09166
Standard Deviation	1.82969
Variance	3.347767
Shapiro-Wilk Test Statisitic	0.818312
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.79001
MLE Standard Deviation	9.376499
MLE Coefficient of Variation	5.23824
MLE Skewness	159.4476
MLE Median	0.335658
MLE 80% Quantile	1.575269
MLE 90% Quantile	3.523623
MLE 95% Quantile	6.808543
MLE 99% Quantile	23.66974
MVU Estimate of Median	0.299978
MVU Estimate of Mean	1.412597
MVU Estimate of Std. Dev.	3.669387
MVU Estimate of SE of Mean	0.768656
UCL Assuming Lognormal Distribution	
95% H-UCL	14.188
95% Chebyshev (MVUE) UCL	4.763089
99% Chebyshev (MVUE) UCL	9.060623

Normal Q-Q Plot for Chromium



N = 15, Mean = 97.1067, Stdv = 122.0000
Slope = 111.9034, Intercept = 97.1067, Correlation, R = 0.87595997
Shapiro-Wilk Statistic = 0.768, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Chromium



N = 15, Mean = 3.7486, Stdv = 1.3928
Slope = 1.4217, Intercept = 3.7486, Correlation, R = 0.97477302
Shapiro-Wilk Statistic = 0.930, Critical Value(0.05) = 0.881, Data are Lognormal

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Summary Statistics for	Chromium
Number of Samples	15
Minimum	6.6
Maximum	413
Mean	97.10667
Median	33.8
Standard Deviation	122
Variance	14884
Coefficient of Variation	1.25635
Skewness	1.569806

95 % UCL (Assuming Normal Data)	
Student's-t	152.5884

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	162.5625
Modified-t	154.7164

95 % Non-parametric UCL	
CLT	148.92
Jackknife	152.5884
Standard Bootstrap	146.9631
Bootstrap-t	181.6897
Chebyshev (Mean, Std)	234.4131

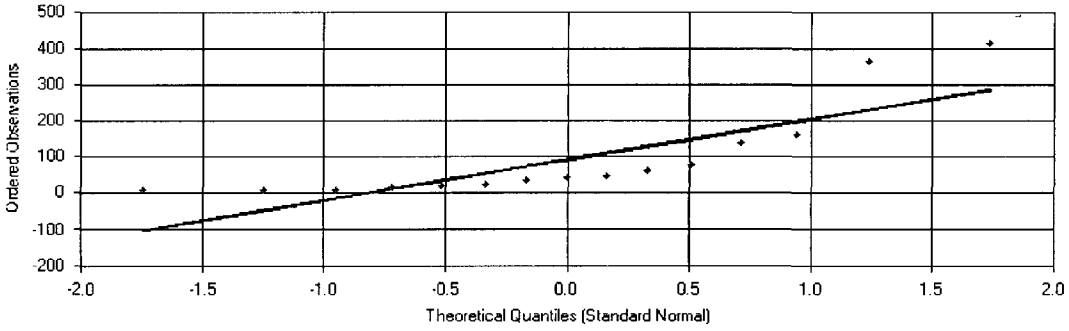
Summary Statistics for	ln(Chromium)
Minimum	1.88707
Maximum	6.023448
Mean	3.7486
Standard Deviation	1.392821
Variance	1.939949
Shapiro-Wilk Test Statisitic	0.929824
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	112.0085
MLE Standard Deviation	273.4108
MLE Coefficient of Variation	2.440983
MLE Skewness	21.8673
MLE Median	42.4616
MLE 80% Quantile	137.7628
MLE 90% Quantile	254.2644
MLE 95% Quantile	419.8049
MLE 99% Quantile	1083.878
MVU Estimate of Median	39.79221
MVU Estimate of Mean	100.339
MVU Estimate of Std. Dev.	174.1749
MVU Estimate of SE of Mean	40.90612

UCL Assuming Lognormal Distribution	
95% H-UCL	399.4577
95% Chebyshev (MVUE) UCL	278.6447
99% Chebyshev (MVUE) UCL	507.3498

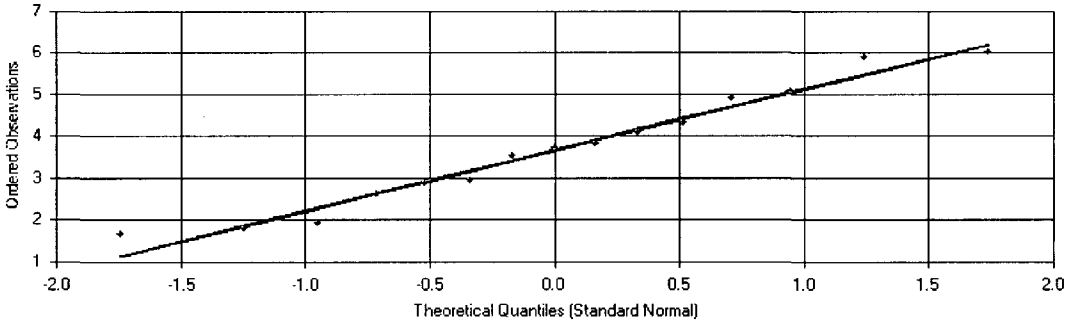
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Copper



N = 15, Mean = 92.1733, Stdv = 128.1768
Slope = 111.4017, Intercept = 92.1733, Correlation, R = 0.83000955
Shapiro-Wilk Statistic = 0.691, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Copper



N = 15, Mean = 3.6622, Stdv = 1.4068
Slope = 1.4530, Intercept = 3.6622, Correlation, R = 0.98631484
Shapiro-Wilk Statistic = 0.956, Critical Value(0.05) = 0.881, Data are Lognormal

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Summary Statistics for	Copper
Number of Samples	15
Minimum	5.1
Maximum	410
Mean	92.17333
Median	40.3
Standard Deviation	128.1768
Variance	16429.3
Coefficient of Variation	1.390606
Skewness	1.902778

95 % UCL (Assuming Normal Data)	
Student's-t	150.4641

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	163.9834
Modified-t	153.174

95 % Non-parametric UCL	
CLT	146.6099
Jackknife	150.4641
Standard Bootstrap	144.6211
Bootstrap-t	224.6733
Chebyshev (Mean, Std)	236.4316

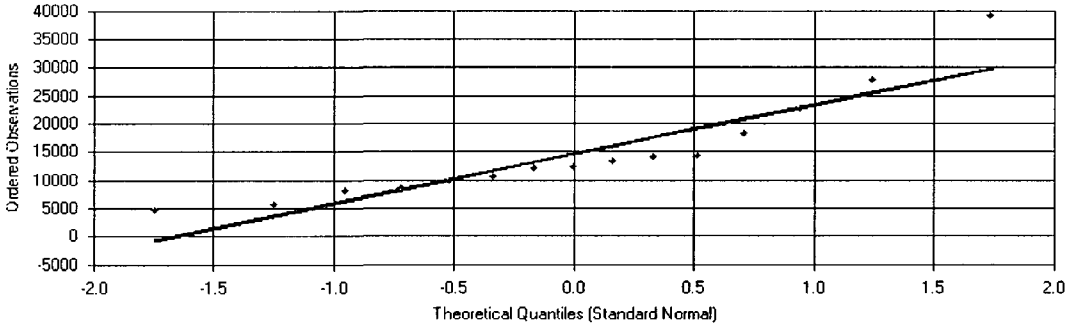
Summary Statistics for	ln(Copper)
Minimum	1.629241
Maximum	6.016157
Mean	3.662175
Standard Deviation	1.406842
Variance	1.979203
Shapiro-Wilk Test Statisitic	0.956028
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	104.771
MLE Standard Deviation	261.6544
MLE Coefficient of Variation	2.497394
MLE Skewness	23.06836
MLE Median	38.94597
MLE 80% Quantile	127.8626
MLE 90% Quantile	237.4523
MLE 95% Quantile	394.0311
MLE 99% Quantile	1027.094
MVU Estimate of Median	36.44948
MVU Estimate of Mean	93.56906
MVU Estimate of Std. Dev.	164.6997
MVU Estimate of SE of Mean	38.56693

UCL Assuming Lognormal Distribution	
95% H-UCL	382.0842
95% Chebyshev (MVUE) UCL	261.6784
99% Chebyshev (MVUE) UCL	477.3052

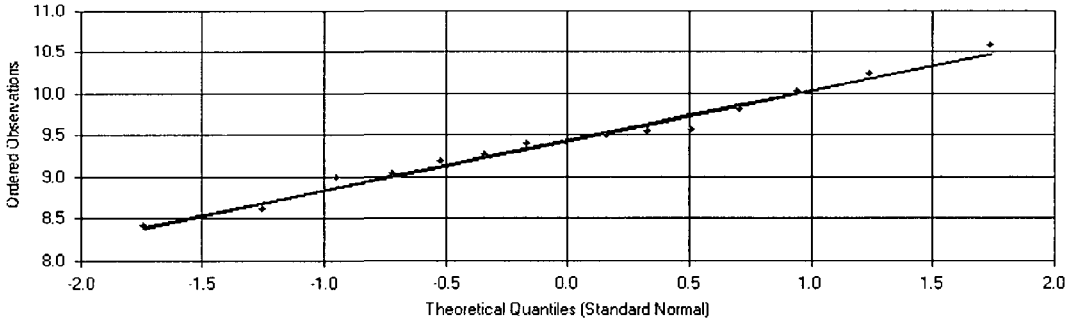
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Iron



N = 15, Mean = 14573.3333, Stdv = 9133.1497
Slope = 8772.5162, Intercept = 14573.3333, Correlation, R = 0.91728542
Shapiro-Wilk Statistic = 0.851, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Iron



N = 15, Mean = 9.4283, Stdv = 0.5771
Slope = 0.5982, Intercept = 9.4283, Correlation, R = 0.98993961
Shapiro-Wilk Statistic = 0.982, Critical Value(0.05) = 0.881, Data are Lognormal

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Summary Statistics for	Iron
Number of Samples	15
Minimum	4440
Maximum	39000
Mean	14573.33
Median	12100
Standard Deviation	9133.15
Variance	83414424
Coefficient of Variation	0.626703
Skewness	1.601592

95 % UCL (Assuming Normal Data)	
Student's-t	18726.8

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	19494.16
Modified-t	18889.33

95 % Non-parametric UCL	
CLT	18452.18
Jackknife	18726.8
Standard Bootstrap	18351.26
Bootstrap-t	21648.57
Chebyshev (Mean, Std)	24852.35

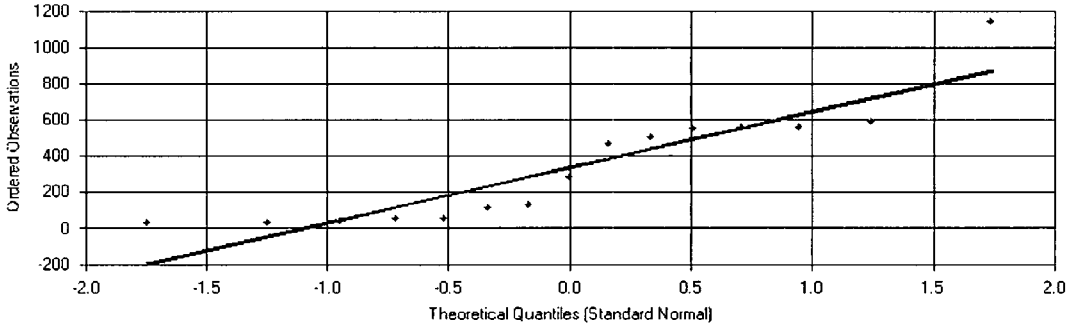
Summary Statistics for	ln(Iron)
Minimum	8.39841
Maximum	10.57132
Mean	9.42828
Standard Deviation	0.57707
Variance	0.33301
Shapiro-Wilk Test Statisitic	0.982002
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	14687.98
MLE Standard Deviation	9233.133
MLE Coefficient of Variation	0.628618
MLE Skewness	2.13426
MLE Median	12435.12
MLE 80% Quantile	20249.88
MLE 90% Quantile	26103.24
MLE 95% Quantile	32130.47
MLE 99% Quantile	47597.94
MVU Estimate of Median	12297.75
MVU Estimate of Mean	14504.42
MVU Estimate of Std. Dev.	8733.054
MVU Estimate of SE of Mean	2244.803

UCL Assuming Lognormal Distribution	
95% H-UCL	20475.49
95% Chebyshev (MVUE) UCL	24289.29
99% Chebyshev (MVUE) UCL	36839.92

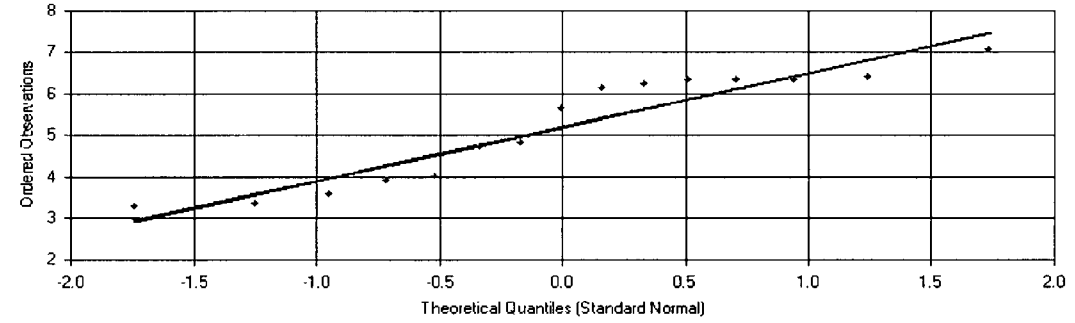
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Lead



N = 15, Mean = 337.0933, Stdv = 320.3660
Slope = 307.7250, Intercept = 337.0933, Correlation, R = 0.91731244
Shapiro-Wilk Statistic = 0.841, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Lead



N = 15, Mean = 5.1934, Stdv = 1.3126
Slope = 1.3012, Intercept = 5.1934, Correlation, R = 0.94670593
Shapiro-Wilk Statistic = 0.876, Critical Value(0.05) = 0.881, Data not Lognormal

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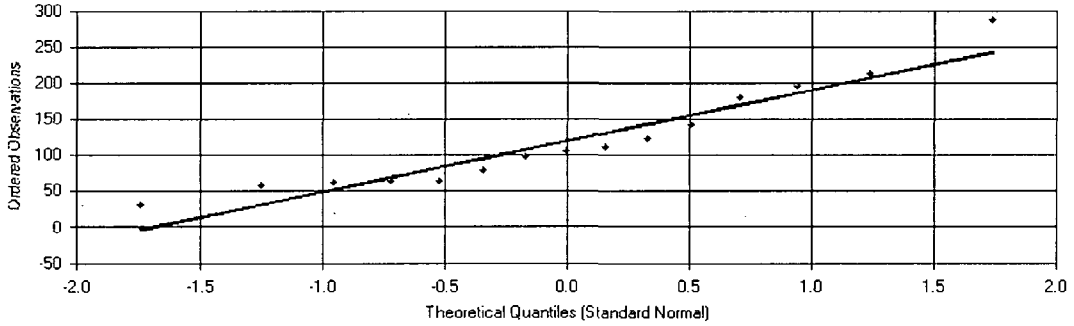
Summary Statistics for	Lead
Number of Samples	15
Minimum	26.6
Maximum	1140
Mean	337.0933
Median	277
Standard Deviation	320.366
Variance	102634.4
Coefficient of Variation	0.950378
Skewness	1.03968
95 % UCL (Assuming Normal Data)	
Student's-t	482.7856
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	496.8792
Modified-t	486.4865
95 % Non-parametric UCL	
CLT	473.1526
Jackknife	482.7856
Standard Bootstrap	468.1698
Bootstrap-t	511.5498
Chebyshev (Mean, Std)	697.6534
97.5 % Non-parametric UCL	
CLT	499.2179
Jackknife	514.5061
Standard Bootstrap	491.6735
Bootstrap-t	551.1144
Chebyshev (Mean, Std)	853.668

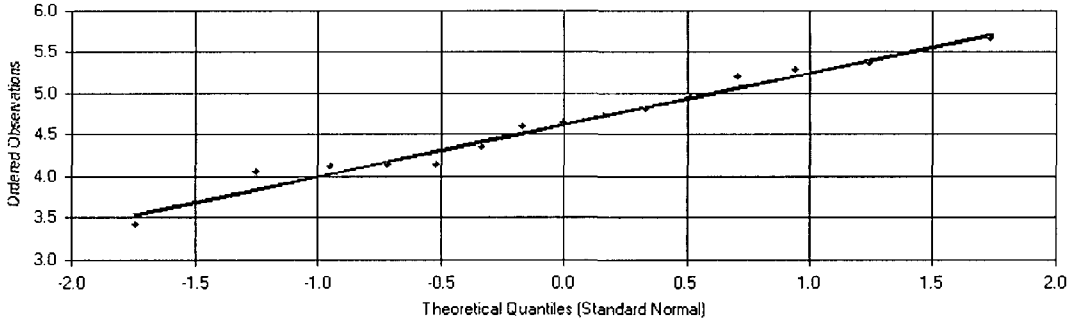
Summary Statistics for	ln(Lead)
Minimum	3.280911
Maximum	7.038784
Mean	5.193373
Standard Deviation	1.312563
Variance	1.722821
Shapiro-Wilk Test Statisitic	0.876144
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	426.1467
MLE Standard Deviation	914.013
MLE Coefficient of Variation	2.144832
MLE Skewness	16.30137
MLE Median	180.075
MLE 80% Quantile	545.9289
MLE 90% Quantile	972.6422
MLE 95% Quantile	1560.153
MLE 99% Quantile	3813.849
MVU Estimate of Median	169.9897
MVU Estimate of Mean	388.0502
MVU Estimate of Std. Dev.	621.0332
MVU Estimate of SE of Mean	148.1937
UCL Assuming Lognormal Distribution	
95% H-UCL	1343.165
95% Chebyshev (MVUE) UCL	1034.011
99% Chebyshev (MVUE) UCL	1862.559

Normal Q-Q Plot for Manganese



N = 15, Mean = 119.5733, Stdv = 71.0358
Slope = 70.9372, Intercept = 119.5733, Correlation, R = 0.95367000
Shapiro-Wilk Statistic = 0.910, Critical Value(0.05) = 0.881, Data are Normal

Lognormal Q-Q Plot for Manganese



N = 15, Mean = 4.6194, Stdv = 0.6057
Slope = 0.6262, Intercept = 4.6194, Correlation, R = 0.98727717
Shapiro-Wilk Statistic = 0.974, Critical Value(0.05) = 0.881, Data are Lognormal

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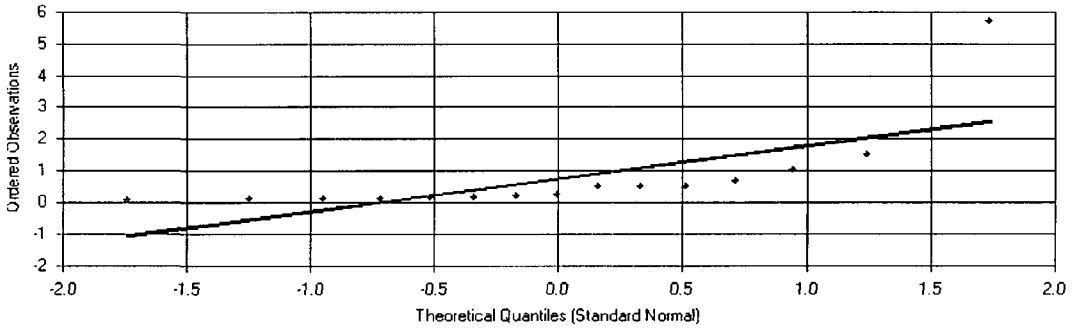
Summary Statistics for	Manganese
Number of Samples	15
Minimum	30.2
Maximum	287
Mean	119.5733
Median	103.5
Standard Deviation	71.03577
Variance	5046.081
Coefficient of Variation	0.594077
Skewness	1.025762
95 % UCL (Assuming Normal Data)	
Student's-t	151.8781
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	154.9327
Modified-t	152.6878
95 % Non-parametric UCL	
CLT	149.7422
Jackknife	151.8781
Standard Bootstrap	148.3794
Bootstrap-t	159.4216
Chebyshev (Mean, Std)	199.5215

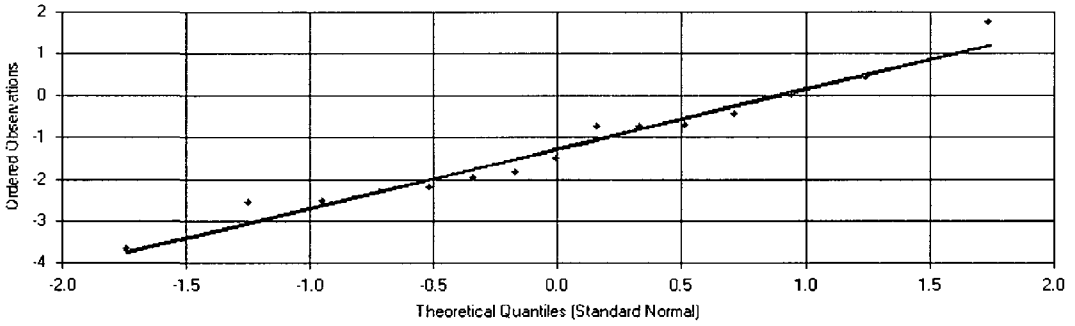
Summary Statistics for	ln(Manganese)
Minimum	3.407842
Maximum	5.659482
Mean	4.619367
Standard Deviation	0.60573
Variance	0.366909
Shapiro-Wilk Test Statisitic	0.974469
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	121.8537
MLE Standard Deviation	81.12815
MLE Coefficient of Variation	0.665783
MLE Skewness	2.292469
MLE Median	101.4298
MLE 80% Quantile	169.2216
MLE 90% Quantile	220.9045
MLE 95% Quantile	274.7312
MLE 99% Quantile	415.0071
MVU Estimate of Median	100.1959
MVU Estimate of Mean	120.1575
MVU Estimate of Std. Dev.	76.25826
MVU Estimate of SE of Mean	19.58448
UCL Assuming Lognormal Distribution	
95% H-UCL	173.6439
95% Chebyshev (MVUE) UCL	205.5243
99% Chebyshev (MVUE) UCL	315.0207
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Mercury



N = 15, Mean = 0.7432, Stdv = 1.4301
Slope = 1.0367, Intercept = 0.7432, Correlation, R = 0.69230657
Shapiro-Wilk Statistic = 0.508, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Mercury



N = 15, Mean = -1.2777, Stdv = 1.3818
Slope = 1.4213, Intercept = -1.2777, Correlation, R = 0.98226607
Shapiro-Wilk Statistic = 0.971, Critical Value(0.05) = 0.881, Data are Lognormal

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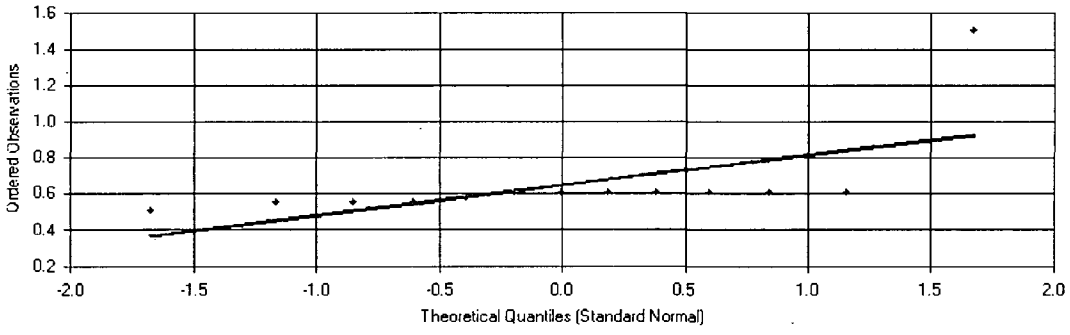
Summary Statistics for	Mercury
Number of Samples	15
Minimum	0.0255
Maximum	5.7
Mean	0.743167
Median	0.22
Standard Deviation	1.430056
Variance	2.045061
Coefficient of Variation	1.924274
Skewness	3.385648
95 % UCL (Assuming Normal Data)	
Student's-t	1.393511
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.695403
Modified-t	1.447307
95 % Non-parametric UCL	
CLT	1.350511
Jackknife	1.393511
Standard Bootstrap	1.334456
Bootstrap-t	3.193535
Chebyshev (Mean, Std)	2.352642

Summary Statistics for	ln(Mercury)
Minimum	-3.66908
Maximum	1.740466
Mean	-1.27774
Standard Deviation	1.381803
Variance	1.909379
Shapiro-Wilk Test Statisitic	0.971088
Shapiro-Wilk 5% Critical Value	0.881
Data are Lognormal at 5% Significance Level	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.723938
MLE Standard Deviation	1.735775
MLE Coefficient of Variation	2.397686
MLE Skewness	20.97711
MLE Median	0.278666
MLE 80% Quantile	0.89573
MLE 90% Quantile	1.645225
MLE 95% Quantile	2.705607
MLE 99% Quantile	6.933287
MVU Estimate of Median	0.261416
MVU Estimate of Mean	0.650047
MVU Estimate of Std. Dev.	1.116058
MVU Estimate of SE of Mean	0.262712

UCL Assuming Lognormal Distribution	
95% H-UCL	2.537281
95% Chebyshev (MVUE) UCL	1.795184
99% Chebyshev (MVUE) UCL	3.264002

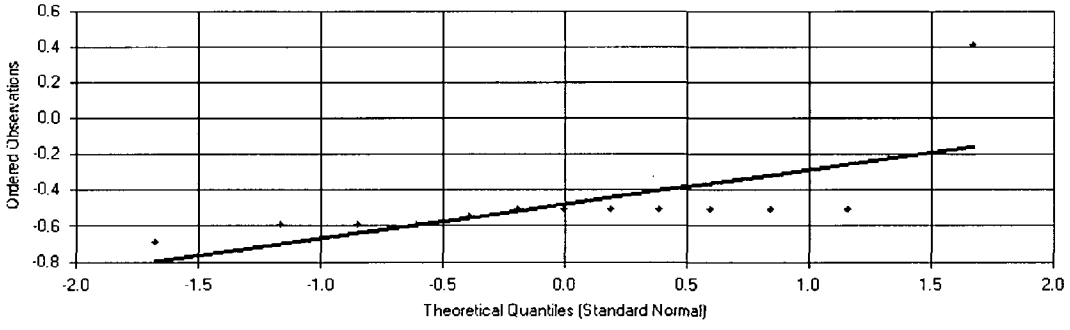
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Thallium



N = 13, Mean = 0.6481, Stdv = 0.2579
Slope = 0.1674, Intercept = 0.6481, Correlation, R = 0.61662284
Shapiro-Wilk Statistic = 0.416, Critical Value(0.05) = 0.866, Data not Normal

Lognormal Q-Q Plot for Thallium



N = 13, Mean = -0.4777, Stdv = 0.2713
Slope = 0.1921, Intercept = -0.4777, Correlation, R = 0.67297594
Shapiro-Wilk Statistic = 0.491, Critical Value(0.05) = 0.866, Data not Lognormal

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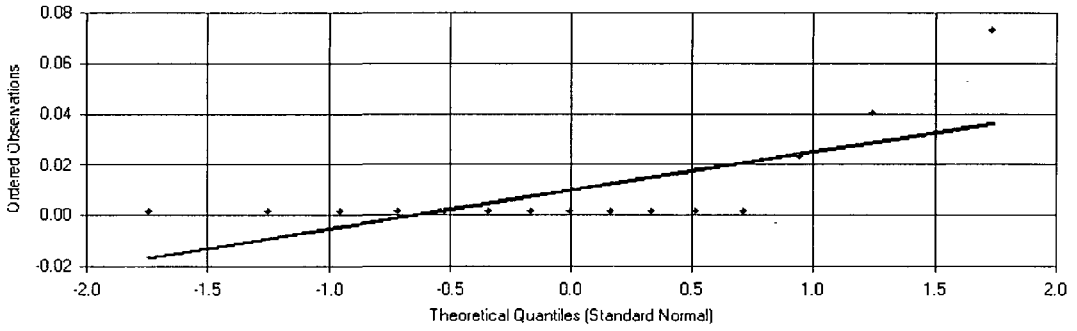
Summary Statistics for	Thallium
Number of Samples	13
Minimum	0.5
Maximum	1.5
Mean	0.648077
Median	0.6
Standard Deviation	0.257888
Variance	0.066506
Coefficient of Variation	0.397929
Skewness	3.508781
95 % UCL (Assuming Normal Data)	
Student's-t	0.775556
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.8401
Modified-t	0.787157
95 % Non-parametric UCL	
CLT	0.765726
Jackknife	0.775556
Standard Bootstrap	0.76357
Bootstrap-t	1.40078
Chebyshev (Mean, Std)	0.959849

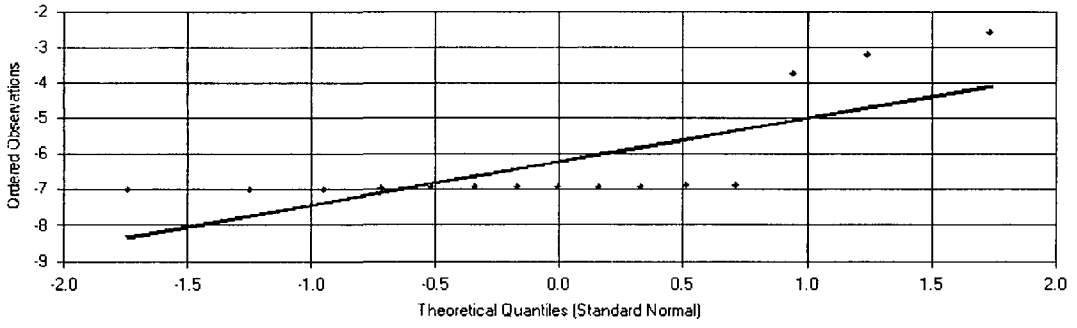
Summary Statistics for	ln(Thallium)
Minimum	-0.69315
Maximum	0.405465
Mean	-0.47772
Standard Deviation	0.271279
Variance	0.073592
Shapiro-Wilk Test Statisitic	0.490564
Shapiro-Wilk 5% Critical Value	0.866
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.643442
MLE Standard Deviation	0.177813
MLE Coefficient of Variation	0.276347
MLE Skewness	0.850146
MLE Median	0.620196
MLE 80% Quantile	0.779978
MLE 90% Quantile	0.878863
MLE 95% Quantile	0.969024
MLE 99% Quantile	1.165645
MVU Estimate of Median	0.618443
MVU Estimate of Mean	0.641571
MVU Estimate of Std. Dev.	0.175516
MVU Estimate of SE of Mean	0.048669
UCL Assuming Lognormal Distribution	
95% H-UCL	0.745933
95% Chebyshev (MVUE) UCL	0.853713
99% Chebyshev (MVUE) UCL	1.125819

Normal Q-Q Plot for Aldrin



N = 15, Mean = 0.0098, Stdv = 0.0207
Slope = 0.0153, Intercept = 0.0098, Correlation, R = 0.70350842
Shapiro-Wilk Statistic = 0.513, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Aldrin



N = 15, Mean = -6.2136, Stdv = 1.5737
Slope = 1.2153, Intercept = -6.2136, Correlation, R = 0.73747800
Shapiro-Wilk Statistic = 0.545, Critical Value(0.05) = 0.881, Data not Lognormal

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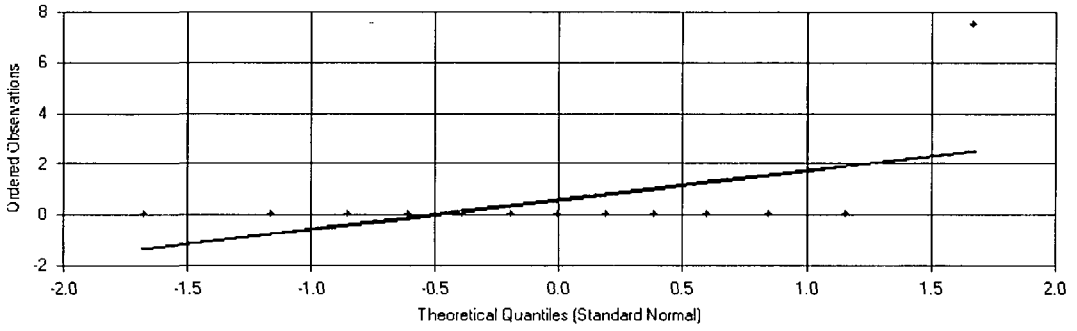
Summary Statistics for	Aldrin
Number of Samples	15
Minimum	0.0009
Maximum	0.073
Mean	0.009822
Median	0.00095
Standard Deviation	0.020739
Variance	0.00043
Coefficient of Variation	2.111598
Skewness	2.527383
95 % UCL (Assuming Normal Data)	
Student's-t	0.019253
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.022364
Modified-t	0.019836
95 % Non-parametric UCL	
CLT	0.01863
Jackknife	0.019253
Standard Bootstrap	0.018301
Bootstrap-t	0.036799
Chebyshev (Mean, Std)	0.033163
97.5 % Non-parametric UCL	
CLT	0.020317
Jackknife	0.021307
Standard Bootstrap	0.019853
Bootstrap-t	5.0723
Chebyshev (Mean, Std)	0.043263

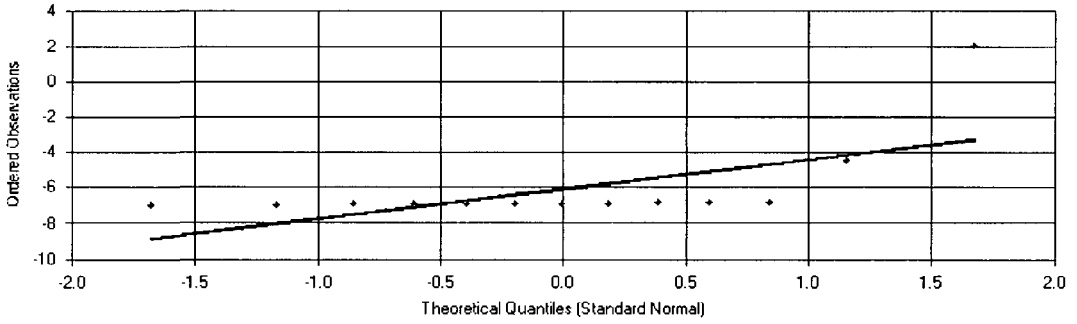
Summary Statistics for	ln(Aldrin)
Minimum	-7.01312
Maximum	-2.6173
Mean	-6.21355
Standard Deviation	1.573749
Variance	2.476687
Shapiro-Wilk Test Statisitic	0.54533
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.006907
MLE Standard Deviation	0.022806
MLE Coefficient of Variation	3.301783
MLE Skewness	45.90062
MLE Median	0.002002
MLE 80% Quantile	0.007569
MLE 90% Quantile	0.015127
MLE 95% Quantile	0.026656
MLE 99% Quantile	0.077847
MVU Estimate of Median	0.001843
MVU Estimate of Mean	0.005919
MVU Estimate of Std. Dev.	0.012229
MVU Estimate of SE of Mean	0.002754
UCL Assuming Lognormal Distribution	
95% H-UCL	0.033417
95% Chebyshev (MVUE) UCL	0.017926
99% Chebyshev (MVUE) UCL	0.033325

Normal Q-Q Plot for Chlordane - alpha



N = 13, Mean = 0.5786, Stdv = 2.0796
Slope = 1.1590, Intercept = 0.5786, Correlation, R = 0.52954969
Shapiro-Wilk Statistic = 0.312, Critical Value(0.05) = 0.866, Data not Normal

Lognormal Q-Q Plot for Chlordane - alpha



N = 13, Mean = -6.0789, Stdv = 2.5244
Slope = 1.6732, Intercept = -6.0789, Correlation, R = 0.62979023
Shapiro-Wilk Statistic = 0.425, Critical Value(0.05) = 0.866, Data not Lognormal

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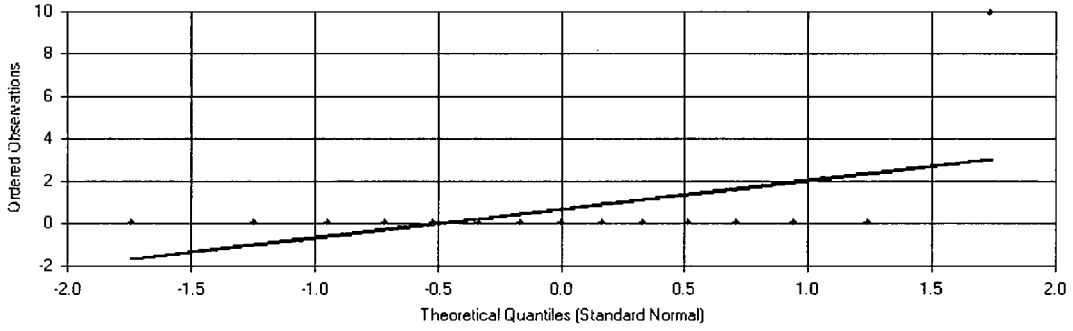
Summary Statistics for	Chlordane
Number of Samples	13
Minimum	0.0009
Maximum	7.5
Mean	0.578575
Median	0.00095
Standard Deviation	2.079631
Variance	4.324866
Coefficient of Variation	3.594402
Skewness	3.60554
95 % UCL (Assuming Normal Data)	
Student's-t	1.606573
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.143606
Modified-t	1.702704
95 % Non-parametric UCL	
CLT	1.527303
Jackknife	1.606573
Standard Bootstrap	1.472887
Bootstrap-t	36523.62
Chebyshev (Mean, Std)	3.092727
99 % Non-parametric UCL	
CLT	1.92038
Jackknife	2.124937
Standard Bootstrap	1.890484
Bootstrap-t	42017.44
Chebyshev (Mean, Std)	6.317523

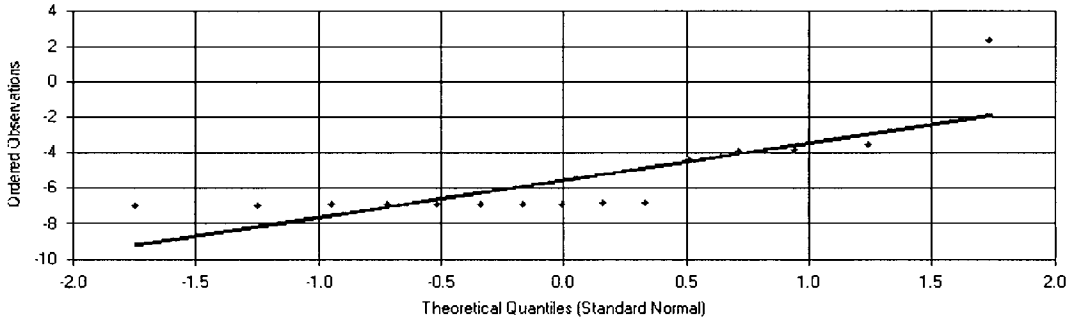
Summary Statistics for	ln(Chlordane - alpha)
Minimum	-7.01312
Maximum	2.014903
Mean	-6.07888
Standard Deviation	2.524442
Variance	6.372807
Shapiro-Wilk Test Statisitic	0.425396
Shapiro-Wilk 5% Critical Value	0.866
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.055439
MLE Standard Deviation	1.340542
MLE Coefficient of Variation	24.18056
MLE Skewness	14210.9
MLE Median	0.002291
MLE 80% Quantile	0.019337
MLE 90% Quantile	0.05872
MLE 95% Quantile	0.145705
MLE 99% Quantile	0.812998
MVU Estimate of Median	0.001785
MVU Estimate of Mean	0.028271
MVU Estimate of Std. Dev.	0.115415
MVU Estimate of SE of Mean	0.021044
UCL Assuming Lognormal Distribution	
95% H-UCL	4.234739
95% Chebyshev (MVUE) UCL	0.12
99% Chebyshev (MVUE) UCL	0.237656

Normal Q-Q Plot for Chlordane - gamma (technical mixture)



N = 15, Mean = 0.6659, Stdv = 2.5546
Slope = 1.3540, Intercept = 0.6659, Correlation, R = 0.50618753
Shapiro-Wilk Statistic = 0.287, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Chlordane - gamma (technical mixture)



N = 15, Mean = -5.5454, Stdv = 2.5610
Slope = 2.1024, Intercept = -5.5454, Correlation, R = 0.78398115
Shapiro-Wilk Statistic = 0.630, Critical Value(0.05) = 0.881, Data not Lognormal

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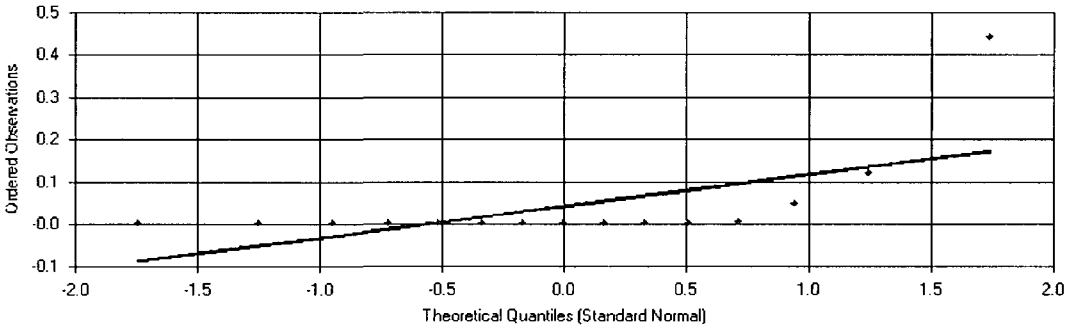
Summary Statistics for	Chlordane
Number of Samples	15
Minimum	0.0009
Maximum	9.9
Mean	0.665899
Median	0.00096
Standard Deviation	2.554553
Variance	6.52574
Coefficient of Variation	3.836247
Skewness	3.872901
95 % UCL (Assuming Normal Data)	
Student's-t	1.827629
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.455575
Modified-t	1.937557
95 % Non-parametric UCL	
CLT	1.750816
Jackknife	1.827629
Standard Bootstrap	1.705385
Bootstrap-t	241.7655
Chebyshev (Mean, Std)	3.540953
99 % Non-parametric UCL	
CLT	2.200318
Jackknife	2.396968
Standard Bootstrap	2.101031
Bootstrap-t	364.3145
Chebyshev (Mean, Std)	7.228664

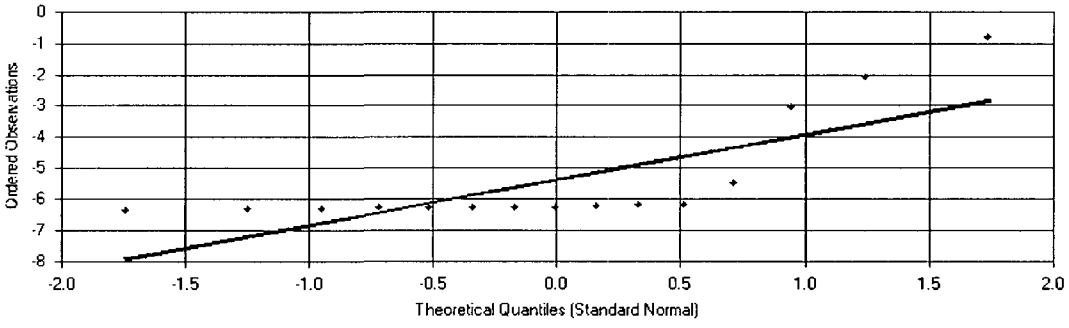
Summary Statistics for	ln(Chlordane - gamma (technical mixture))
Minimum	-7.01312
Maximum	2.292535
Mean	-5.5454
Standard Deviation	2.560996
Variance	6.5587
Shapiro-Wilk Test Statisitic	0.630434
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.103721
MLE Standard Deviation	2.752721
MLE Coefficient of Variation	26.53967
MLE Skewness	18772.95
MLE Median	0.003905
MLE 80% Quantile	0.034001
MLE 90% Quantile	0.104924
MLE 95% Quantile	0.2638
MLE 99% Quantile	1.509043
MVU Estimate of Median	0.003129
MVU Estimate of Mean	0.055036
MVU Estimate of Std. Dev.	0.255128
MVU Estimate of SE of Mean	0.040499
UCL Assuming Lognormal Distribution	
95% H-UCL	5.059743
95% Chebyshev (MVUE) UCL	0.231566
99% Chebyshev (MVUE) UCL	0.457994

Normal Q-Q Plot for Dieldrin



N = 15, Mean = 0.0421, Stdv = 0.1146
Slope = 0.0747, Intercept = 0.0421, Correlation, R = 0.62296125
Shapiro-Wilk Statistic = 0.416, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Dieldrin



N = 15, Mean = -5.3905, Stdv = 1.8170
Slope = 1.4525, Intercept = -5.3905, Correlation, R = 0.76867406
Shapiro-Wilk Statistic = 0.596, Critical Value(0.05) = 0.881, Data not Lognormal

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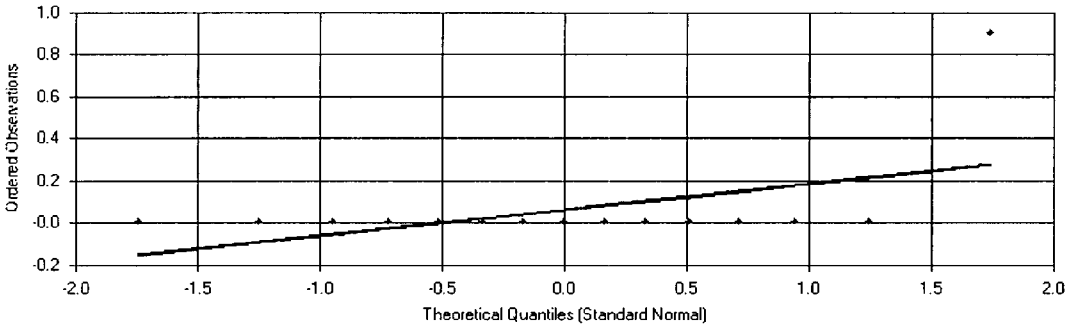
Summary Statistics for	Dieldrin
Number of Samples	15
Minimum	0.0017
Maximum	0.44
Mean	0.042077
Median	0.00185
Standard Deviation	0.11455
Variance	0.013122
Coefficient of Variation	2.722422
Skewness	3.438446
95 % UCL (Assuming Normal Data)	
Student's-t	0.094171
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.118784
Modified-t	0.098547
95 % Non-parametric UCL	
CLT	0.090726
Jackknife	0.094171
Standard Bootstrap	0.089047
Bootstrap-t	0.407754
Chebyshev (Mean, Std)	0.170999
97.5 % Non-parametric UCL	
CLT	0.100046
Jackknife	0.105513
Standard Bootstrap	0.096865
Bootstrap-t	8.009741
Chebyshev (Mean, Std)	0.226784

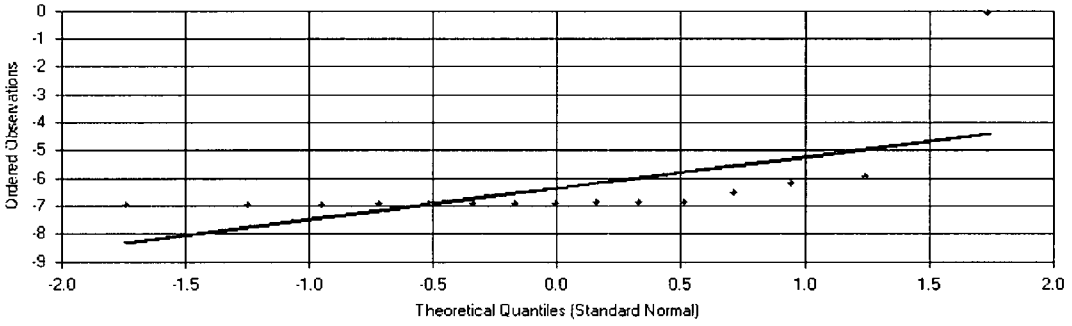
Summary Statistics for	ln(Dieldrin)
Minimum	-6.37713
Maximum	-0.82098
Mean	-5.39047
Standard Deviation	1.816992
Variance	3.301461
Shapiro-Wilk Test Statisitic	0.595581
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.02376
MLE Standard Deviation	0.121508
MLE Coefficient of Variation	5.113931
MLE Skewness	149.0828
MLE Median	0.00456
MLE 80% Quantile	0.021171
MLE 90% Quantile	0.047093
MLE 95% Quantile	0.09058
MLE 99% Quantile	0.312188
MVU Estimate of Median	0.004081
MVU Estimate of Mean	0.018839
MVU Estimate of Std. Dev.	0.048402
MVU Estimate of SE of Mean	0.010179
UCL Assuming Lognormal Distribution	
95% H-UCL	0.183457
95% Chebyshev (MVUE) UCL	0.063209
99% Chebyshev (MVUE) UCL	0.120121

Normal Q-Q Plot for Heptachlor Epoxide



N = 15, Mean = 0.0611, Stdv = 0.2321
Slope = 0.1228, Intercept = 0.0611, Correlation, R = 0.50514643
Shapiro-Wilk Statistic = 0.285, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Heptachlor Epoxide



N = 15, Mean = -6.3583, Stdv = 1.7585
Slope = 1.1273, Intercept = -6.3583, Correlation, R = 0.61223837
Shapiro-Wilk Statistic = 0.405, Critical Value(0.05) = 0.881, Data not Lognormal

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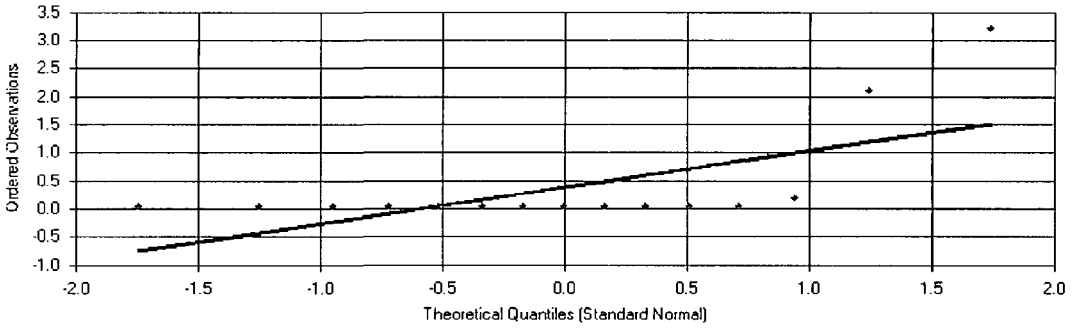
Summary Statistics for	Heptachlor
Number of Samples	15
Minimum	0.0009
Maximum	0.9
Mean	0.061098
Median	0.00095
Standard Deviation	0.232076
Variance	0.053859
Coefficient of Variation	3.798396
Skewness	3.872954
95 % UCL (Assuming Normal Data)	
Student's-t	0.166639
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.223687
Modified-t	0.176626
95 % Non-parametric UCL	
CLT	0.159661
Jackknife	0.166639
Standard Bootstrap	0.156089
Bootstrap-t	49.38203
Chebyshev (Mean, Std)	0.322291
97.5 % Non-parametric UCL	
CLT	0.178543
Jackknife	0.189618
Standard Bootstrap	0.179097
Bootstrap-t	86.80792
Chebyshev (Mean, Std)	0.435309

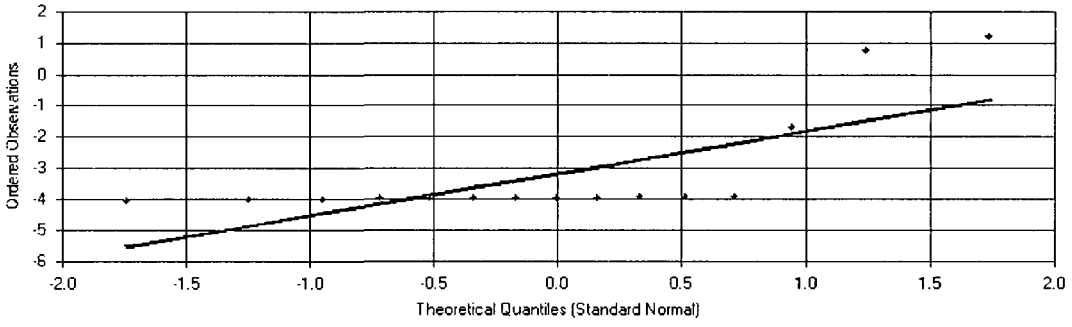
Summary Statistics for	ln(Heptachlor Epoxide)
Minimum	-7.01312
Maximum	-0.10536
Mean	-6.35826
Standard Deviation	1.758481
Variance	3.092254
Shapiro-Wilk Test Statisitic	0.404972
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.00813
MLE Standard Deviation	0.037282
MLE Coefficient of Variation	4.585485
MLE Skewness	110.174
MLE Median	0.001732
MLE 80% Quantile	0.007655
MLE 90% Quantile	0.016596
MLE 95% Quantile	0.031255
MLE 99% Quantile	0.103515
MVU Estimate of Median	0.001562
MVU Estimate of Mean	0.006582
MVU Estimate of Std. Dev.	0.016069
MVU Estimate of SE of Mean	0.00344
UCL Assuming Lognormal Distribution	
95% H-UCL	0.055767
95% Chebyshev (MVUE) UCL	0.021576
99% Chebyshev (MVUE) UCL	0.040809

Normal Q-Q Plot for Pcb-araclor 1254



N = 15, Mean = 0.3797, Stdv = 0.9458
Slope = 0.6485, Intercept = 0.3797, Correlation, R = 0.65483680
Shapiro-Wilk Statistic = 0.448, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Pcb-araclor 1254



N = 15, Mean = -3.1891, Stdv = 1.7807
Slope = 1.3593, Intercept = -3.1891, Correlation, R = 0.72898942
Shapiro-Wilk Statistic = 0.537, Critical Value(0.05) = 0.881, Data not Lognormal

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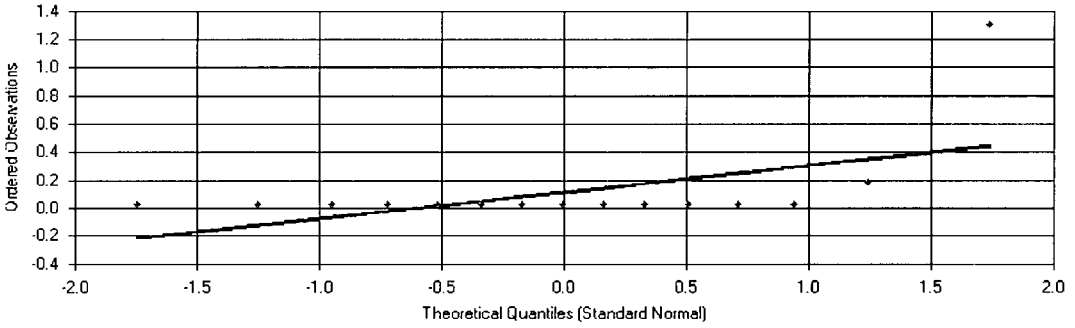
Summary Statistics for	Pcb-aracloı
Number of Samples	15
Minimum	0.017
Maximum	3.2
Mean	0.379667
Median	0.0185
Standard Deviation	0.94576
Variance	0.894462
Coefficient of Variation	2.491027
Skewness	2.625687
95 % UCL (Assuming Normal Data)	
Student's-t	0.809768
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.958224
Modified-t	0.83736
95 % Non-parametric UCL	
CLT	0.78133
Jackknife	0.809768
Standard Bootstrap	0.75591
Bootstrap-t	8.581254
Chebyshev (Mean, Std)	1.444084
97.5 % Non-parametric UCL	
CLT	0.858278
Jackknife	0.903411
Standard Bootstrap	0.845945
Bootstrap-t	428.0666
Chebyshev (Mean, Std)	1.904659

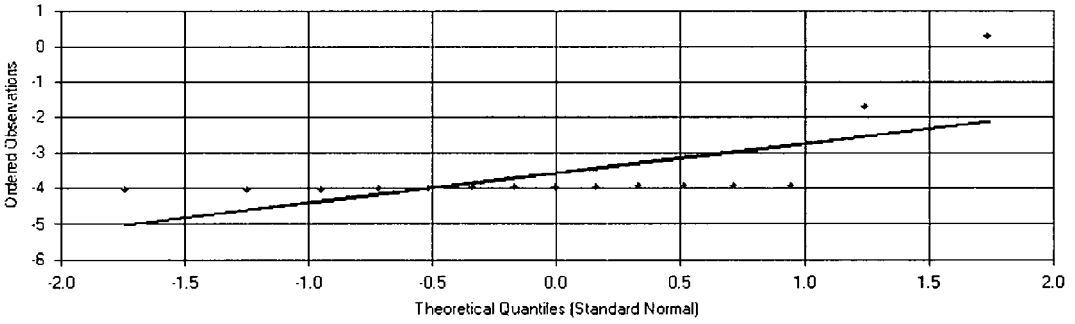
Summary Statistics for	ln(Pcb-araclor 1254)
Minimum	-4.07454
Maximum	1.163151
Mean	-3.18908
Standard Deviation	1.780738
Variance	3.171027
Shapiro-Wilk Test Statisitic	0.537057
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.201177
MLE Standard Deviation	0.961281
MLE Coefficient of Variation	4.778279
MLE Skewness	123.4323
MLE Median	0.04121
MLE 80% Quantile	0.185563
MLE 90% Quantile	0.406231
MLE 95% Quantile	0.77123
MLE 99% Quantile	2.593255
MVU Estimate of Median	0.03705
MVU Estimate of Mean	0.161602
MVU Estimate of Std. Dev.	0.402318
MVU Estimate of SE of Mean	0.085553
UCL Assuming Lognormal Distribution	
95% H-UCL	1.442782
95% Chebyshev (MVUE) UCL	0.534517
99% Chebyshev (MVUE) UCL	1.012839

Normal Q-Q Plot for Pcb-araclor 1260



N = 15, Mean = 0.1143, Stdv = 0.3305
Slope = 0.1904, Intercept = 0.1143, Correlation, R = 0.55024702
Shapiro-Wilk Statistic = 0.333, Critical Value(0.05) = 0.881, Data not Normal

Lognormal Q-Q Plot for Pcb-araclor 1260



N = 15, Mean = -3.5628, Stdv = 1.2076
Slope = 0.8307, Intercept = -3.5628, Correlation, R = 0.65693711
Shapiro-Wilk Statistic = 0.455, Critical Value(0.05) = 0.881, Data not Lognormal

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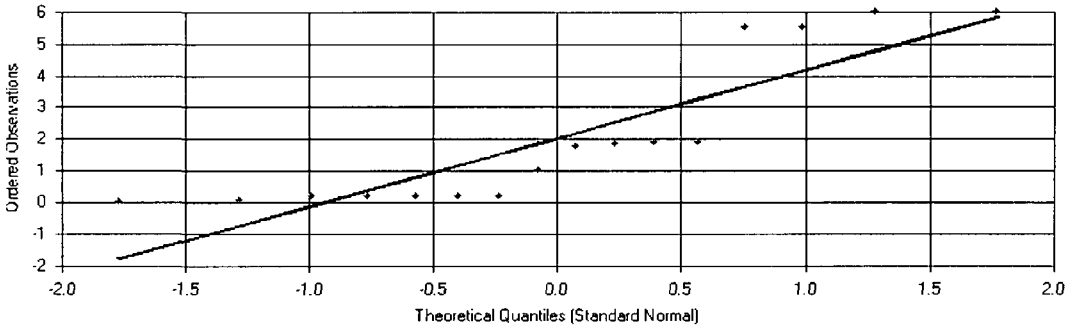
Summary Statistics for	Pcb-araclo
Number of Samples	15
Minimum	0.017
Maximum	1.3
Mean	0.114267
Median	0.0185
Standard Deviation	0.330495
Variance	0.109227
Coefficient of Variation	2.892309
Skewness	3.780513
95 % UCL (Assuming Normal Data)	
Student's-t	0.264565
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.34363
Modified-t	0.278448
95 % Non-parametric UCL	
CLT	0.254627
Jackknife	0.264565
Standard Bootstrap	0.248963
Bootstrap-t	44.31537
Chebyshev (Mean, Std)	0.486226
97.5 % Non-parametric UCL	
CLT	0.281517
Jackknife	0.297288
Standard Bootstrap	0.274129
Bootstrap-t	50.10562
Chebyshev (Mean, Std)	0.647173

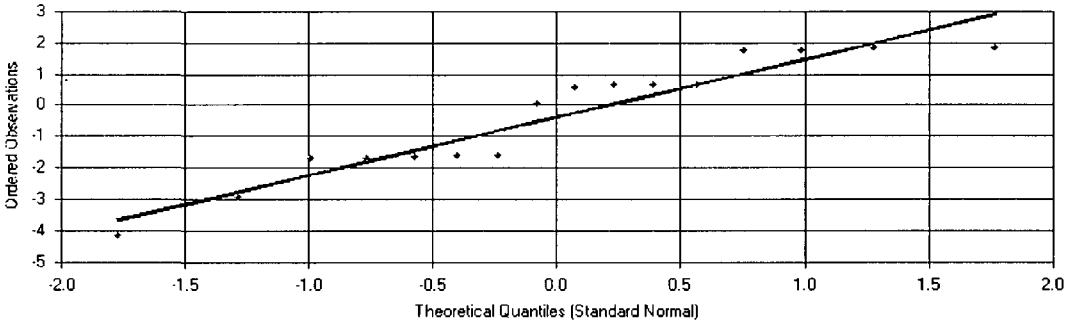
Summary Statistics for	ln(Pcb-araclor 1260)
Minimum	-4.07454
Maximum	0.262364
Mean	-3.56282
Standard Deviation	1.207603
Variance	1.458305
Shapiro-Wilk Test Statisitic	0.454577
Shapiro-Wilk 5% Critical Value	0.881
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.058797
MLE Standard Deviation	0.106788
MLE Coefficient of Variation	1.816224
MLE Skewness	11.43979
MLE Median	0.028359
MLE 80% Quantile	0.078678
MLE 90% Quantile	0.133848
MLE 95% Quantile	0.206736
MLE 99% Quantile	0.470512
MVU Estimate of Median	0.027009
MVU Estimate of Mean	0.05455
MVU Estimate of Std. Dev.	0.078144
MVU Estimate of SE of Mean	0.018992
UCL Assuming Lognormal Distribution	
95% H-UCL	0.15933
95% Chebyshev (MVUE) UCL	0.137335
99% Chebyshev (MVUE) UCL	0.243521

Normal Q-Q Plot for Acetophenone



N = 16, Mean = 2.0242, Stdv = 2.3355
Slope = 2.1562, Intercept = 2.0242, Correlation, R = 0.88354235
Shapiro-Wilk Statistic = 0.761, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Acetophenone



N = 16, Mean = -0.3857, Stdv = 1.8635
Slope = 1.8566, Intercept = -0.3857, Correlation, R = 0.95349532
Shapiro-Wilk Statistic = 0.898, Critical Value(0.05) = 0.887, Data are Lognormal

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Summary Statistics for	Acetophen
Number of Samples	16
Minimum	0.015
Maximum	6
Mean	2.024188
Median	1.375
Standard Deviation	2.335523
Variance	5.454668
Coefficient of Variation	1.153808
Skewness	0.966669

95 % UCL (Assuming Normal Data)	
Student's-t	3.04776

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.135358
Modified-t	3.071277

95 % Non-parametric UCL	
CLT	2.984586
Jackknife	3.04776
Standard Bootstrap	2.952089
Bootstrap-t	3.227145
Chebyshev (Mean, Std)	4.569265

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	7.833728

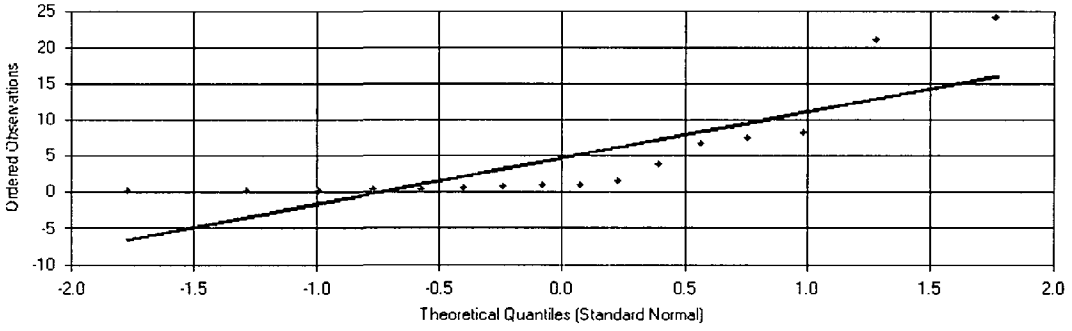
Summary Statistics for	ln(Acetophenone)
Minimum	-4.19971
Maximum	1.791759
Mean	-0.38571
Standard Deviation	1.863486
Variance	3.472581
Shapiro-Wilk Test Statisitic	0.897683
Shapiro-Wilk 5% Critical Value	0.887
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	3.859675
MLE Standard Deviation	21.56581
MLE Coefficient of Variation	5.587468
MLE Skewness	191.2021
MLE Median	0.679969
MLE 80% Quantile	3.283593
MLE 90% Quantile	7.454906
MLE 95% Quantile	14.58112
MLE 99% Quantile	51.87109
MVU Estimate of Median	0.609614
MVU Estimate of Mean	3.046044
MVU Estimate of Std. Dev.	8.354831
MVU Estimate of SE of Mean	1.659349

UCL Assuming Lognormal Distribution	
95% H-UCL	29.59385
95% Chebyshev (MVUE) UCL	10.27898
99% Chebyshev (MVUE) UCL	19.55636

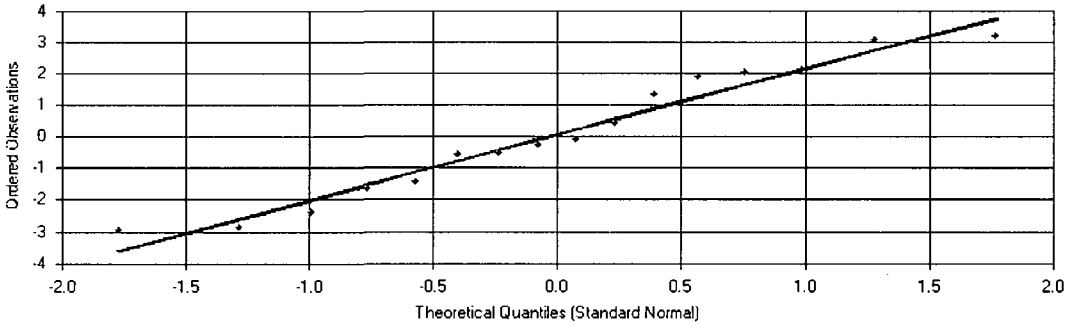
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(a)anthracene



N = 16, Mean = 4.7311, Stdv = 7.4878
Slope = 6.3862, Intercept = 4.7311, Correlation, R = 0.81620929
Shapiro-Wilk Statistic = 0.669, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Benzo(a)anthracene



N = 16, Mean = 0.0619, Stdv = 2.0282
Slope = 2.0821, Intercept = 0.0619, Correlation, R = 0.98245627
Shapiro-Wilk Statistic = 0.946, Critical Value(0.05) = 0.887, Data are Lognormal

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Summary Statistics for	Benzo(a)ar
Number of Samples	16
Minimum	0.052
Maximum	24
Mean	4.731125
Median	0.83
Standard Deviation	7.487821
Variance	56.06746
Coefficient of Variation	1.582672
Skewness	1.948624

95 % UCL (Assuming Normal Data)	
Student's-t	8.012756

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	8.784632
Modified-t	8.164745

95 % Non-parametric UCL	
CLT	7.810217
Jackknife	8.012756
Standard Bootstrap	7.646337
Bootstrap-t	12.30957
Chebyshev (Mean, Std)	12.89079

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	23.35684

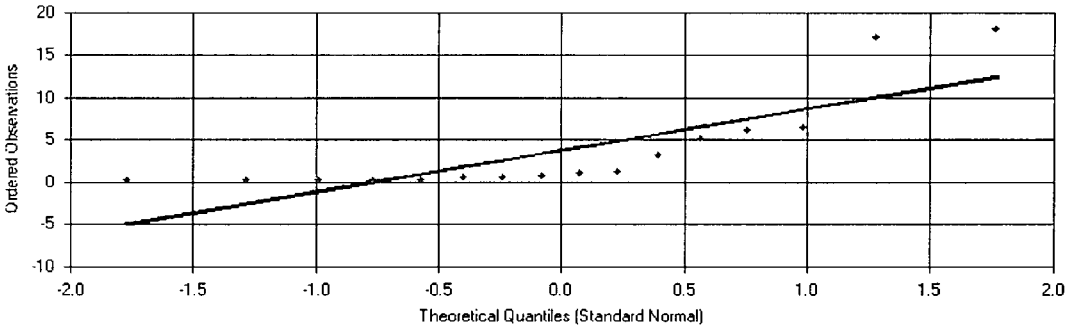
Summary Statistics for	ln(Benzo(a)anthracene)
Minimum	-2.95651
Maximum	3.178054
Mean	0.061907
Standard Deviation	2.02819
Variance	4.113556
Shapiro-Wilk Test Statisitic	0.945598
Shapiro-Wilk 5% Critical Value	0.887
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	8.320186
MLE Standard Deviation	64.53581
MLE Coefficient of Variation	7.756535
MLE Skewness	489.9325
MLE Median	1.063863
MLE 80% Quantile	5.904575
MLE 90% Quantile	14.41301
MLE 95% Quantile	29.9126
MLE 99% Quantile	119.0421
MVU Estimate of Median	0.934604
MVU Estimate of Mean	6.144771
MVU Estimate of Std. Dev.	19.43316
MVU Estimate of SE of Mean	3.641274

UCL Assuming Lognormal Distribution	
95% H-UCL	90.02105
95% Chebyshev (MVUE) UCL	22.01672
99% Chebyshev (MVUE) UCL	42.37499

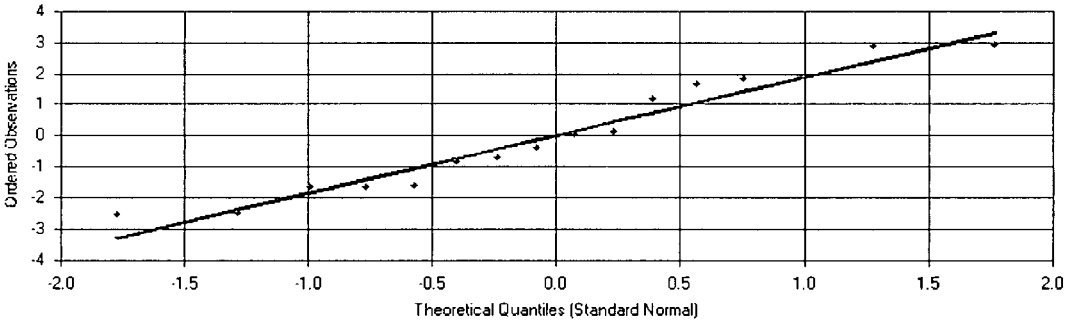
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(a)pyrene



N = 16, Mean = 3.7450, Stdv = 5.7946
Slope = 4.9444, Intercept = 3.7450, Correlation, R = 0.81658482
Shapiro-Wilk Statistic = 0.667, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Benzo(a)pyrene



N = 16, Mean = 0.0027, Stdv = 1.8256
Slope = 1.8640, Intercept = 0.0027, Correlation, R = 0.97712494
Shapiro-Wilk Statistic = 0.935, Critical Value(0.05) = 0.887, Data are Lognormal

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Summary Statistics for	Benzo(a)py
Number of Samples	16
Minimum	0.075
Maximum	18
Mean	3.745
Median	0.82
Standard Deviation	5.794621
Variance	33.57763
Coefficient of Variation	1.547295
Skewness	1.911981

95 % UCL (Assuming Normal Data)	
Student's-t	6.284565

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6.867719
Modified-t	6.399974

95 % Non-parametric UCL	
CLT	6.127826
Jackknife	6.284565
Standard Bootstrap	6.105668
Bootstrap-t	9.358865
Chebyshev (Mean, Std)	10.05954

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	18.15894

Summary Statistics for	ln(Benzo(a)pyrene)
Minimum	-2.59027
Maximum	2.890372
Mean	0.002692
Standard Deviation	1.825635
Variance	3.332943
Shapiro-Wilk Test Statisitic	0.935113
Shapiro-Wilk 5% Critical Value	0.887

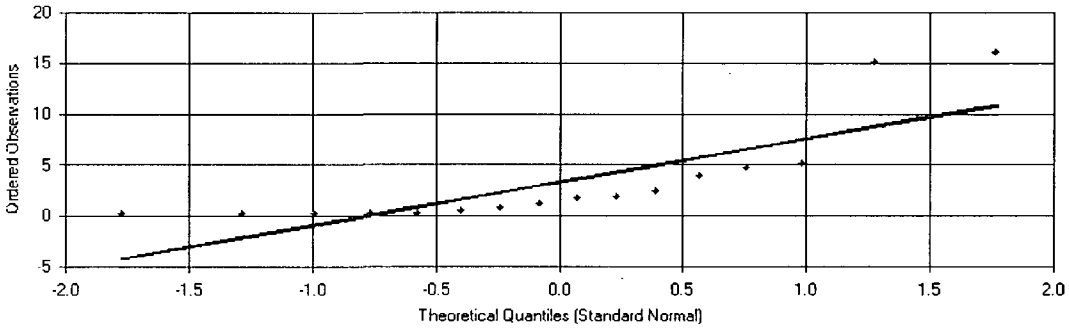
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	5.307724
MLE Standard Deviation	27.5903
MLE Coefficient of Variation	5.198141
MLE Skewness	156.0517
MLE Median	1.002695
MLE 80% Quantile	4.689628
MLE 90% Quantile	10.47124
MLE 95% Quantile	20.20361
MLE 99% Quantile	70.04364
MVU Estimate of Median	0.90293
MVU Estimate of Mean	4.246455
MVU Estimate of Std. Dev.	11.26349
MVU Estimate of SE of Mean	2.265275

UCL Assuming Lognormal Distribution	
95% H-UCL	37.7561
95% Chebyshev (MVUE) UCL	14.12056
99% Chebyshev (MVUE) UCL	26.78566

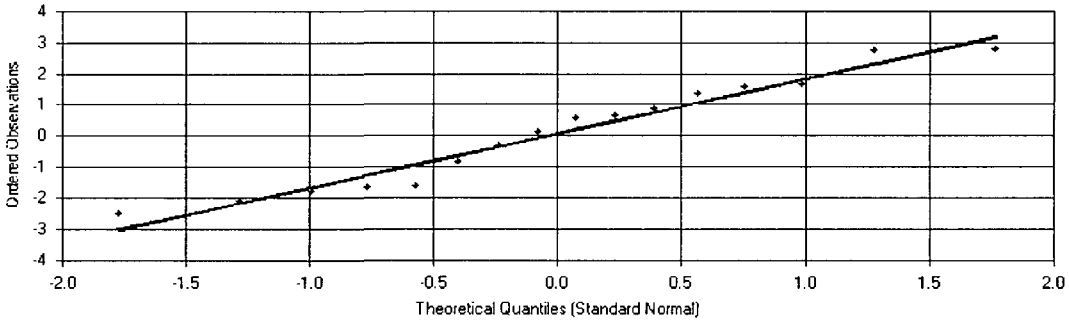
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(b)fluoranthene



N = 16, Mean = 3.3354, Stdv = 5.0242
Slope = 4.2662, Intercept = 3.3354, Correlation, R = 0.81261845
Shapiro-Wilk Statistic = 0.663, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Benzo(b)fluoranthene



N = 16, Mean = 0.0651, Stdv = 1.7075
Slope = 1.7501, Intercept = 0.0651, Correlation, R = 0.98089318
Shapiro-Wilk Statistic = 0.944, Critical Value(0.05) = 0.887, Data are Lognormal

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Summary Statistics for	Benzo(b)flu
Number of Samples	16
Minimum	0.081
Maximum	16
Mean	3.335375
Median	1.4
Standard Deviation	5.024216
Variance	25.24274
Coefficient of Variation	1.506342
Skewness	2.043313

95 % UCL (Assuming Normal Data)	
Student's-t	5.537301

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6.086989
Modified-t	5.644239

95 % Non-parametric UCL	
CLT	5.4014
Jackknife	5.537301
Standard Bootstrap	5.3447
Bootstrap-t	9.063155
Chebyshev (Mean, Std)	8.810387

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	15.83295

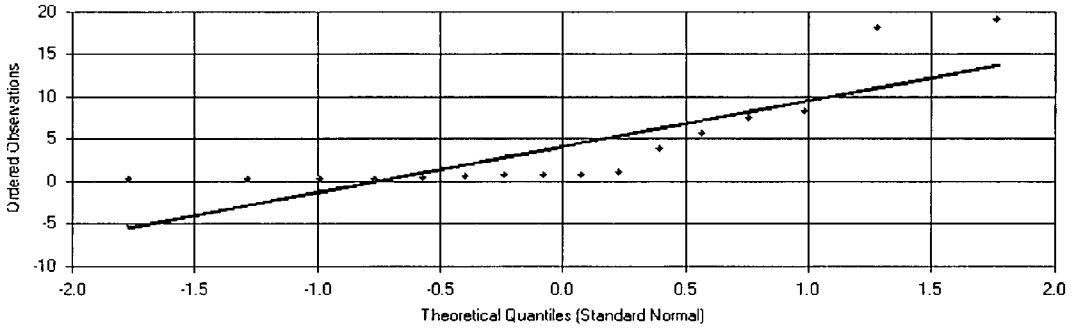
Summary Statistics for	ln(Benzo(b)fluoranthene)
Minimum	-2.51331
Maximum	2.772589
Mean	0.065106
Standard Deviation	1.707451
Variance	2.915389
Shapiro-Wilk Test Statisitic	0.944481
Shapiro-Wilk 5% Critical Value	0.887
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	4.585047
MLE Standard Deviation	19.15649
MLE Coefficient of Variation	4.178036
MLE Skewness	85.46582
MLE Median	1.067272
MLE 80% Quantile	4.517244
MLE 90% Quantile	9.575239
MLE 95% Quantile	17.70528
MLE 99% Quantile	56.63555
MVU Estimate of Median	0.973853
MVU Estimate of Mean	3.814419
MVU Estimate of Std. Dev.	9.093041
MVU Estimate of SE of Mean	1.897741

UCL Assuming Lognormal Distribution	
95% H-UCL	26.05758
95% Chebyshev (MVUE) UCL	12.08648
99% Chebyshev (MVUE) UCL	22.69671

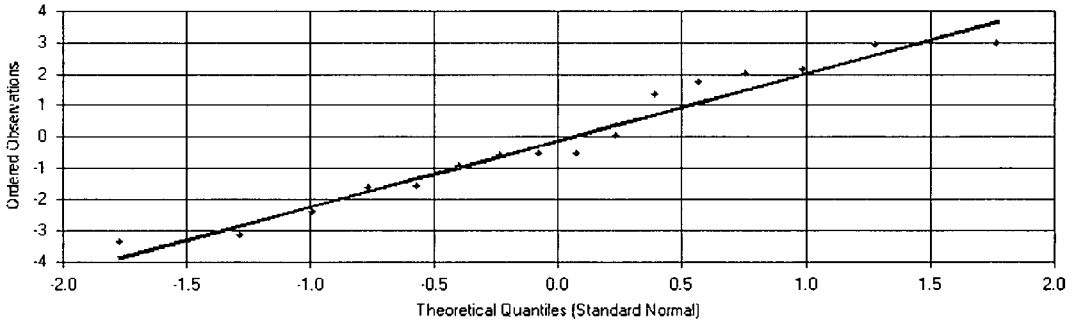
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(k)fluoranthene



N = 16, Mean = 4.0914, Stdv = 6.2465
Slope = 5.4232, Intercept = 4.0914, Correlation, R = 0.83087530
Shapiro-Wilk Statistic = 0.688, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Benzo(k)fluoranthene



N = 16, Mean = -0.1250, Stdv = 2.0770
Slope = 2.1255, Intercept = -0.1250, Correlation, R = 0.97938845
Shapiro-Wilk Statistic = 0.941, Critical Value(0.05) = 0.887, Data are Lognormal

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Summary Statistics for	Benzo(k)flu
Number of Samples	16
Minimum	0.033
Maximum	19
Mean	4.091438
Median	0.565
Standard Deviation	6.246464
Variance	39.01831
Coefficient of Variation	1.526716
Skewness	1.745147

95 % UCL (Assuming Normal Data)	
Student's-t	6.829028
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	7.388059
Modified-t	6.942581
95 % Non-parametric UCL	
CLT	6.660067
Jackknife	6.829028
Standard Bootstrap	6.583813
Bootstrap-t	9.185304
Chebyshev (Mean, Std)	10.89836
99 % Non-parametric UCL	
Chebyshev (Mean, Std)	19.62932

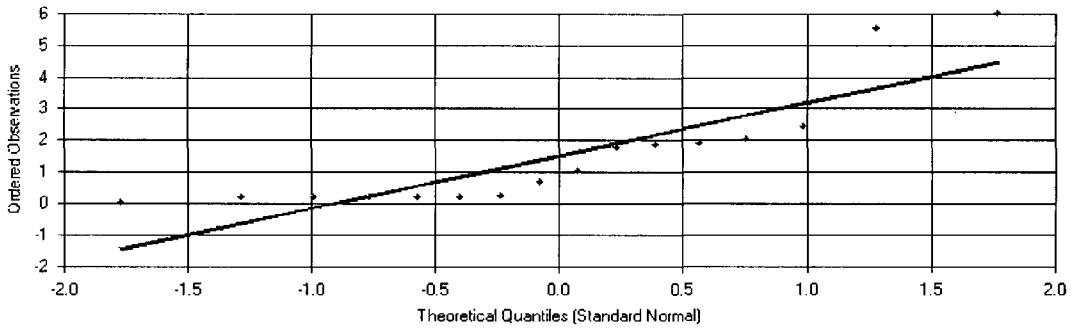
Summary Statistics for	ln(Benzo(k)fluoranthene)
Minimum	-3.41125
Maximum	2.944439
Mean	-0.125
Standard Deviation	2.076956
Variance	4.313746
Shapiro-Wilk Test Statisitic	0.940935
Shapiro-Wilk 5% Critical Value	0.887
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	7.628381
MLE Standard Deviation	65.4975
MLE Coefficient of Variation	8.586029
MLE Skewness	658.7191
MLE Median	0.882499
MLE 80% Quantile	5.10403
MLE 90% Quantile	12.7291
MLE 95% Quantile	26.88572
MLE 99% Quantile	110.6091
MVU Estimate of Median	0.770364
MVU Estimate of Mean	5.511832
MVU Estimate of Std. Dev.	18.16387
MVU Estimate of SE of Mean	3.341658

UCL Assuming Lognormal Distribution	
95% H-UCL	91.89308
95% Chebyshev (MVUE) UCL	20.07778
99% Chebyshev (MVUE) UCL	38.76091

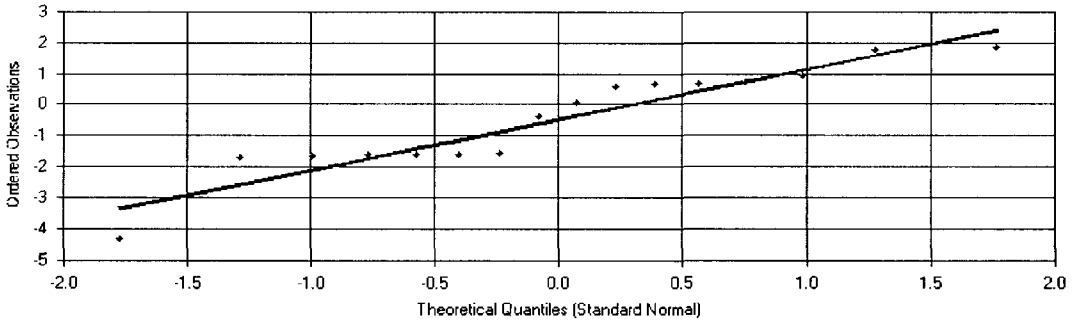
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Dibenzo(a,h)anthracene



N = 16, Mean = 1.5133, Stdv = 1.8462
Slope = 1.6741, Intercept = 1.5133, Correlation, R = 0.86783655
Shapiro-Wilk Statistic = 0.752, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Dibenzo(a,h)anthracene



N = 16, Mean = -0.4927, Stdv = 1.6402
Slope = 1.6264, Intercept = -0.4927, Correlation, R = 0.94898277
Shapiro-Wilk Statistic = 0.903, Critical Value(0.05) = 0.887, Data are Lognormal

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Summary Statistics for	Dibenzo(a,
Number of Samples	16
Minimum	0.013
Maximum	6
Mean	1.513313
Median	0.835
Standard Deviation	1.846174
Variance	3.408359
Coefficient of Variation	1.219956
Skewness	1.653186

95 % UCL (Assuming Normal Data)	
Student's-t	2.322421

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.476308
Modified-t	2.354214

95 % Non-parametric UCL	
CLT	2.272484
Jackknife	2.322421
Standard Bootstrap	2.2702
Bootstrap-t	3.016372
Chebyshev (Mean, Std)	3.525134

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	6.105613

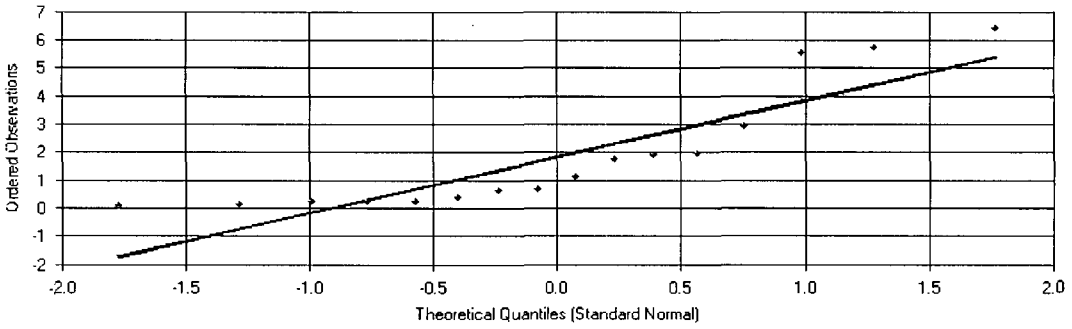
Summary Statistics for	ln(Dibenzo(a,h)anthracene)
Minimum	-4.34281
Maximum	1.791759
Mean	-0.49272
Standard Deviation	1.640177
Variance	2.690179
Shapiro-Wilk Test Statisitic	0.903123
Shapiro-Wilk 5% Critical Value	0.887
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	2.3452
MLE Standard Deviation	8.691275
MLE Coefficient of Variation	3.705984
MLE Skewness	62.01713
MLE Median	0.610963
MLE 80% Quantile	2.443008
MLE 90% Quantile	5.027425
MLE 95% Quantile	9.073622
MLE 99% Quantile	27.72493
MVU Estimate of Median	0.561464
MVU Estimate of Mean	1.990291
MVU Estimate of Std. Dev.	4.457882
MVU Estimate of SE of Mean	0.94876

UCL Assuming Lognormal Distribution	
95% H-UCL	11.80693
95% Chebyshev (MVUE) UCL	6.12584
99% Chebyshev (MVUE) UCL	11.43034

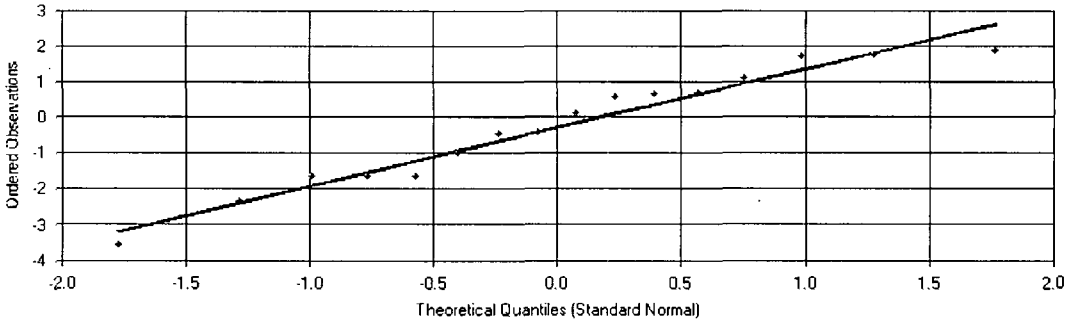
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 16, Mean = 1.8342, Stdv = 2.1671
Slope = 2.0108, Intercept = 1.8342, Correlation, R = 0.88802060
Shapiro-Wilk Statistic = 0.778, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 16, Mean = -0.2914, Stdv = 1.6013
Slope = 1.6404, Intercept = -0.2914, Correlation, R = 0.98039002
Shapiro-Wilk Statistic = 0.951, Critical Value(0.05) = 0.887, Data are Lognormal

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Summary Statistics for	Indeno(1,2.
Number of Samples	16
Minimum	0.028
Maximum	6.4
Mean	1.834188
Median	0.87
Standard Deviation	2.167056
Variance	4.69613
Coefficient of Variation	1.18148
Skewness	1.285846

95 % UCL (Assuming Normal Data)	
Student's-t	2.783927
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.911398
Modified-t	2.812953
95 % Non-parametric UCL	
CLT	2.72531
Jackknife	2.783927
Standard Bootstrap	2.701475
Bootstrap-t	3.198101
Chebyshev (Mean, Std)	4.195682
99 % Non-parametric UCL	
Chebyshev (Mean, Std)	7.22467

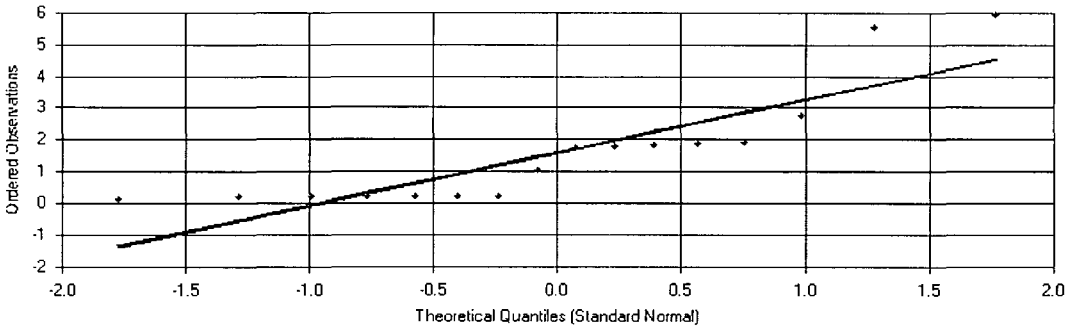
Summary Statistics for	ln(Indeno(1,2,3-cd)pyrene)
Minimum	-3.57555
Maximum	1.856298
Mean	-0.29137
Standard Deviation	1.601322
Variance	2.564231
Shapiro-Wilk Test Statisitic	0.951481
Shapiro-Wilk 5% Critical Value	0.887
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	2.693244
MLE Standard Deviation	9.326041
MLE Coefficient of Variation	3.462754
MLE Skewness	51.90899
MLE Median	0.74724
MLE 80% Quantile	2.89142
MLE 90% Quantile	5.849342
MLE 95% Quantile	10.4104
MLE 99% Quantile	30.97886
MVU Estimate of Median	0.689435
MVU Estimate of Mean	2.310431
MVU Estimate of Std. Dev.	4.989161
MVU Estimate of SE of Mean	1.073351

UCL Assuming Lognormal Distribution	
95% H-UCL	12.67093
95% Chebyshev (MVUE) UCL	6.989057
99% Chebyshev (MVUE) UCL	12.99013

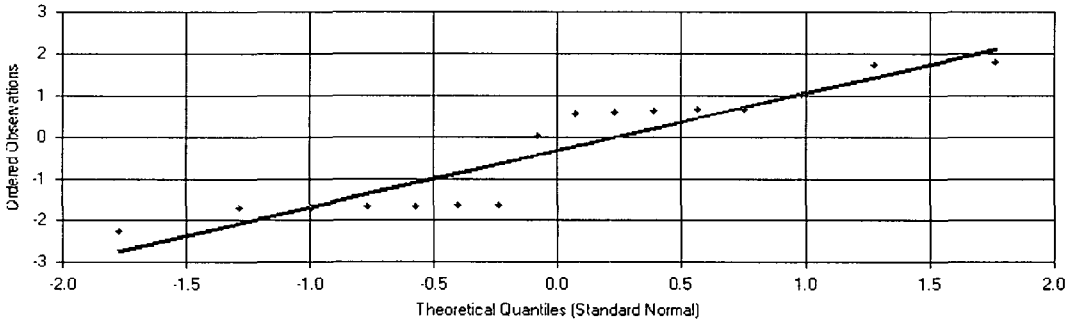
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Naphthalene



N = 16, Mean = 1.5813, Stdv = 1.8217
Slope = 1.6660, Intercept = 1.5813, Correlation, R = 0.87521780
Shapiro-Wilk Statistic = 0.763, Critical Value(0.05) = 0.887, Data not Normal

Lognormal Q-Q Plot for Naphthalene



N = 16, Mean = -0.3173, Stdv = 1.4083
Slope = 1.3735, Intercept = -0.3173, Correlation, R = 0.93332359
Shapiro-Wilk Statistic = 0.853, Critical Value(0.05) = 0.887, Data not Lognormal

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Summary Statistics for	Naphthaler
Number of Samples	16
Minimum	0.1
Maximum	5.9
Mean	1.58125
Median	1.35
Standard Deviation	1.821744
Variance	3.318752
Coefficient of Variation	1.152091
Skewness	1.541994
95 % UCL (Assuming Normal Data)	
Student's-t	2.379652
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.517975
Modified-t	2.408914
95 % Non-parametric UCL	
CLT	2.330376
Jackknife	2.379652
Standard Bootstrap	2.284383
Bootstrap-t	2.883623
Chebyshev (Mean, Std)	3.56645
97.5 % Non-parametric UCL	
CLT	2.473888
Jackknife	2.551989
Standard Bootstrap	2.425686
Bootstrap-t	3.300727
Chebyshev (Mean, Std)	4.425447

Summary Statistics for	ln(Naphthalene)
Minimum	-2.30259
Maximum	1.774952
Mean	-0.3173
Standard Deviation	1.408343
Variance	1.98343
Shapiro-Wilk Test Statisitic	0.85331
Shapiro-Wilk 5% Critical Value	0.887
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.962889
MLE Standard Deviation	4.914141
MLE Coefficient of Variation	2.503524
MLE Skewness	23.20174
MLE Median	0.728114
MLE 80% Quantile	2.393489
MLE 90% Quantile	4.447861
MLE 95% Quantile	7.384822
MLE 99% Quantile	19.26921
MVU Estimate of Median	0.684198
MVU Estimate of Mean	1.763456
MVU Estimate of Std. Dev.	3.153707
MVU Estimate of SE of Mean	0.711715
UCL Assuming Lognormal Distribution	
95% H-UCL	6.752094
95% Chebyshev (MVUE) UCL	4.86575
99% Chebyshev (MVUE) UCL	8.844933

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Surface Soil

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Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	14	3150	9000	5092.143	4570	1490.241	0.292655	1.516342	2220818
Arsenic	14	3.3	46.4	18.04643	16.35	12.56195	0.69609	0.95518	157.8025
Barium	14	62.4	5070	1405.314	721	1514.562	1.077739	1.344064	2293899
Cadmium	14	0.045	5.1	1.463571	0.9625	1.510152	1.031827	1.734896	2.280559
Chromium	14	9.8	189	35.26071	21.9	47.13794	1.33684	3.102296	2221.985
Copper	14	11.4	358	86.575	67.8	84.47665	0.975763	2.840256	7136.304
Iron	14	9820	27600	16387.14	15750	4959.328	0.302635	0.928558	24594930
Lead	14	34.6	1020	499.4714	465.5	342.12	0.684964	0.188949	117046.1
Manganese	14	103	488	175.2857	133	100.9535	0.575937	2.564086	10191.6
Mercury	13	0.21	1.5	0.613077	0.53	0.344731	0.562297	1.540465	0.11884
Benzo(a)anthracene	14	0.2	90	9.721429	1.825	23.64322	2.432073	3.477786	559.0021
Benzo(a)pyrene	14	0.2	68	7.975714	1.75	17.98157	2.25454	3.312189	323.3368
Benzo(b)fluoranthene	14	0.27	67	7.932143	1.65	17.71757	2.233642	3.300078	313.9122
Benzo(k)fluoranthene	14	0.21	77.5	8.536429	1.7	20.46061	2.396858	3.406606	418.6365
Carbazole	14	0.1	28.5	4.643214	1.4	8.49255	1.829024	2.387607	72.1234
Chrysene	14	0.27	90.5	9.849286	1.975	23.7408	2.410408	3.483157	563.6256
Dibenzo(a,h)anthracene	14	0.061	60	6.822571	0.95	16.10747	2.360909	3.223789	259.4507
Fluoranthene	14	0.31	225	20.70071	3.15	59.07493	2.853763	3.682779	3489.847
Indeno(1,2,3-cd)pyrene	14	0.13	27.5	4.492857	1.025	8.31401	1.850495	2.345605	69.12276
Phenanthrene	14	0.2	225	20.08714	1.975	59.20849	2.947582	3.692386	3505.645

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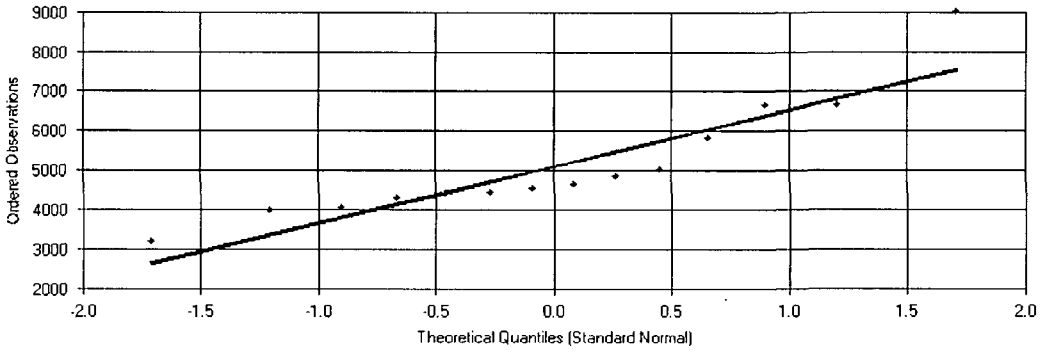
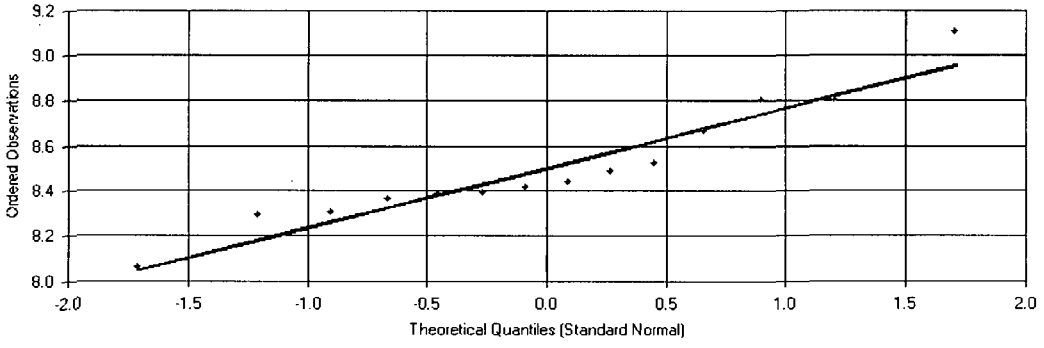
Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	14	8.055158	9.10498	8.500995	8.427209	0.264432	0.031106	0.804262	0.069924
Arsenic	14	1.193922	3.837299	2.640703	2.790807	0.779644	0.295241	-0.358216	0.607845
Barium	14	4.133565	8.531096	6.593619	6.575199	1.309629	0.198621	-0.288055	1.715128
Cadmium	14	-3.101093	1.629241	-0.118204	-0.038981	1.168823	-9.888177	-0.97346	1.366148
Chromium	14	2.282382	5.241747	3.156327	3.083097	0.794565	0.251737	1.607152	0.631333
Copper	14	2.433613	5.880533	4.151764	4.216552	0.81421	0.196112	-0.108167	0.662938
Iron	14	9.192176	10.22557	9.664163	9.66447	0.291266	0.030139	0.257578	0.084836
Lead	14	3.543854	6.927558	5.870903	6.129783	0.99758	0.169919	-1.001996	0.995165
Manganese	14	4.634729	6.190315	5.063552	4.889331	0.430598	0.085039	1.484611	0.185415
Mercury	13	-1.560648	0.405465	-0.617867	-0.634878	0.522721	-0.846008	0.188742	0.273237
Benzo(a)anthracene	14	-1.609438	4.49981	0.754318	0.601486	1.694575	2.246502	0.644017	2.871586
Benzo(a)pyrene	14	-1.609438	4.219508	0.669242	0.559207	1.649816	2.4652	0.619697	2.721893
Benzo(b)fluoranthene	14	-1.309333	4.204693	0.729	0.496626	1.567585	2.150323	0.810713	2.457323
Benzo(k)fluoranthene	14	-1.560648	4.350278	0.676048	0.528895	1.614124	2.387589	0.867593	2.605397
Carbazole	14	-2.302585	3.349904	0.36359	0.293893	1.547523	4.25623	0.455015	2.394827
Chrysene	14	-1.309333	4.50535	0.871722	0.678561	1.585912	1.819287	0.808063	2.515118
Dibenzo(a,h)anthracene	14	-2.796881	4.094345	0.347679	-0.051293	1.710581	4.919997	0.649954	2.926088
Fluoranthene	14	-1.171183	5.4161	1.21763	1.137093	1.760472	1.445819	0.846401	3.099262
Indeno(1,2,3-cd)pyrene	14	-2.040221	3.314186	0.282052	0.022008	1.553991	5.509591	0.650587	2.414887
Phenanthrene	14	-1.609438	5.4161	1.162342	0.678561	1.684374	1.44912	1.093995	2.837114

Normal Q-Q Plot for Aluminum



N = 14, Mean = 5092.1429, Stdv = 1490.2410
Slope = 1434.5790, Intercept = 5092.1429, Correlation, R = 0.91716051
Shapiro-Wilk Statistic = 0.857, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Aluminum



N = 14, Mean = 8.5010, Stdv = 0.2644
Slope = 0.2663, Intercept = 8.5010, Correlation, R = 0.95934895
Shapiro-Wilk Statistic = 0.933, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Aluminum
Number of Samples	14
Minimum	3150
Maximum	9000
Mean	5092.143
Median	4570
Standard Deviation	1490.241
Variance	2220818
Coefficient of Variation	0.292655
Skewness	1.516342

95 % UCL (Assuming Normal Data)	
Student's-t	5797.477

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	5919.728
Modified-t	5824.378

95 % Non-parametric UCL	
CLT	5747.261
Jackknife	5797.477
Standard Bootstrap	5711.893
Bootstrap-t	6136.289
Chebyshev (Mean, Std)	6828.221

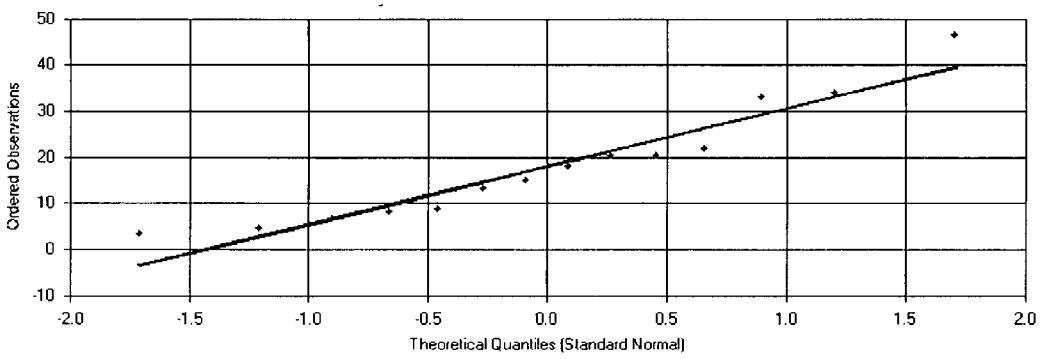
Summary Statistics for	ln(Aluminum)
Minimum	8.055158
Maximum	9.10498
Mean	8.500995
Standard Deviation	0.264432
Variance	0.069924
Shapiro-Wilk Test Statisitic	0.933497
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5094.707
MLE Standard Deviation	1371.098
MLE Coefficient of Variation	0.269122
MLE Skewness	0.826858
MLE Median	4919.664
MLE 80% Quantile	6151.432
MLE 90% Quantile	6910.45
MLE 95% Quantile	7600.622
MLE 99% Quantile	9100.305
MVU Estimate of Median	4907.391
MVU Estimate of Mean	5081.645
MVU Estimate of Std. Dev.	1355.349
MVU Estimate of SE of Mean	362.1566

UCL Assuming Lognormal Distribution	
95% H-UCL	5842.804
95% Chebyshev (MVUE) UCL	6660.249
99% Chebyshev (MVUE) UCL	8685.057

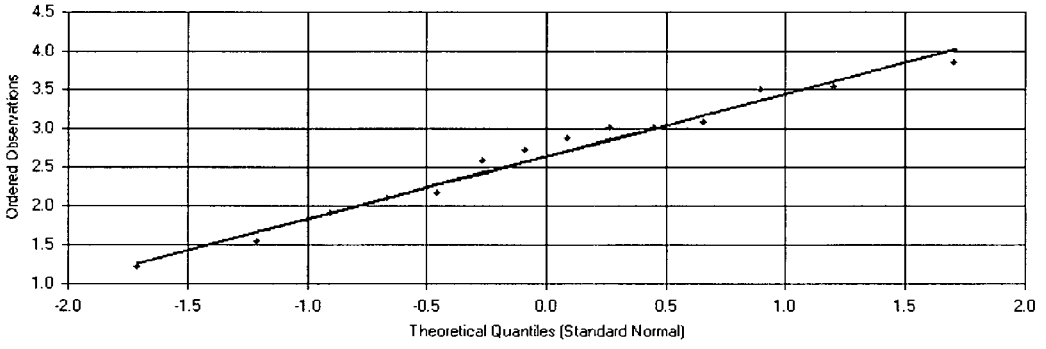
Recommended UCL to use:
Student's-t or H-UCL

Normal Q-Q Plot for Arsenic



N = 14, Mean = 18.0464, Stdv = 12.5619
Slope = 12.6298, Intercept = 18.0464, Correlation, R = 0.95789449
Shapiro-Wilk Statistic = 0.914, Critical Value(0.05) = 0.874, Data are Normal

Lognormal Q-Q Plot for Arsenic



N = 14, Mean = 2.6407, Stdv = 0.7796
Slope = 0.8081, Intercept = 2.6407, Correlation, R = 0.98747182
Shapiro-Wilk Statistic = 0.967, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Arsenic
Number of Samples	14
Minimum	3.3
Maximum	46.4
Mean	18.04643
Median	16.35
Standard Deviation	12.56195
Variance	157.8025
Coefficient of Variation	0.69609
Skewness	0.95518

95 % UCL (Assuming Normal Data)	
Student's-t	23.99202

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	24.48452
Modified-t	24.13486

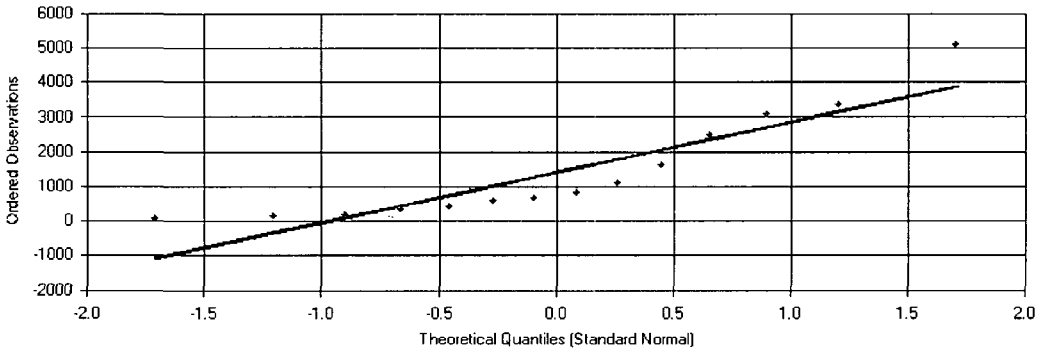
95 % Non-parametric UCL	
CLT	23.56873
Jackknife	23.99202
Standard Bootstrap	23.42115
Bootstrap-t	25.31761
Chebyshev (Mean, Std)	32.68065

Summary Statistics for	ln(Arsenic)
Minimum	1.193922
Maximum	3.837299
Mean	2.640703
Standard Deviation	0.779644
Variance	0.607845
Shapiro-Wilk Test Statisitic	0.967315
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	19.00354
MLE Standard Deviation	17.38039
MLE Coefficient of Variation	0.914587
MLE Skewness	3.508784
MLE Median	14.02306
MLE 80% Quantile	27.09915
MLE 90% Quantile	38.18893
MLE 95% Quantile	50.56287
MLE 99% Quantile	85.98346
MVU Estimate of Median	13.72149
MVU Estimate of Mean	18.50109
MVU Estimate of Std. Dev.	15.48689
MVU Estimate of SE of Mean	4.085811

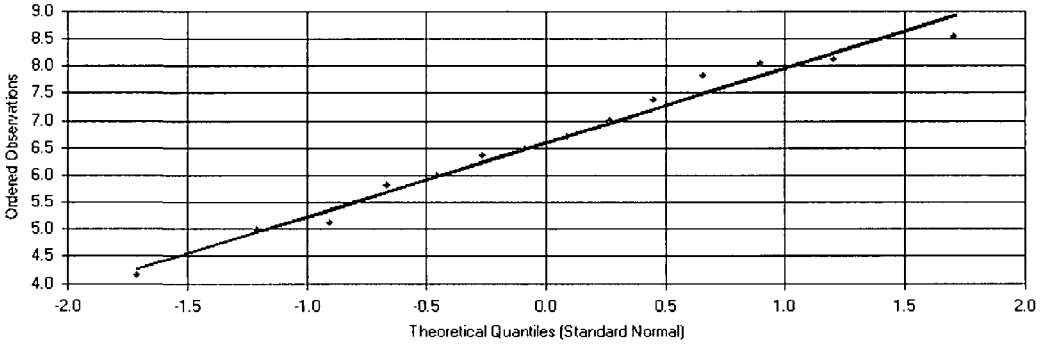
UCL Assuming Lognormal Distribution	
95% H-UCL	32.31445
95% Chebyshev (MVUE) UCL	36.31073
99% Chebyshev (MVUE) UCL	59.15439
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Barium



N = 14, Mean = 1405.3143, Stdv = 1514.5624
Slope = 1446.9047, Intercept = 1405.3143, Correlation, R = 0.91018596
Shapiro-Wilk Statistic = 0.827, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Barium



N = 14, Mean = 6.5936, Stdv = 1.3096
Slope = 1.3608, Intercept = 6.5936, Correlation, R = 0.98997513
Shapiro-Wilk Statistic = 0.971, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Barium
Number of Samples	14
Minimum	62.4
Maximum	5070
Mean	1405.314
Median	721
Standard Deviation	1514.562
Variance	2293899
Coefficient of Variation	1.077739
Skewness	1.344064

95 % UCL (Assuming Normal Data)	
Student's-t	2122.159

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2226.492
Modified-t	2146.394

95 % Non-parametric UCL	
CLT	2071.124
Jackknife	2122.159
Standard Bootstrap	2043.728
Bootstrap-t	2374.011
Chebyshev (Mean, Std)	3169.726

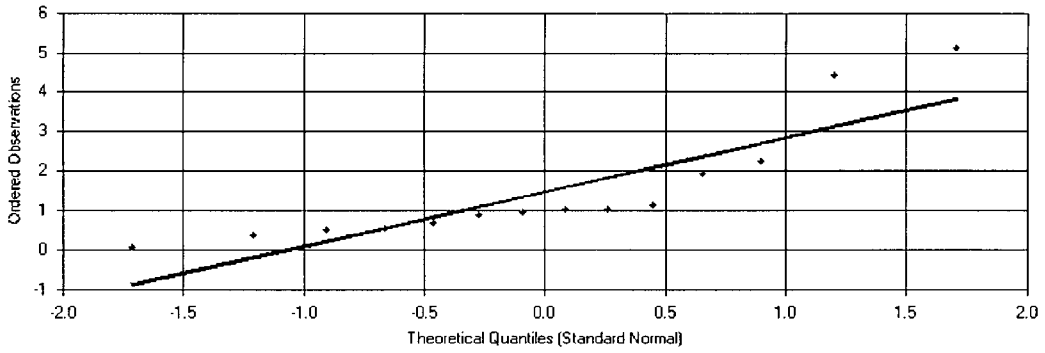
Summary Statistics for	ln(Barium)
Minimum	4.133565
Maximum	8.531096
Mean	6.593619
Standard Deviation	1.309629
Variance	1.715128
Shapiro-Wilk Test Statisitic	0.97067
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	1721.899
MLE Standard Deviation	3675.917
MLE Coefficient of Variation	2.134804
MLE Skewness	16.13354
MLE Median	730.4197
MLE 80% Quantile	2208.913
MLE 90% Quantile	3930.384
MLE 95% Quantile	6297.821
MLE 99% Quantile	15364.52
MVU Estimate of Median	686.8474
MVU Estimate of Mean	1559.644
MVU Estimate of Std. Dev.	2454.878
MVU Estimate of SE of Mean	608.9209

UCL Assuming Lognormal Distribution	
95% H-UCL	5807.937
95% Chebyshev (MVUE) UCL	4213.869
99% Chebyshev (MVUE) UCL	7618.331

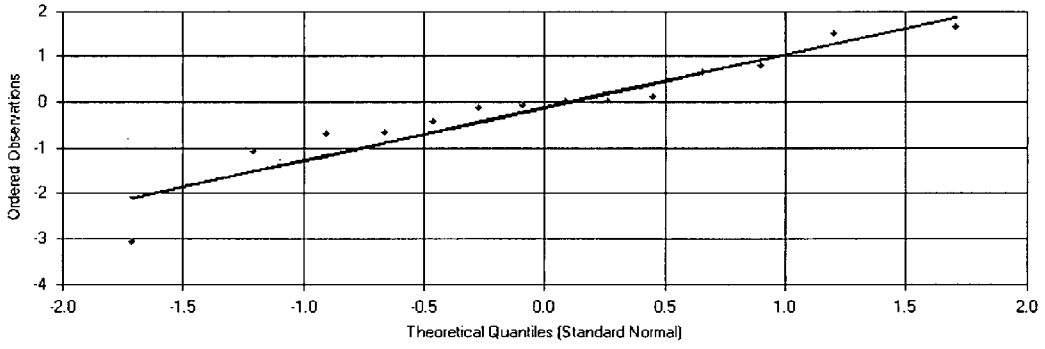
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Cadmium



N = 14, Mean = 1.4636, Stdv = 1.5102
Slope = 1.3774, Intercept = 1.4636, Correlation, R = 0.86898721
Shapiro-Wilk Statistic = 0.760, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Cadmium



N = 14, Mean = -0.1182, Stdv = 1.1688
Slope = 1.1632, Intercept = -0.1182, Correlation, R = 0.94813696
Shapiro-Wilk Statistic = 0.916, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Cadmium
Number of Samples	14
Minimum	0.045
Maximum	5.1
Mean	1.463571
Median	0.9625
Standard Deviation	1.510152
Variance	2.280559
Coefficient of Variation	1.031827
Skewness	1.734896

95 % UCL (Assuming Normal Data)	
Student's-t	2.178329

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.327404
Modified-t	2.209519

95 % Non-parametric UCL	
CLT	2.127443
Jackknife	2.178329
Standard Bootstrap	2.095923
Bootstrap-t	3.059444
Chebyshev (Mean, Std)	3.222845

Summary Statistics for	ln(Cadmium)
Minimum	-3.101093
Maximum	1.629241
Mean	-0.118204
Standard Deviation	1.168823
Variance	1.366148
Shapiro-Wilk Test Statisitic	0.915992
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

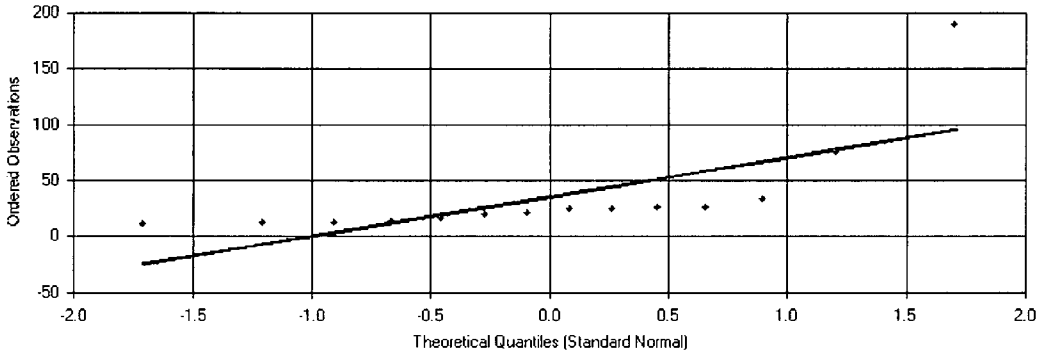
Estimates Assuming Lognormal Distribution	
MLE Mean	1.759219
MLE Standard Deviation	3.006267
MLE Coefficient of Variation	1.708865
MLE Skewness	10.11686
MLE Median	0.888515
MLE 80% Quantile	2.385602
MLE 90% Quantile	3.98977
MLE 95% Quantile	6.076993
MLE 99% Quantile	13.47018
MVU Estimate of Median	0.846068
MVU Estimate of Mean	1.634973
MVU Estimate of Std. Dev.	2.220793
MVU Estimate of SE of Mean	0.563499

UCL Assuming Lognormal Distribution	
95% H-UCL	4.792331
95% Chebyshev (MVUE) UCL	4.09121
99% Chebyshev (MVUE) UCL	7.241721

Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

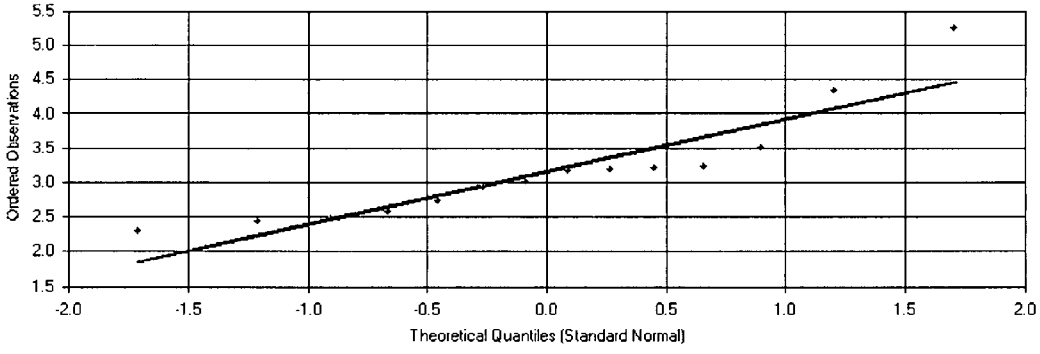
301764

Normal Q-Q Plot for Chromium



N = 14, Mean = 35.2607, Stdv = 47.1379
Slope = 35.2153, Intercept = 35.2607, Correlation, R = 0.71176809
Shapiro-Wilk Statistic = 0.534, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Chromium



N = 14, Mean = 3.1563, Stdv = 0.7946
Slope = 0.7613, Intercept = 3.1563, Correlation, R = 0.91280824
Shapiro-Wilk Statistic = 0.844, Critical Value(0.05) = 0.874, Data not Lognormal

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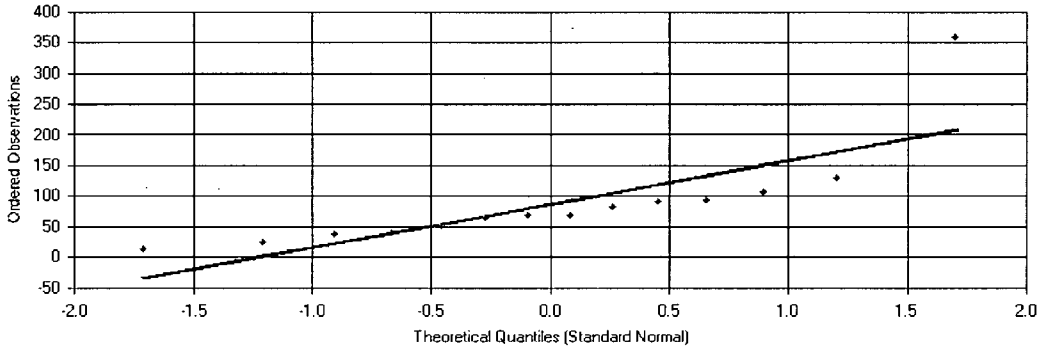
Summary Statistics for	Chromium
Number of Samples	14
Minimum	9.8
Maximum	189
Mean	35.26071
Median	21.9
Standard Deviation	47.13794
Variance	2221.985
Coefficient of Variation	1.33684
Skewness	3.102296
95 % UCL (Assuming Normal Data)	
Student's-t	57.57119
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	67.1439
Modified-t	59.31209
95 % Non-parametric UCL	
CLT	55.98282
Jackknife	57.57119
Standard Bootstrap	55.27042
Bootstrap-t	151.3293
Chebyshev (Mean, Std)	90.17475

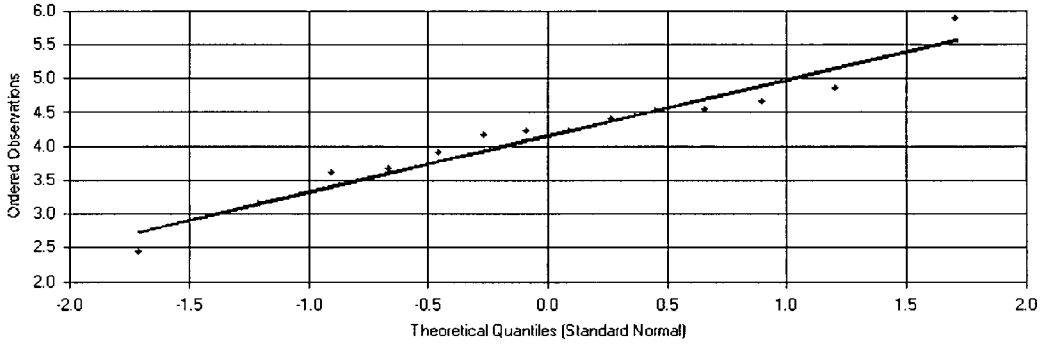
Summary Statistics for	ln(Chromium)
Minimum	2.282382
Maximum	5.241747
Mean	3.156327
Standard Deviation	0.794565
Variance	0.631333
Shapiro-Wilk Test Statisitic	0.844169
Shapiro-Wilk 5% Critical Value	0.874
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	32.20087
MLE Standard Deviation	30.20908
MLE Coefficient of Variation	0.938145
MLE Skewness	3.64011
MLE Median	23.48418
MLE 80% Quantile	45.95829
MLE 90% Quantile	65.19239
MLE 95% Quantile	86.78086
MLE 99% Quantile	149.0802
MVU Estimate of Median	22.95981
MVU Estimate of Mean	31.31091
MVU Estimate of Std. Dev.	26.78076
MVU Estimate of SE of Mean	7.058978
UCL Assuming Lognormal Distribution	
95% H-UCL	55.58461
95% Chebyshev (MVUE) UCL	62.08029
99% Chebyshev (MVUE) UCL	101.5469

Normal Q-Q Plot for Copper



N = 14, Mean = 86.5750, Stdv = 84.4766
Slope = 70.9296, Intercept = 86.5750, Correlation, R = 0.79995998
Shapiro-Wilk Statistic = 0.670, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Copper



N = 14, Mean = 4.1518, Stdv = 0.8142
Slope = 0.8297, Intercept = 4.1518, Correlation, R = 0.97085217
Shapiro-Wilk Statistic = 0.963, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Copper
Number of Samples	14
Minimum	11.4
Maximum	358
Mean	86.575
Median	67.8
Standard Deviation	84.47665
Variance	7136.304
Coefficient of Variation	0.975763
Skewness	2.840256

95 % UCL (Assuming Normal Data)	
Student's-t	126.558

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	142.0239
Modified-t	129.4143

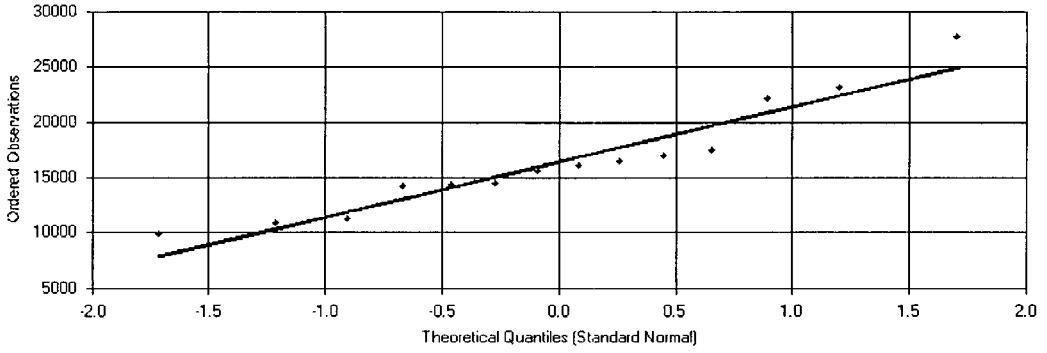
95 % Non-parametric UCL	
CLT	123.7114
Jackknife	126.558
Standard Bootstrap	121.2378
Bootstrap-t	169.892
Chebyshev (Mean, Std)	184.9873

Summary Statistics for	ln(Copper)
Minimum	2.433613
Maximum	5.880533
Mean	4.151764
Standard Deviation	0.81421
Variance	0.662938
Shapiro-Wilk Test Statisitic	0.962956
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	88.52038
MLE Standard Deviation	85.84579
MLE Coefficient of Variation	0.969786
MLE Skewness	3.821425
MLE Median	63.546
MLE 80% Quantile	126.4404
MLE 90% Quantile	180.9143
MLE 95% Quantile	242.5333
MLE 99% Quantile	422.2578
MVU Estimate of Median	62.0568
MVU Estimate of Mean	85.92955
MVU Estimate of Std. Dev.	75.57645
MVU Estimate of SE of Mean	19.89562

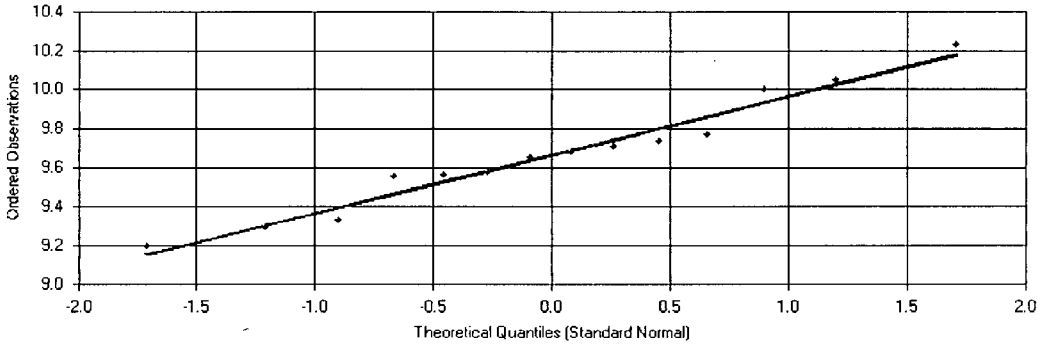
UCL Assuming Lognormal Distribution	
95% H-UCL	155.9065
95% Chebyshev (MVUE) UCL	172.6526
99% Chebyshev (MVUE) UCL	283.8885
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Iron



N = 14, Mean = 16387.1429, Stdv = 4959.3275
Slope = 4990.2290, Intercept = 16387.1429, Correlation, R = 0.95868306
Shapiro-Wilk Statistic = 0.921, Critical Value(0.05) = 0.874, Data are Normal

Lognormal Q-Q Plot for Iron



N = 14, Mean = 9.6642, Stdv = 0.2913
Slope = 0.3003, Intercept = 9.6642, Correlation, R = 0.98235680
Shapiro-Wilk Statistic = 0.963, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Iron
Number of Samples	14
Minimum	9820
Maximum	27600
Mean	16387.14
Median	15750
Standard Deviation	4959.328
Variance	24594930
Coefficient of Variation	0.302635
Skewness	0.928558

95 % UCL (Assuming Normal Data)	
Student's-t	18734.4

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	18918.76
Modified-t	18789.22

95 % Non-parametric UCL	
CLT	18567.29
Jackknife	18734.4
Standard Bootstrap	18468.08
Bootstrap-t	19197.94
Chebyshev (Mean, Std)	22164.58

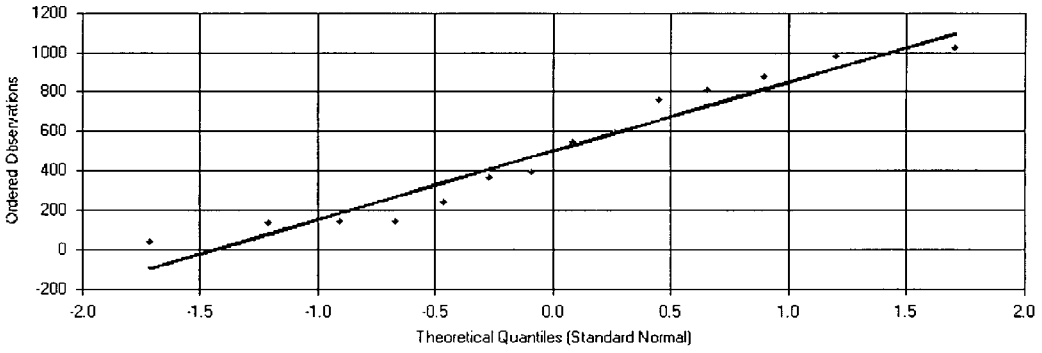
Summary Statistics for	ln(Iron)
Minimum	9.192176
Maximum	10.22557
Mean	9.664163
Standard Deviation	0.291266
Variance	0.084836
Shapiro-Wilk Test Statisitic	0.963211
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	16425.35
MLE Standard Deviation	4887.434
MLE Coefficient of Variation	0.297554
MLE Skewness	0.919008
MLE Median	15743.19
MLE 80% Quantile	20136.38
MLE 90% Quantile	22889.66
MLE 95% Quantile	25420.12
MLE 99% Quantile	30997.09
MVU Estimate of Median	15695.55
MVU Estimate of Mean	16373.98
MVU Estimate of Std. Dev.	4819.117
MVU Estimate of SE of Mean	1287.57

UCL Assuming Lognormal Distribution	
95% H-UCL	19134.34
95% Chebyshev (MVUE) UCL	21986.36
99% Chebyshev (MVUE) UCL	29185.13

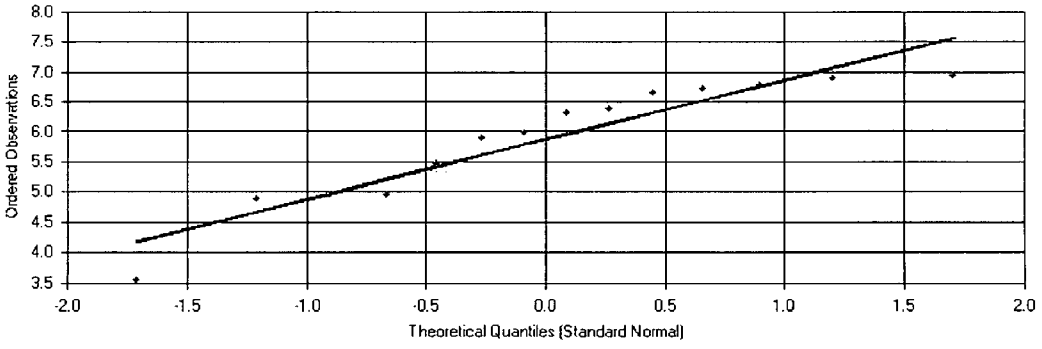
Recommended UCL to use:
Student's-t or H-UCL

Normal Q-Q Plot for Lead



N = 14, Mean = 499.4714, Stdv = 342.1200
Slope = 348.6936, Intercept = 499.4714, Correlation, R = 0.97105298
Shapiro-Wilk Statistic = 0.921, Critical Value(0.05) = 0.874, Data are Normal

Lognormal Q-Q Plot for Lead



N = 14, Mean = 5.8709, Stdv = 0.9976
Slope = 0.9905, Intercept = 5.8709, Correlation, R = 0.94600172
Shapiro-Wilk Statistic = 0.891, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Lead
Number of Samples	14
Minimum	34.6
Maximum	1020
Mean	499.4714
Median	465.5
Standard Deviation	342.12
Variance	117046.1
Coefficient of Variation	0.684964
Skewness	0.188949

95 % UCL (Assuming Normal Data)	
Student's-t	661.3974

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	654.803
Modified-t	662.167

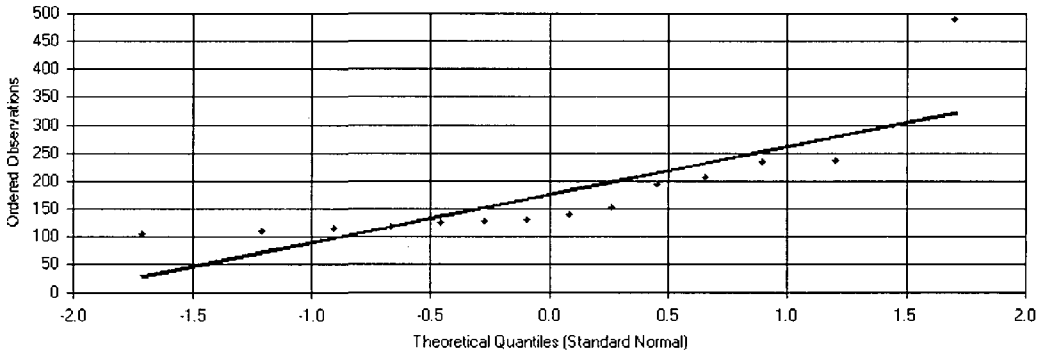
95 % Non-parametric UCL	
CLT	649.8693
Jackknife	661.3974
Standard Bootstrap	644.3657
Bootstrap-t	665.476
Chebyshev (Mean, Std)	898.0292

Summary Statistics for	ln(Lead)
Minimum	3.543854
Maximum	6.927558
Mean	5.870903
Standard Deviation	0.99758
Variance	0.995165
Shapiro-Wilk Test Statisitic	0.891473
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	583.174
MLE Standard Deviation	761.5213
MLE Coefficient of Variation	1.305822
MLE Skewness	6.144115
MLE Median	354.569
MLE 80% Quantile	823.7423
MLE 90% Quantile	1277.669
MLE 95% Quantile	1829.726
MLE 99% Quantile	3609.315
MVU Estimate of Median	342.1594
MVU Estimate of Mean	555.3818
MVU Estimate of Std. Dev.	620.1019
MVU Estimate of SE of Mean	160.7243

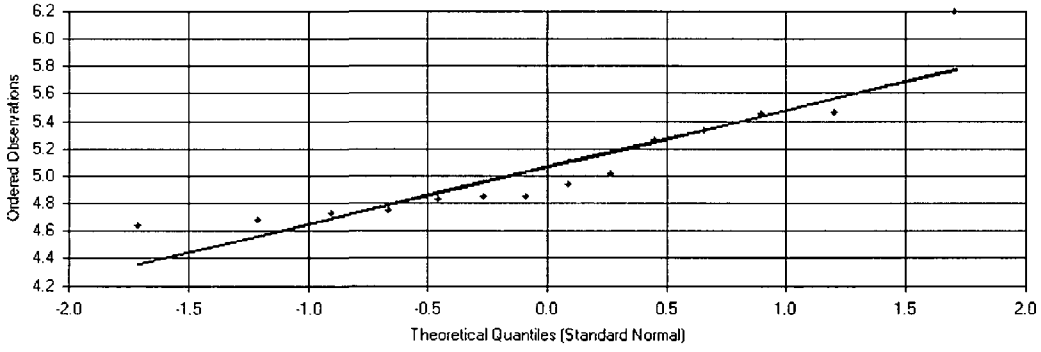
UCL Assuming Lognormal Distribution	
95% H-UCL	1264.392
95% Chebyshev (MVUE) UCL	1255.963
99% Chebyshev (MVUE) UCL	2154.568
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Manganese



N = 14, Mean = 175.2857, Stdv = 100.9535
Slope = 86.1231, Intercept = 175.2857, Correlation, R = 0.81278487
Shapiro-Wilk Statistic = 0.682, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Manganese



N = 14, Mean = 5.0636, Stdv = 0.4306
Slope = 0.4144, Intercept = 5.0636, Correlation, R = 0.91685283
Shapiro-Wilk Statistic = 0.847, Critical Value(0.05) = 0.874, Data not Lognormal

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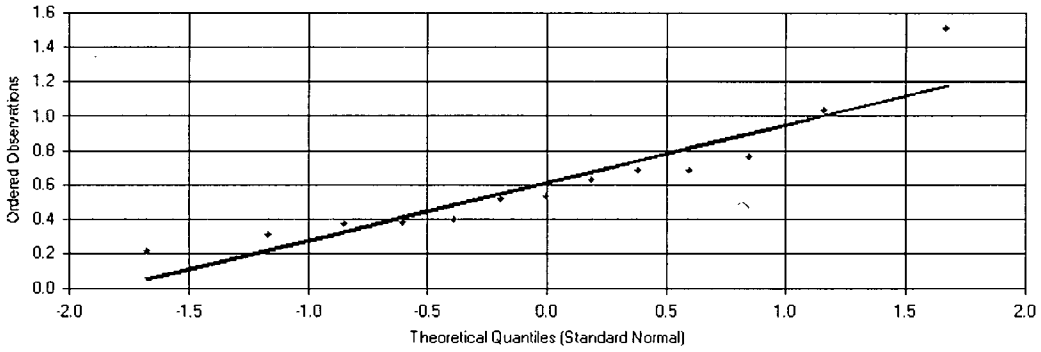
Summary Statistics for	Manganes
Number of Samples	14
Minimum	103
Maximum	488
Mean	175.2857
Median	133
Standard Deviation	100.9535
Variance	10191.6
Coefficient of Variation	0.575937
Skewness	2.564086
95 % UCL (Assuming Normal Data)	
Student's-t	223.0672
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	239.4218
Modified-t	226.1488
95 % Non-parametric UCL	
CLT	219.6654
Jackknife	223.0672
Standard Bootstrap	218.894
Bootstrap-t	270.9112
Chebyshev (Mean, Std)	292.893

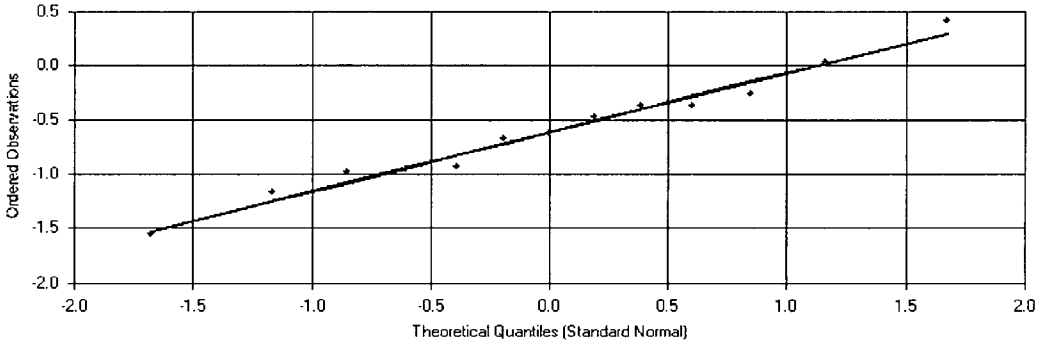
Summary Statistics for	ln(Manganese)
Minimum	4.634729
Maximum	6.190315
Mean	5.063552
Standard Deviation	0.430598
Variance	0.185415
Shapiro-Wilk Test Statisitic	0.846996
Shapiro-Wilk 5% Critical Value	0.874
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	173.5142
MLE Standard Deviation	78.31575
MLE Coefficient of Variation	0.451351
MLE Skewness	1.446
MLE Median	158.1513
MLE 80% Quantile	227.5585
MLE 90% Quantile	275.0273
MLE 95% Quantile	321.1428
MLE 99% Quantile	430.5757
MVU Estimate of Median	157.107
MVU Estimate of Mean	172.285
MVU Estimate of Std. Dev.	75.87669
MVU Estimate of SE of Mean	20.25047
UCL Assuming Lognormal Distribution	
95% H-UCL	220.7985
95% Chebyshev (MVUE) UCL	260.5547
99% Chebyshev (MVUE) UCL	373.7746

Normal Q-Q Plot for Mercury



N = 13, Mean = 0.6131, Stdv = 0.3447
Slope = 0.3359, Intercept = 0.6131, Correlation, R = 0.92588916
Shapiro-Wilk Statistic = 0.870, Critical Value(0.05) = 0.866, Data are Normal

Lognormal Q-Q Plot for Mercury



N = 13, Mean = -0.6179, Stdv = 0.5227
Slope = 0.5444, Intercept = -0.6179, Correlation, R = 0.98954926
Shapiro-Wilk Statistic = 0.985, Critical Value(0.05) = 0.866, Data are Lognormal

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Summary Statistics for	Mercury
Number of Samples	13
Minimum	0.21
Maximum	1.5
Mean	0.613077
Median	0.53
Standard Deviation	0.344731
Variance	0.11884
Coefficient of Variation	0.562297
Skewness	1.540465

95 % UCL (Assuming Normal Data)	
Student's-t	0.783484

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.813992
Modified-t	0.790292

95 % Non-parametric UCL	
CLT	0.770344
Jackknife	0.783484
Standard Bootstrap	0.763399
Bootstrap-t	0.86394
Chebyshev (Mean, Std)	1.029837

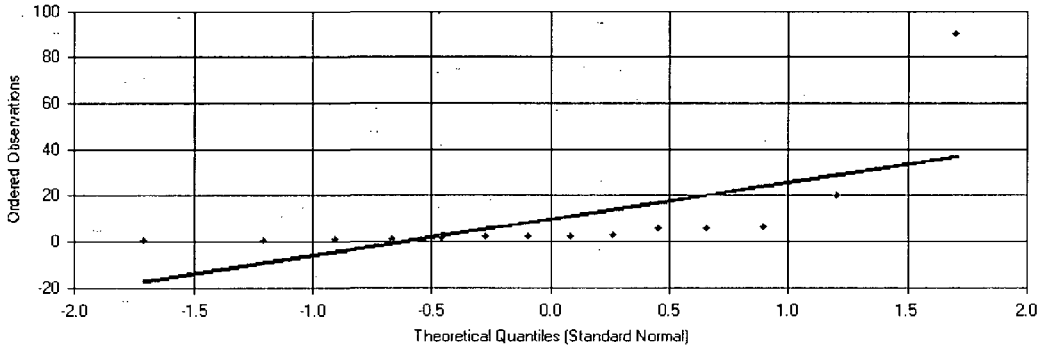
Summary Statistics for	ln(Mercury)
Minimum	-1.560648
Maximum	0.405465
Mean	-0.617867
Standard Deviation	0.522721
Variance	0.273237
Shapiro-Wilk Test Statisitic	0.985373
Shapiro-Wilk 5% Critical Value	0.866
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	0.618011
MLE Standard Deviation	0.346423
MLE Coefficient of Variation	0.560546
MLE Skewness	1.857767
MLE Median	0.539093
MLE 80% Quantile	0.838477
MLE 90% Quantile	1.055304
MLE 95% Quantile	1.273805
MLE 99% Quantile	1.818444
MVU Estimate of Median	0.533453
MVU Estimate of Mean	0.61087
MVU Estimate of Std. Dev.	0.329238
MVU Estimate of SE of Mean	0.091059

UCL Assuming Lognormal Distribution	
95% H-UCL	0.854039
95% Chebyshev (MVUE) UCL	1.007786
99% Chebyshev (MVUE) UCL	1.516894

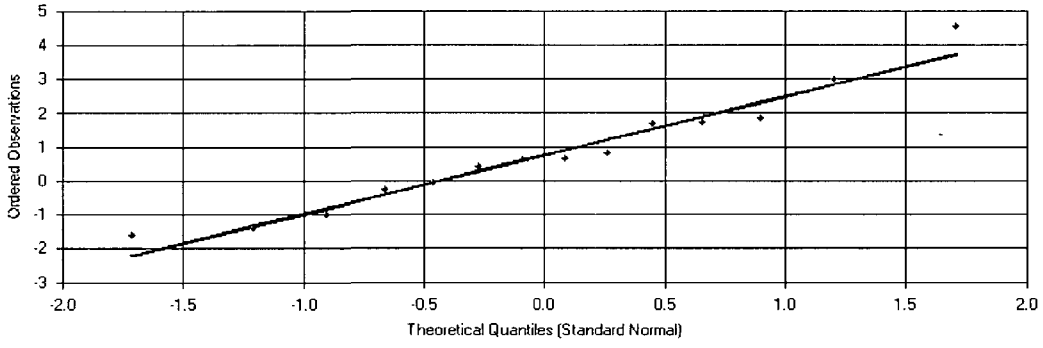
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Benzo(a)anthracene



N = 14, Mean = 9.7214, Stdv = 23.6432
Slope = 15.8474, Intercept = 9.7214, Correlation, R = 0.63860121
Shapiro-Wilk Statistic = 0.438, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Benzo(a)anthracene



N = 14, Mean = 0.7543, Stdv = 1.6946
Slope = 1.7387, Intercept = 0.7543, Correlation, R = 0.97754811
Shapiro-Wilk Statistic = 0.956, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Mercury
Number of Samples	13
Minimum	0.21
Maximum	1.5
Mean	0.613077
Median	0.53
Standard Deviation	0.344731
Variance	0.11884
Coefficient of Variation	0.562297
Skewness	1.540465

95 % UCL (Assuming Normal Data)	
Student's-t	0.783484

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.813992
Modified-t	0.790292

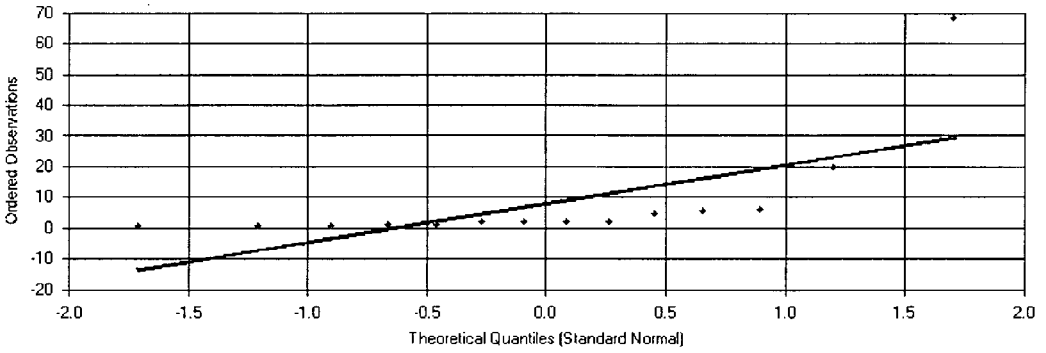
95 % Non-parametric UCL	
CLT	0.770344
Jackknife	0.783484
Standard Bootstrap	0.763399
Bootstrap-t	0.86394
Chebyshev (Mean, Std)	1.029837

Summary Statistics for	ln(Mercury)
Minimum	-1.560648
Maximum	0.405465
Mean	-0.617867
Standard Deviation	0.522721
Variance	0.273237
Shapiro-Wilk Test Statisitic	0.985373
Shapiro-Wilk 5% Critical Value	0.866
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	0.618011
MLE Standard Deviation	0.346423
MLE Coefficient of Variation	0.560546
MLE Skewness	1.857767
MLE Median	0.539093
MLE 80% Quantile	0.838477
MLE 90% Quantile	1.055304
MLE 95% Quantile	1.273805
MLE 99% Quantile	1.818444
MVU Estimate of Median	0.533453
MVU Estimate of Mean	0.61087
MVU Estimate of Std. Dev.	0.329238
MVU Estimate of SE of Mean	0.091059

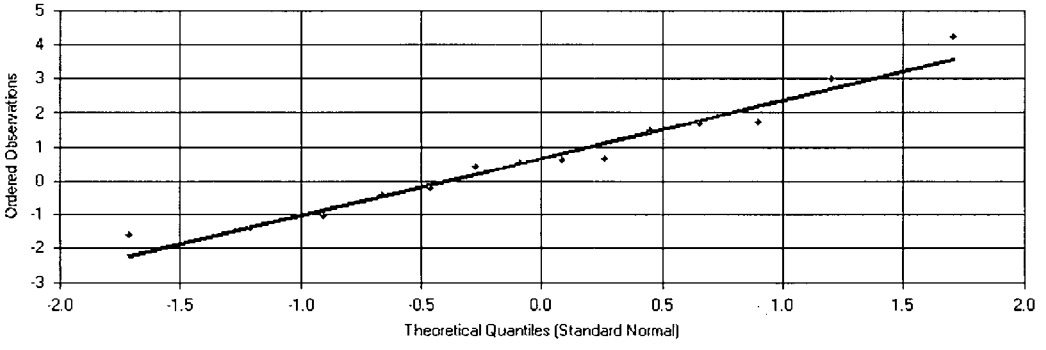
UCL Assuming Lognormal Distribution	
95% H-UCL	0.854039
95% Chebyshev (MVUE) UCL	1.007786
99% Chebyshev (MVUE) UCL	1.516894
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Benzo(a)pyrene



N = 14, Mean = 7.9757, Stdv = 17.9816
Slope = 12.5744, Intercept = 7.9757, Correlation, R = 0.66625165
Shapiro-Wilk Statistic = 0.472, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Benzo(a)pyrene



N = 14, Mean = 0.6692, Stdv = 1.6498
Slope = 1.6931, Intercept = 0.6692, Correlation, R = 0.97775477
Shapiro-Wilk Statistic = 0.954, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Benzo(a)py
Number of Samples	14
Minimum	0.2
Maximum	68
Mean	7.975714
Median	1.75
Standard Deviation	17.98157
Variance	323.3368
Coefficient of Variation	2.25454
Skewness	3.312189

95 % UCL (Assuming Normal Data)	
Student's-t	16.48642

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	20.42615
Modified-t	17.19545

95 % Non-parametric UCL	
CLT	15.88051
Jackknife	16.48642
Standard Bootstrap	15.81529
Bootstrap-t	67.33902
Chebyshev (Mean, Std)	28.92361

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	55.79258

Summary Statistics for	ln(Benzo(a)pyrene)
Minimum	-1.609438
Maximum	4.219508
Mean	0.669242
Standard Deviation	1.649816
Variance	2.721893
Shapiro-Wilk Test Statisitic	0.95414
Shapiro-Wilk 5% Critical Value	0.874

Data are Lognormal at 5% Significance Level

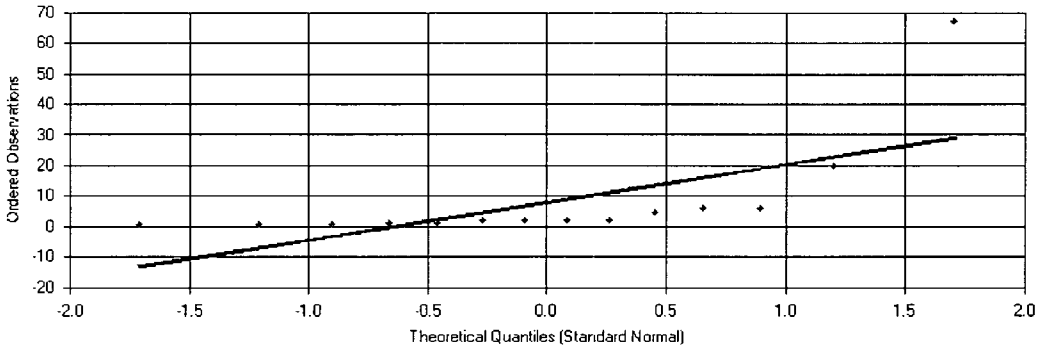
Estimates Assuming Lognormal Distribution	
MLE Mean	7.615524
MLE Standard Deviation	28.70668
MLE Coefficient of Variation	3.769495
MLE Skewness	64.86957
MLE Median	1.952757
MLE 80% Quantile	7.872194
MLE 90% Quantile	16.26891
MLE 95% Quantile	29.46461
MLE 99% Quantile	90.62359
MVU Estimate of Median	1.77073
MVU Estimate of Mean	6.318004
MVU Estimate of Std. Dev.	13.6977
MVU Estimate of SE of Mean	3.154405

UCL Assuming Lognormal Distribution	
95% H-UCL	47.41823
95% Chebyshev (MVUE) UCL	20.06774
99% Chebyshev (MVUE) UCL	37.70393

Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

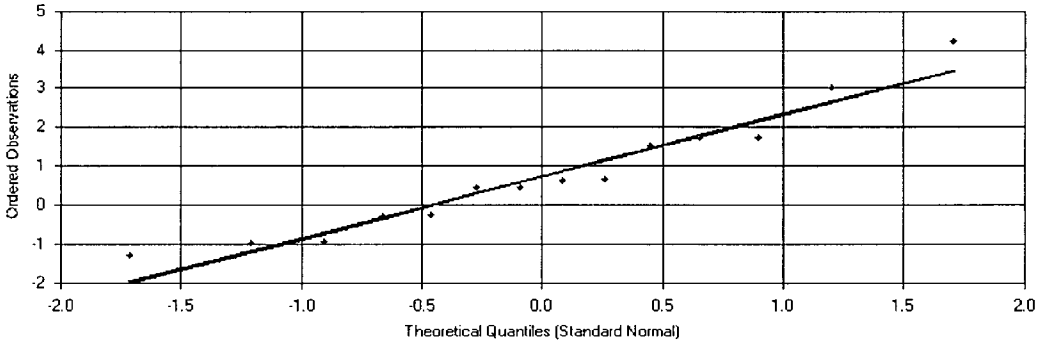
301772

Normal Q-Q Plot for Benzo(b)fluoranthene



N = 14, Mean = 7.9321, Stdv = 17.7176
Slope = 12.4184, Intercept = 7.9321, Correlation, R = 0.66778949
Shapiro-Wilk Statistic = 0.474, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Benzo(b)fluoranthene



N = 14, Mean = 0.7290, Stdv = 1.5676
Slope = 1.5942, Intercept = 0.7290, Correlation, R = 0.96892786
Shapiro-Wilk Statistic = 0.937, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Benzo(b)flu
Number of Samples	14
Minimum	0.27
Maximum	67
Mean	7.932143
Median	1.65
Standard Deviation	17.71757
Variance	313.9122
Coefficient of Variation	2.233642
Skewness	3.300078

95 % UCL (Assuming Normal Data)	
Student's-t	16.3179

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	20.18341
Modified-t	17.01396

95 % Non-parametric UCL	
CLT	15.72088
Jackknife	16.3179
Standard Bootstrap	15.46637
Bootstrap-t	64.15511
Chebyshev (Mean, Std)	28.57248

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	55.04698

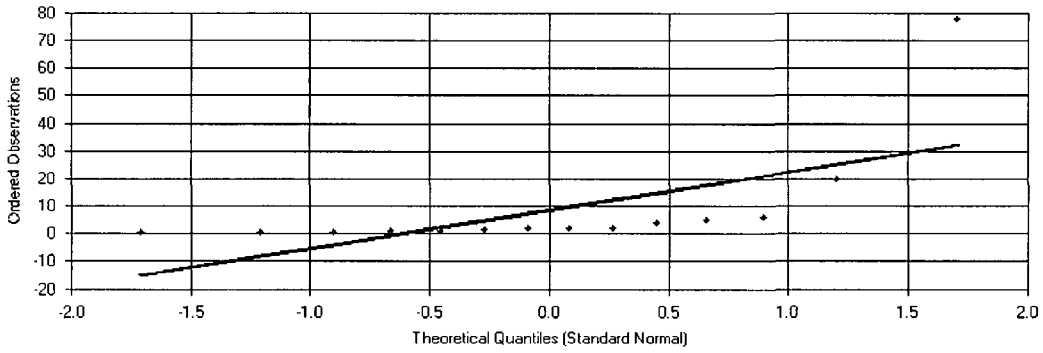
Summary Statistics for	ln(Benzo(b)fluoranthene)
Minimum	-1.309333
Maximum	4.204693
Mean	0.729
Standard Deviation	1.567585
Variance	2.457323
Shapiro-Wilk Test Statisitic	0.937334
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	7.082746
MLE Standard Deviation	23.13959
MLE Coefficient of Variation	3.267036
MLE Skewness	44.67189
MLE Median	2.073007
MLE 80% Quantile	7.79599
MLE 90% Quantile	15.53891
MLE 95% Quantile	27.3216
MLE 99% Quantile	79.45598
MVU Estimate of Median	1.897843
MVU Estimate of Mean	6.02426
MVU Estimate of Std. Dev.	12.13415
MVU Estimate of SE of Mean	2.851978

UCL Assuming Lognormal Distribution	
95% H-UCL	37.55187
95% Chebyshev (MVUE) UCL	18.45574
99% Chebyshev (MVUE) UCL	34.40108

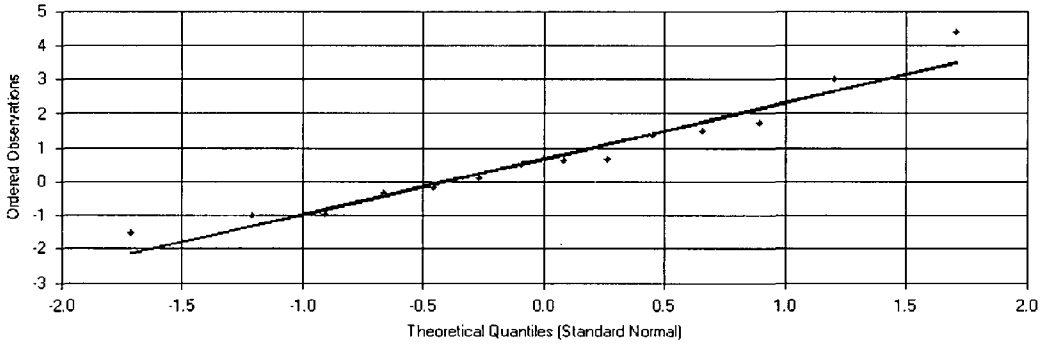
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(k)fluoranthene



N = 14, Mean = 8.5364, Stdv = 20.4606
Slope = 13.8711, Intercept = 8.5364, Correlation, R = 0.64590691
Shapiro-Wilk Statistic = 0.446, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Benzo(k)fluoranthene



N = 14, Mean = 0.6760, Stdv = 1.6141
Slope = 1.6456, Intercept = 0.6760, Correlation, R = 0.97132071
Shapiro-Wilk Statistic = 0.946, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Benzo(k)flu
Number of Samples	14
Minimum	0.21
Maximum	77.5
Mean	8.536429
Median	1.7
Standard Deviation	20.46061
Variance	418.6365
Coefficient of Variation	2.396858
Skewness	3.406606

95 % UCL (Assuming Normal Data)	
Student's-t	18.22047

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	22.8508
Modified-t	19.05025

95 % Non-parametric UCL	
CLT	17.53103
Jackknife	18.22047
Standard Bootstrap	17.12633
Bootstrap-t	92.84785
Chebyshev (Mean, Std)	32.37231

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	62.9456

Summary Statistics for	ln(Benzo(k)fluoranthene)
Minimum	-1.560648
Maximum	4.350278
Mean	0.676048
Standard Deviation	1.614124
Variance	2.605397
Shapiro-Wilk Test Statisitic	0.946226
Shapiro-Wilk 5% Critical Value	0.874

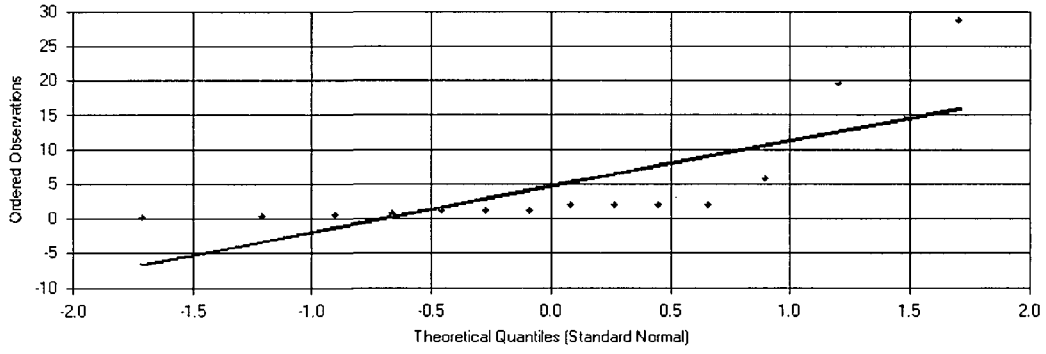
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	7.233668
MLE Standard Deviation	25.61229
MLE Coefficient of Variation	3.540706
MLE Skewness	55.01052
MLE Median	1.966092
MLE 80% Quantile	7.690476
MLE 90% Quantile	15.64572
MLE 95% Quantile	27.97418
MLE 99% Quantile	83.97345
MVU Estimate of Median	1.790352
MVU Estimate of Mean	6.068353
MVU Estimate of Std. Dev.	12.74612
MVU Estimate of SE of Mean	2.96195

UCL Assuming Lognormal Distribution	
95% H-UCL	41.96243
95% Chebyshev (MVUE) UCL	18.97919
99% Chebyshev (MVUE) UCL	35.53938

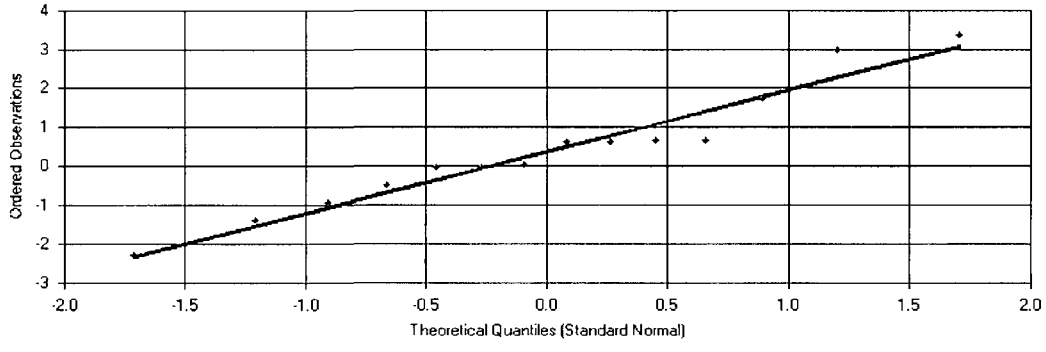
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Carbazole



N = 14, Mean = 4.6432, Stdv = 8.4925
Slope = 6.5979, Intercept = 4.6432, Correlation, R = 0.74019666
Shapiro-Wilk Statistic = 0.563, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Carbazole



N = 14, Mean = 0.3636, Stdv = 1.5475
Slope = 1.5803, Intercept = 0.3636, Correlation, R = 0.97295141
Shapiro-Wilk Statistic = 0.950, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Carbazole
Number of Samples	14
Minimum	0.1
Maximum	28.5
Mean	4.643214
Median	1.4
Standard Deviation	8.49255
Variance	72.1234
Coefficient of Variation	1.829024
Skewness	2.387607

95 % UCL (Assuming Normal Data)	
Student's-t	8.662753

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	9.924168
Modified-t	8.904145

95 % Non-parametric UCL	
CLT	8.376587
Jackknife	8.662753
Standard Bootstrap	8.213581
Bootstrap-t	25.37851
Chebyshev (Mean, Std)	14.53674

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	27.22674

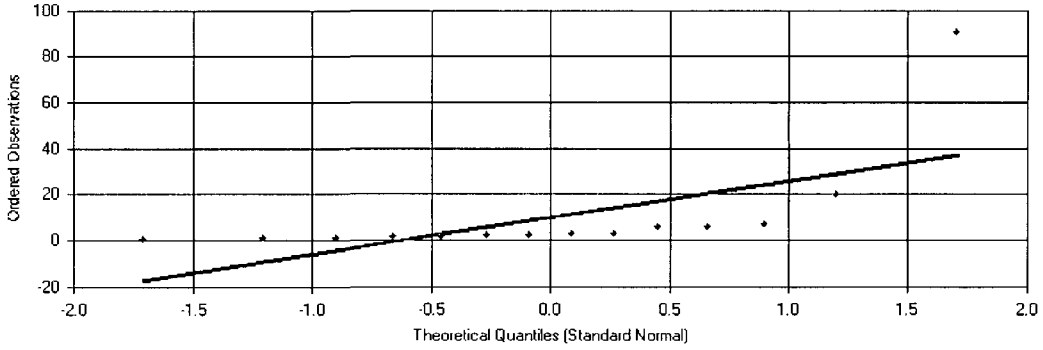
Summary Statistics for	ln(Carbazole)
Minimum	-2.302585
Maximum	3.349904
Mean	0.36359
Standard Deviation	1.547523
Variance	2.394827
Shapiro-Wilk Test Statisitic	0.949521
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	4.7636
MLE Standard Deviation	15.03842
MLE Coefficient of Variation	3.156945
MLE Skewness	40.93391
MLE Median	1.438484
MLE 80% Quantile	5.318796
MLE 90% Quantile	10.50821
MLE 95% Quantile	18.34332
MLE 99% Quantile	52.62169
MVU Estimate of Median	1.319913
MVU Estimate of Mean	4.074867
MVU Estimate of Std. Dev.	8.058938
MVU Estimate of SE of Mean	1.903168

UCL Assuming Lognormal Distribution	
95% H-UCL	24.31495
95% Chebyshev (MVUE) UCL	12.37058
99% Chebyshev (MVUE) UCL	23.01115

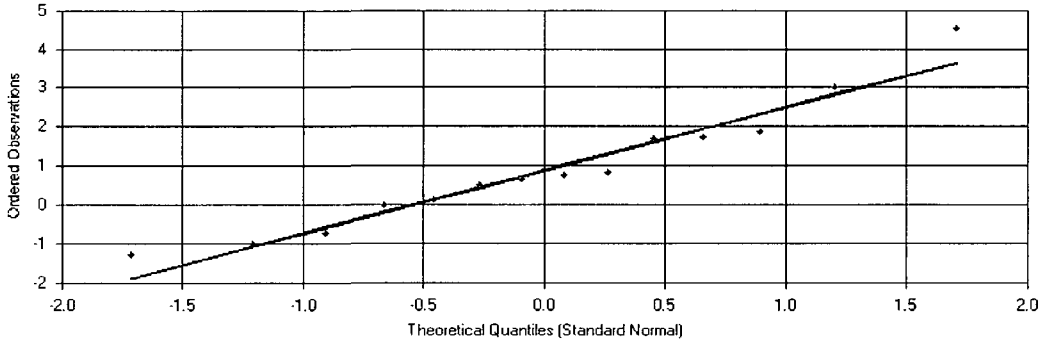
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Chrysene



N = 14, Mean = 9.8493, Stdv = 23.7408
Slope = 15.8854, Intercept = 9.8493, Correlation, R = 0.63750117
Shapiro-Wilk Statistic = 0.436, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Chrysene



N = 14, Mean = 0.8717, Stdv = 1.5859
Slope = 1.6173, Intercept = 0.8717, Correlation, R = 0.97160368
Shapiro-Wilk Statistic = 0.947, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Chrysene
Number of Samples	14
Minimum	0.27
Maximum	90.5
Mean	9.849286
Median	1.975
Standard Deviation	23.7408
Variance	563.6256
Coefficient of Variation	2.410408
Skewness	3.483157

95 % UCL (Assuming Normal Data)	
Student's-t	21.08585

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	26.5972
Modified-t	22.07029

95 % Non-parametric UCL	
CLT	20.28588
Jackknife	21.08585
Standard Bootstrap	19.85253
Bootstrap-t	95.42597
Chebyshev (Mean, Std)	37.50648

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	72.9812

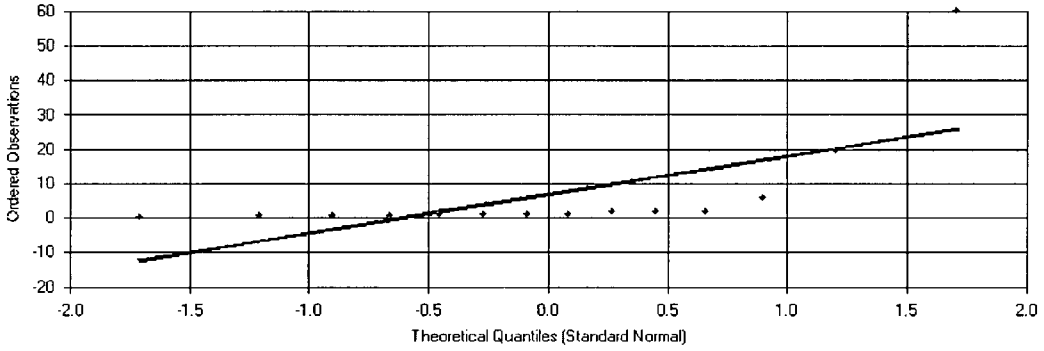
Summary Statistics for	ln(Chrysene)
Minimum	-1.309333
Maximum	4.50535
Mean	0.871722
Standard Deviation	1.585912
Variance	2.515118
Shapiro-Wilk Test Statisitic	0.946956
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	8.408819
MLE Standard Deviation	28.35165
MLE Coefficient of Variation	3.371657
MLE Skewness	48.44419
MLE Median	2.391025
MLE 80% Quantile	9.132304
MLE 90% Quantile	18.34981
MLE 95% Quantile	32.47751
MLE 99% Quantile	95.63646
MVU Estimate of Median	2.184421
MVU Estimate of Mean	7.114095
MVU Estimate of Std. Dev.	14.56898
MVU Estimate of SE of Mean	3.409158

UCL Assuming Lognormal Distribution	
95% H-UCL	46.17587
95% Chebyshev (MVUE) UCL	21.97427
99% Chebyshev (MVUE) UCL	41.03479

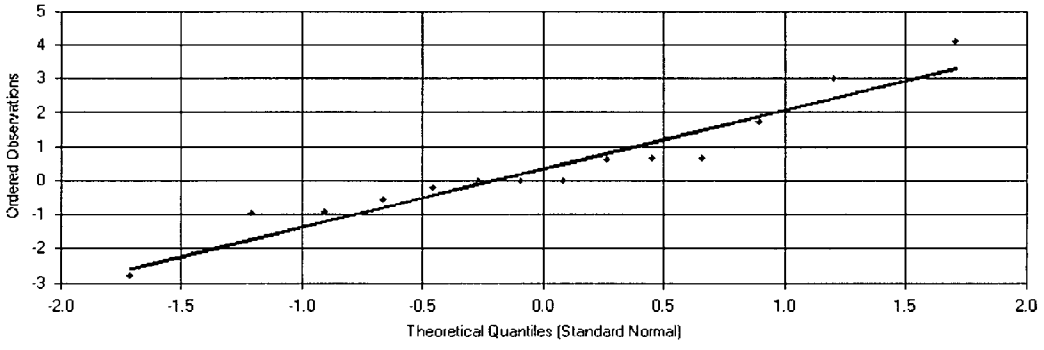
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Dibenzo(a,h)anthracene



N = 14, Mean = 6.8226, Stdv = 16.1075
Slope = 11.1496, Intercept = 6.8226, Correlation, R = 0.65949082
Shapiro-Wilk Statistic = 0.463, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Dibenzo(a,h)anthracene



N = 14, Mean = 0.3477, Stdv = 1.7106
Slope = 1.7192, Intercept = 0.3477, Correlation, R = 0.95752739
Shapiro-Wilk Statistic = 0.933, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Dibenzo(a,h
Number of Samples	14
Minimum	0.061
Maximum	60
Mean	6.822571
Median	0.95
Standard Deviation	16.10747
Variance	259.4507
Coefficient of Variation	2.360909
Skewness	3.223789

95 % UCL (Assuming Normal Data)	
Student's-t	14.44627

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	17.86671
Modified-t	15.06445

95 % Non-parametric UCL	
CLT	13.90351
Jackknife	14.44627
Standard Bootstrap	13.51624
Bootstrap-t	74.75996
Chebyshev (Mean, Std)	25.58721

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	49.65582

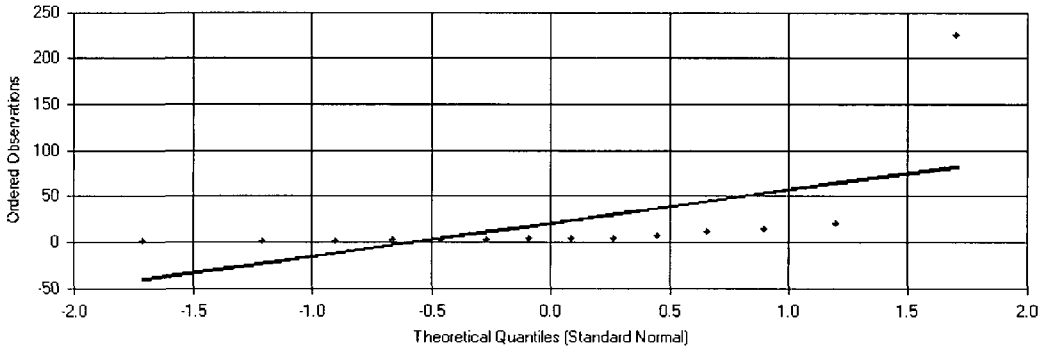
Summary Statistics for	ln(Dibenzo(a,h)anthracene)
Minimum	-2.796881
Maximum	4.094345
Mean	0.347679
Standard Deviation	1.710581
Variance	2.926088
Shapiro-Wilk Test Statisitic	0.932564
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	6.114867
MLE Standard Deviation	25.693
MLE Coefficient of Variation	4.201726
MLE Skewness	86.78457
MLE Median	1.415778
MLE 80% Quantile	6.00817
MLE 90% Quantile	12.75312
MLE 95% Quantile	23.60799
MLE 99% Quantile	75.67825
MVU Estimate of Median	1.27435
MVU Estimate of Mean	4.972206
MVU Estimate of Std. Dev.	11.36759
MVU Estimate of SE of Mean	2.576127

UCL Assuming Lognormal Distribution	
95% H-UCL	43.10647
95% Chebyshev (MVUE) UCL	16.20128
99% Chebyshev (MVUE) UCL	30.60434

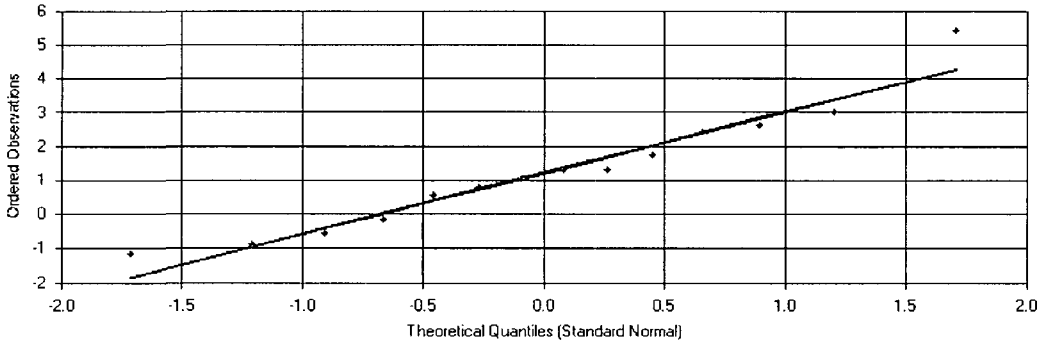
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Fluoranthene



N = 14, Mean = 20.7007, Stdv = 59.0749
Slope = 36.1682, Intercept = 20.7007, Correlation, R = 0.58331148
Shapiro-Wilk Statistic = 0.371, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Fluoranthene



N = 14, Mean = 1.2176, Stdv = 1.7605
Slope = 1.7924, Intercept = 1.2176, Correlation, R = 0.97001964
Shapiro-Wilk Statistic = 0.946, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Fluoranthei
Number of Samples	14
Minimum	0.31
Maximum	225
Mean	20.70071
Median	3.15
Standard Deviation	59.07493
Variance	3489.847
Coefficient of Variation	2.853763
Skewness	3.682779

95 % UCL (Assuming Normal Data)	
Student's-t	48.66098

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	63.27509
Modified-t	51.25098

95 % Non-parametric UCL	
CLT	46.67038
Jackknife	48.66098
Standard Bootstrap	45.53297
Bootstrap-t	284.5181
Chebyshev (Mean, Std)	89.52092

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	177.7937

Summary Statistics for	ln(Fluoranthene)
Minimum	-1.171183
Maximum	5.4161
Mean	1.21763
Standard Deviation	1.760472
Variance	3.099262
Shapiro-Wilk Test Statisitic	0.945979
Shapiro-Wilk 5% Critical Value	0.874

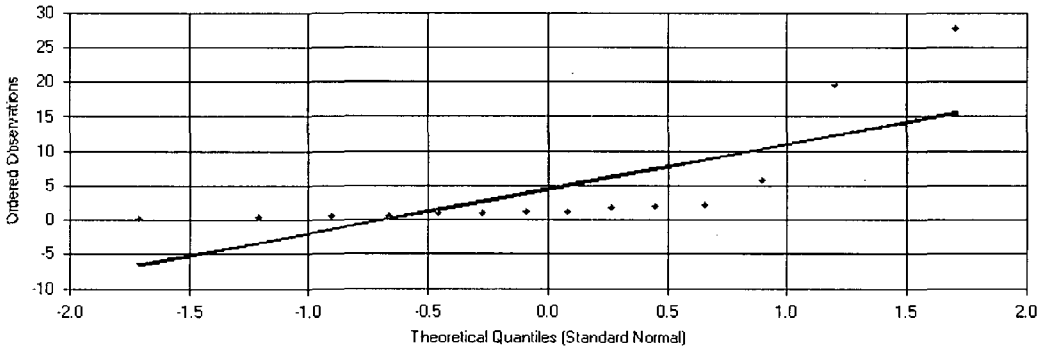
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	15.91499
MLE Standard Deviation	73.24627
MLE Coefficient of Variation	4.602345
MLE Skewness	111.292
MLE Median	3.37917
MLE 80% Quantile	14.95774
MLE 90% Quantile	32.45443
MLE 95% Quantile	61.16694
MLE 99% Quantile	202.8544
MVU Estimate of Median	3.02258
MVU Estimate of Mean	12.71549
MVU Estimate of Std. Dev.	30.34199
MVU Estimate of SE of Mean	6.782058

UCL Assuming Lognormal Distribution	
95% H-UCL	124.6499
95% Chebyshev (MVUE) UCL	42.27779
99% Chebyshev (MVUE) UCL	80.19611

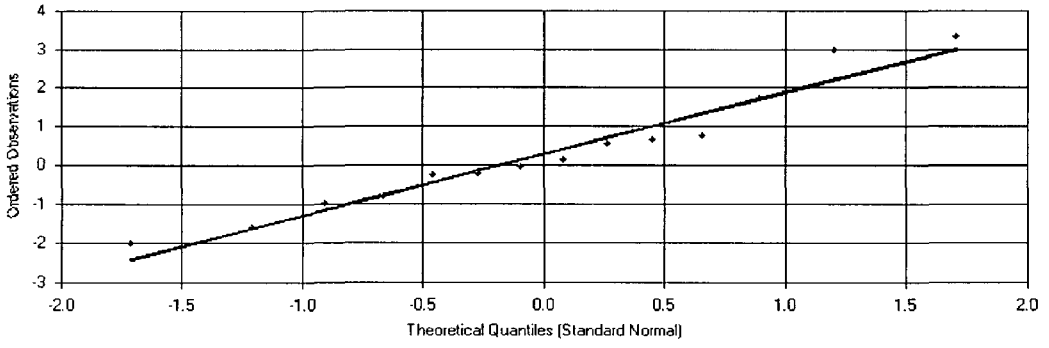
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 14, Mean = 4.4929, Stdv = 8.3140
Slope = 6.4795, Intercept = 4.4929, Correlation, R = 0.74252412
Shapiro-Wilk Statistic = 0.565, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 14, Mean = 0.2821, Stdv = 1.5540
Slope = 1.5891, Intercept = 0.2821, Correlation, R = 0.97425128
Shapiro-Wilk Statistic = 0.945, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Indeno(1,2,
Number of Samples	14
Minimum	0.13
Maximum	27.5
Mean	4.492857
Median	1.025
Standard Deviation	8.31401
Variance	69.12276
Coefficient of Variation	1.850495
Skewness	2.345605

95 % UCL (Assuming Normal Data)	
Student's-t	8.427893

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	9.636136
Modified-t	8.660052

95 % Non-parametric UCL	
CLT	8.147743
Jackknife	8.427893
Standard Bootstrap	7.9769
Bootstrap-t	24.28358
Chebyshev (Mean, Std)	14.17839

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	26.6016

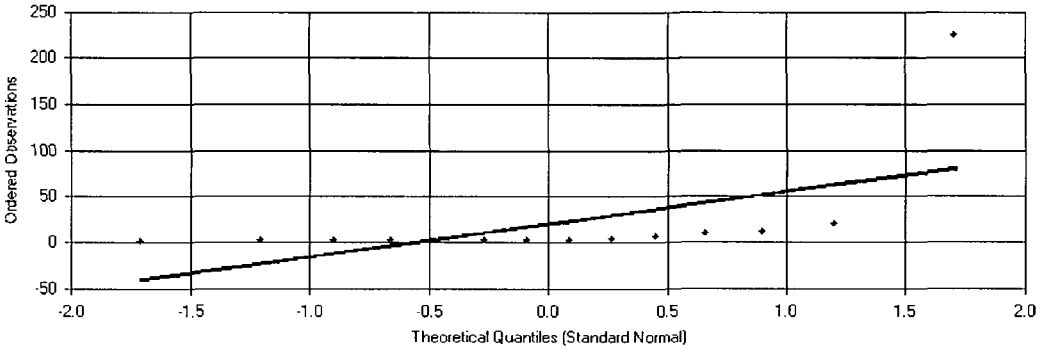
Summary Statistics for	ln(Indeno(1,2,3-cd)pyrene)
Minimum	-2.040221
Maximum	3.314186
Mean	0.282052
Standard Deviation	1.553991
Variance	2.414887
Shapiro-Wilk Test Statisitic	0.945419
Shapiro-Wilk 5% Critical Value	0.874
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	4.434858
MLE Standard Deviation	14.15582
MLE Coefficient of Variation	3.191945
MLE Skewness	42.09699
MLE Median	1.325848
MLE 80% Quantile	4.929187
MLE 90% Quantile	9.766226
MLE 95% Quantile	17.08783
MLE 99% Quantile	49.23647
MVU Estimate of Median	1.21568
MVU Estimate of Mean	3.786749
MVU Estimate of Std. Dev.	7.53351
MVU Estimate of SE of Mean	1.776381

UCL Assuming Lognormal Distribution	
95% H-UCL	22.91456
95% Chebyshev (MVUE) UCL	11.52982
99% Chebyshev (MVUE) UCL	21.46152

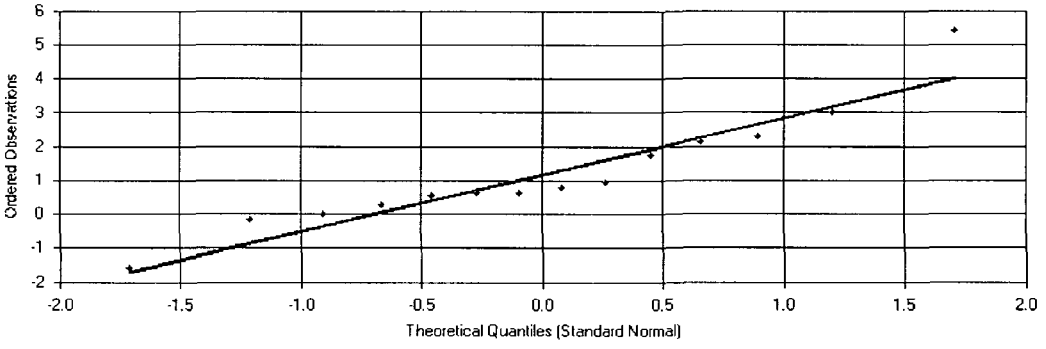
Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Phenanthrene



N = 14, Mean = 20.0871, Stdv = 59.2085
Slope = 35.6623, Intercept = 20.0871, Correlation, R = 0.57385584
Shapiro-Wilk Statistic = 0.361, Critical Value(0.05) = 0.874, Data not Normal

Lognormal Q-Q Plot for Phenanthrene



N = 14, Mean = 1.1623, Stdv = 1.6844
Slope = 1.6749, Intercept = 1.1623, Correlation, R = 0.94741277
Shapiro-Wilk Statistic = 0.918, Critical Value(0.05) = 0.874, Data are Lognormal

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Summary Statistics for	Phenanthre
Number of Samples	14
Minimum	0.2
Maximum	225
Mean	20.08714
Median	1.975
Standard Deviation	59.20849
Variance	3505.645
Coefficient of Variation	2.947582
Skewness	3.692386

95 % UCL (Assuming Normal Data)	
Student's-t	48.11063

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	62.80119
Modified-t	50.71326

95 % Non-parametric UCL	
CLT	46.11553
Jackknife	48.11063
Standard Bootstrap	45.92348
Bootstrap-t	387.0943
Chebyshev (Mean, Std)	89.06295

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	177.5353

Summary Statistics for	ln(Phenanthrene)
Minimum	-1.609438
Maximum	5.4161
Mean	1.162342
Standard Deviation	1.684374
Variance	2.837114
Shapiro-Wilk Test Statisitic	0.91808
Shapiro-Wilk 5% Critical Value	0.874

Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	13.20901
MLE Standard Deviation	52.94563
MLE Coefficient of Variation	4.008297
MLE Skewness	76.42396
MLE Median	3.197413
MLE 80% Quantile	13.27175
MLE 90% Quantile	27.84803
MLE 95% Quantile	51.0669
MLE 99% Quantile	160.8054
MVU Estimate of Median	2.887298
MVU Estimate of Mean	10.83601
MVU Estimate of Std. Dev.	24.21604
MVU Estimate of SE of Mean	5.526516

UCL Assuming Lognormal Distribution	
95% H-UCL	88.21266
95% Chebyshev (MVUE) UCL	34.92554
99% Chebyshev (MVUE) UCL	65.82415

Recommended UCL to use:
99 % Chebyshev (MVUE) UCL

301780

South Jersey Port Corporation (SJPC) Property

Subsurface Soil

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Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	30	1360	9000	4648.667	4490	1451.351	0.312208	0.600689	2106419
Antimony	30	0.38	7.2	1.387833	0.6525	1.581673	1.139671	2.253335	2.501689
Arsenic	30	3.3	236	32.055	16.2	55.80717	1.740982	3.263342	3114.44
Barium	30	62.4	15600	2041.047	606.5	3179.582	1.557819	2.975983	10109739
Cadmium	30	0.045	291	10.84917	0.75	52.92668	4.87841	5.472382	2801.234
Chromium	30	6.1	189	28.42167	19.3	34.21121	1.203702	3.896032	1170.407
Copper	30	11.4	358	86.39167	59.4	87.30364	1.010556	2.045633	7621.925
Iron	30	6220	71400	17441.33	14950	11569.69	0.663349	3.668475	1.34E+08
Lead	30	34.6	2340	553.1733	339	589.0156	1.064794	1.990005	346939.4
Manganese	30	30.6	492	175.1567	127.5	121.0714	0.691218	1.645692	14658.28
Mercury	28	0.08	1.8	0.633214	0.49	0.450383	0.711265	1.248849	0.202845
Zinc	12	54.1	9500	1167.567	356.5	2666.115	2.28348	3.28559	7108168
Benzo(a)anthracene	30	0.044	150	10.5748	1.5	31.02381	2.933749	3.949884	962.4769
Benzo(a)pyrene	30	0.11	150	9.615833	1.45	29.323	3.04945	4.325569	859.8383
Benzo(b)fluoranthene	30	0.047	150	9.779567	1.7	29.20934	2.986773	4.344499	853.1856
Benzo(k)fluoranthene	30	0.048	140	9.549933	1.6	28.42383	2.976338	4.054872	807.9139
Carbazole	30	0.042	68	5.511733	1.8	13.26789	2.407208	4.059186	176.0368
Chrysene	30	0.063	180	11.51977	1.7	35.83399	3.110653	4.214882	1284.075
Dibenzo(a,h)anthracene	30	0.042	60	4.9014	0.95	11.6471	2.376279	4.062166	135.6548
Dibenzofuran	30	0.078	71	6.192767	1.8	14.81674	2.392587	3.672012	219.5357
Fluoranthene	30	0.095	420	25.05317	2.5	84.94507	3.390592	4.176852	7215.664
Indeno(1,2,3-cd)pyrene	30	0.069	68	5.3883	1.1	13.23708	2.456633	4.091292	175.2202
Naphthalene	30	0.091	76	6.8872	1.8	17.15529	2.490895	3.49272	294.304
Phenanthrene	30	0.052	480	26.60207	1.825	94.81163	3.56407	4.362055	8989.246
Pyrene	30	0.077	350	19.94523	2.45	68.04399	3.411541	4.463185	4629.984
Benzene	30	0.003	0.029	0.007508	0.006	0.005242	0.698128	3.441267	2.75E-05

301782

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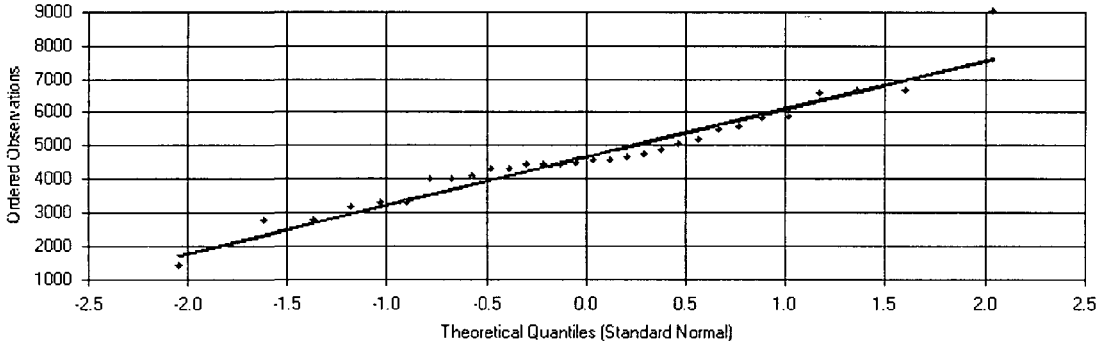
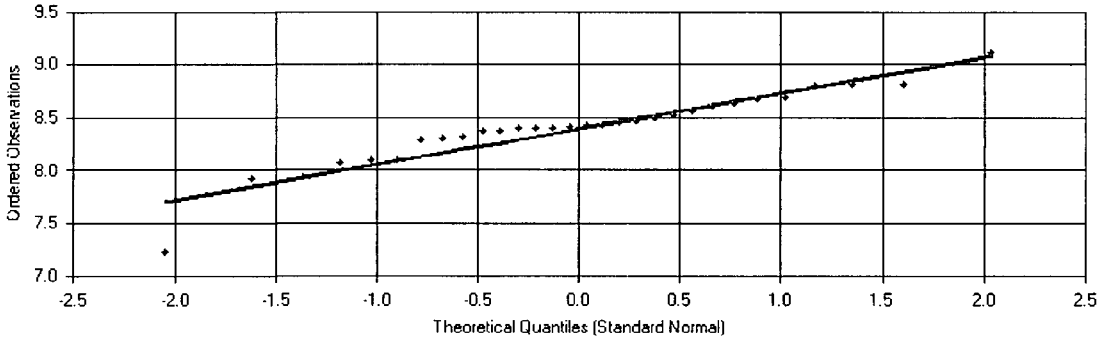
Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	30	7.21524	9.10498	8.392226	8.409586	0.346278	0.041262	-1.175662	0.119909
Antimony	30	-0.967584	1.974081	-0.123199	-0.456959	0.904848	-7.344611	0.796204	0.818751
Arsenic	30	1.193922	5.463832	2.768236	2.78226	1.057961	0.382179	0.954263	1.119282
Barium	30	4.133565	9.655026	6.599192	6.405579	1.528782	0.231662	0.176264	2.337175
Cadmium	30	-3.101093	5.673323	-0.169566	-0.298555	1.589999	-9.376869	1.40981	2.528096
Chromium	30	1.808289	5.241747	3.014602	2.959245	0.738013	0.244813	0.972274	0.544663
Copper	30	2.433613	5.880533	4.060198	4.082022	0.911348	0.224459	0.08605	0.830555
Iron	30	8.735525	11.17605	9.641455	9.611789	0.469458	0.048692	0.906987	0.220391
Lead	30	3.543854	7.757906	5.821154	5.824741	1.048126	0.180055	-0.065258	1.098567
Manganese	30	3.421	6.198479	4.967475	4.848109	0.643736	0.12959	-0.091538	0.414396
Mercury	28	-2.525729	0.587787	-0.699051	-0.714184	0.739859	-1.058376	-0.381734	0.547391
Zinc	12	3.990834	9.159047	5.817512	5.875128	1.456508	0.250366	0.992289	2.121415
Benzo(a)anthracene	30	-3.123566	5.010635	0.389689	0.405465	1.879235	4.822399	0.552492	3.531523
Benzo(a)pyrene	30	-2.207275	5.010635	0.358691	0.370969	1.785255	4.977145	0.729385	3.187134
Benzo(b)fluoranthene	30	-3.057608	5.010635	0.432513	0.528895	1.831328	4.234155	0.434661	3.353761
Benzo(k)fluoranthene	30	-3.036554	4.941642	0.365194	0.470004	1.804387	4.940894	0.571443	3.255812
Carbazole	30	-3.170086	4.219508	0.201086	0.587787	1.762801	8.766385	0.256666	3.107467
Chrysene	30	-2.764621	5.192957	0.482753	0.530628	1.782217	3.691779	0.740924	3.176297
Dibenzo(a,h)anthracene	30	-3.170086	4.094345	0.032519	-0.051293	1.815001	55.81363	0.241934	3.294229
Dibenzofuran	30	-2.551046	4.26268	0.381874	0.587787	1.659341	4.345252	0.384341	2.753411
Fluoranthene	30	-2.353878	6.040255	0.89927	0.91549	1.865966	2.074978	0.940273	3.48183
Indeno(1,2,3-cd)pyrene	30	-2.673649	4.219508	0.133367	0.09531	1.753785	13.15008	0.402398	3.075763
Naphthalene	30	-2.396896	4.330733	0.385726	0.587787	1.677984	4.350199	0.513802	2.815631
Phenanthrene	30	-2.956512	6.173786	0.705333	0.601486	1.984295	2.813276	0.833273	3.937428
Pyrene	30	-2.56395	5.857933	0.778917	0.89421	1.854759	2.381202	0.813632	3.440132
Benzene	30	-5.809143	-3.540459	-5.010919	-5.115996	0.426308	-0.085076	2.136799	0.181739

Normal Q-Q Plot for Aluminum



N = 30, Mean = 4648.6667, Stdv = 1451.3507
Slope = 1444.5677, Intercept = 4648.6667, Correlation, R = 0.96824264
Shapiro-Wilk Statistic = 0.957, Critical Value(0.05) = 0.927, Data are Normal

Lognormal Q-Q Plot for Aluminum



N = 30, Mean = 8.3922, Stdv = 0.3463
Slope = 0.3364, Intercept = 8.3922, Correlation, R = 0.94511837
Shapiro-Wilk Statistic = 0.918, Critical Value(0.05) = 0.927, Data not Lognormal

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Summary Statistics for	Aluminum
Number of Samples	30
Minimum	1360
Maximum	9000
Mean	4648.667
Median	4490
Standard Deviation	1451.351
Variance	2106419
Coefficient of Variation	0.312208
Skewness	0.600689

Shapiro-Wilk Test Statisitic	0.956757
Shapiro-Wilk 5% Critical Value	0.927
Data are Normal at 5% Significance Level	
Recommended UCL to use	Student's-t

95 % UCL (Assuming Normal Data)

Student's-t	5098.9

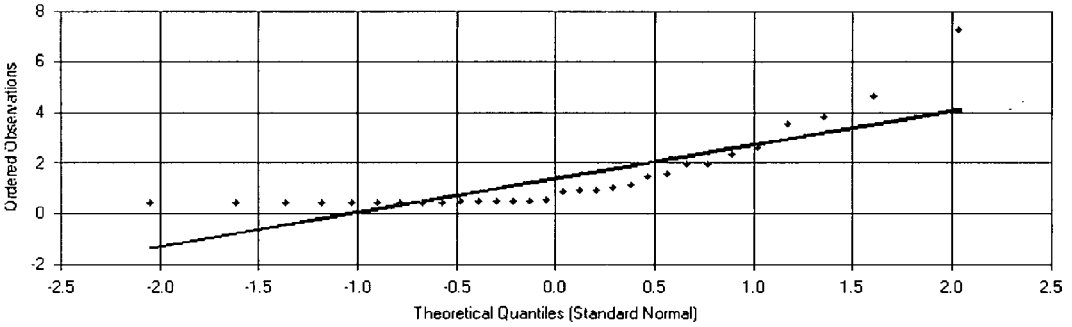
95 % UCL (Adjusted for Skewness)

Adjusted-CLT	5115.57
Modified-t	5103.743

95 % Non-parametric UCL

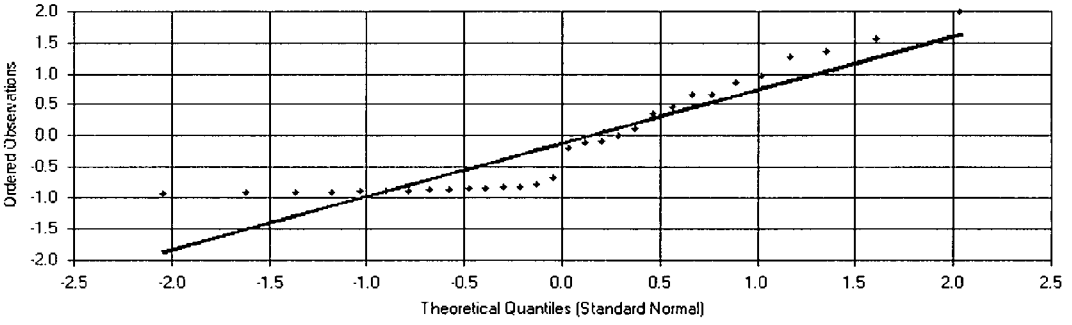
CLT	5084.519
Jackknife	5098.9
Standard Bootstrap	5078.99
Bootstrap-t	5144.563
Chebyshev (Mean, Std)	5803.684

Normal Q-Q Plot for Antimony



N = 30, Mean = 1.3878, Stdv = 1.5817
Slope = 1.3409, Intercept = 1.3878, Correlation, R = 0.82469784
Shapiro-Wilk Statistic = 0.691, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Antimony



N = 30, Mean = -0.1232, Stdv = 0.9048
Slope = 0.8586, Intercept = -0.1232, Correlation, R = 0.92302036
Shapiro-Wilk Statistic = 0.837, Critical Value(0.05) = 0.927, Data not Lognormal

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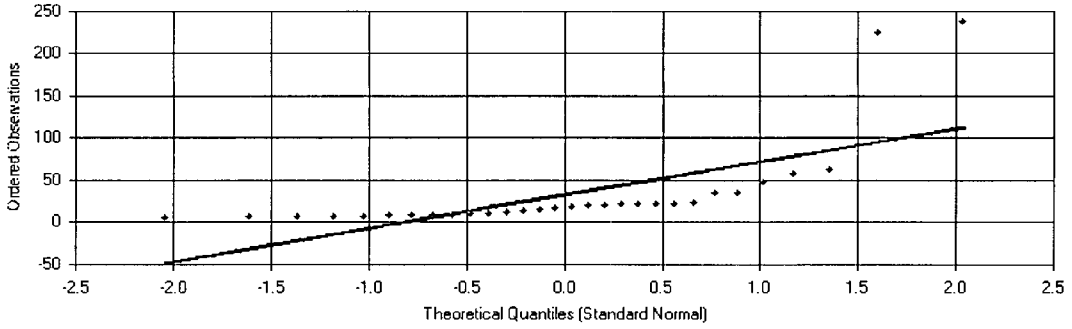
Summary Statistics for	Antimony
Number of Samples	30
Minimum	0.38
Maximum	7.2
Mean	1.387833
Median	0.6525
Standard Deviation	1.581673
Variance	2.501689
Coefficient of Variation	1.139671
Skewness	2.253335
95 % UCL (Assuming Normal Data)	
Student's-t	1.878495
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.989763
Modified-t	1.898295
95 % Non-parametric UCL	
CLT	1.862822
Jackknife	1.878495
Standard Bootstrap	1.850269
Bootstrap-t	2.113578
Chebyshev (Mean, Std)	2.646564

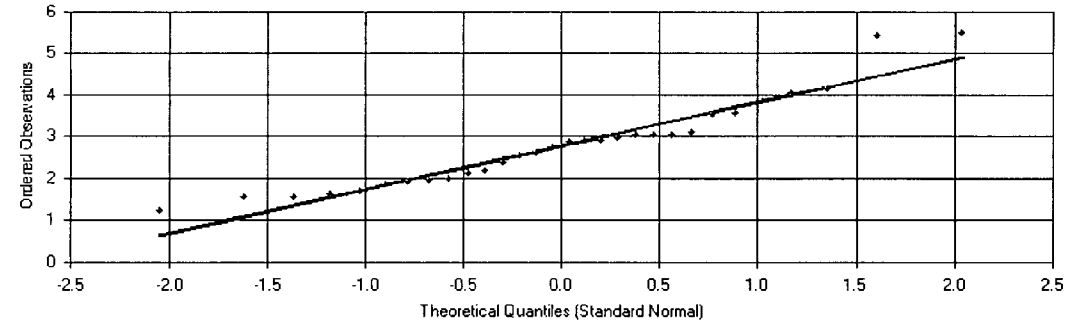
Summary Statistics for	ln(Antimony)
Minimum	-0.96758
Maximum	1.974081
Mean	-0.1232
Standard Deviation	0.904848
Variance	0.818751
Shapiro-Wilk Test Statisitic	0.837333
Shapiro-Wilk 5% Critical Value	0.927
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.331327
MLE Standard Deviation	1.49895
MLE Coefficient of Variation	1.125906
MLE Skewness	4.80499
MLE Median	0.884088
MLE 80% Quantile	1.899134
MLE 90% Quantile	2.827891
MLE 95% Quantile	3.916806
MLE 99% Quantile	7.253458
MVU Estimate of Median	0.8721
MVU Estimate of Mean	1.306868
MVU Estimate of Std. Dev.	1.375773
MVU Estimate of SE of Mean	0.243253
UCL Assuming Lognormal Distribution	
95% H-UCL	1.968521
95% Chebyshev (MVUE) UCL	2.367182
99% Chebyshev (MVUE) UCL	3.727201

Normal Q-Q Plot for Arsenic



N = 30, Mean = 32.0550, Stdv = 55.8072
Slope = 39.4894, Intercept = 32.0550, Correlation, R = 0.68800190
Shapiro-Wilk Statistic = 0.489, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Arsenic



N = 30, Mean = 2.7682, Stdv = 1.0580
Slope = 1.0467, Intercept = 2.7682, Correlation, R = 0.96242208
Shapiro-Wilk Statistic = 0.923, Critical Value(0.05) = 0.927, Data not Lognormal

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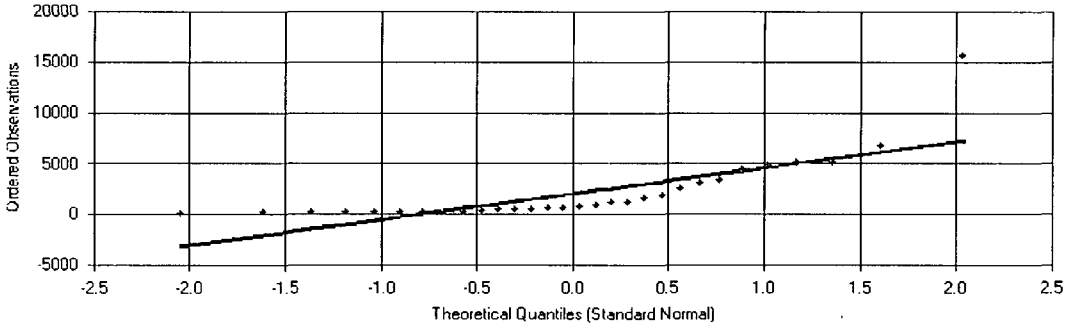
Summary Statistics for	Arsenic
Number of Samples	30
Minimum	3.3
Maximum	236
Mean	32.055
Median	16.2
Standard Deviation	55.80717
Variance	3114.44
Coefficient of Variation	1.740982
Skewness	3.263342
95 % UCL (Assuming Normal Data)	
Student's-t	49.36732
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	55.30085
Modified-t	50.37908
95 % Non-parametric UCL	
CLT	48.81433
Jackknife	49.36732
Standard Bootstrap	47.91001
Bootstrap-t	93.33022
Chebyshev (Mean, Std)	76.4676
97.5 % Non-parametric UCL	
CLT	52.02497
Jackknife	52.89373
Standard Bootstrap	51.81367
Bootstrap-t	104.8606
Chebyshev (Mean, Std)	95.68497

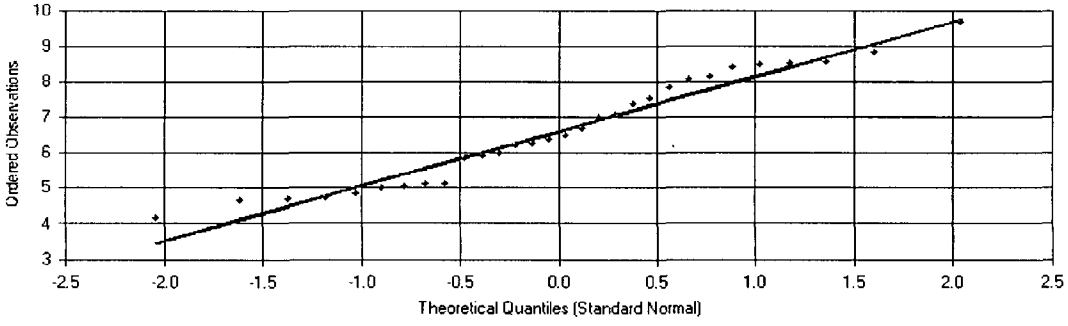
Summary Statistics for	ln(Arsenic)
Minimum	1.193922
Maximum	5.463832
Mean	2.768236
Standard Deviation	1.057961
Variance	1.119282
Shapiro-Wilk Test Statisitic	0.922685
Shapiro-Wilk 5% Critical Value	0.927
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	27.8791
MLE Standard Deviation	40.0398
MLE Coefficient of Variation	1.436195
MLE Skewness	7.270957
MLE Median	15.93051
MLE 80% Quantile	38.94745
MLE 90% Quantile	62.03609
MLE 95% Quantile	90.79302
MLE 99% Quantile	186.6162
MVU Estimate of Median	15.63591
MVU Estimate of Mean	27.11729
MVU Estimate of Std. Dev.	35.25012
MVU Estimate of SE of Mean	6.089178
UCL Assuming Lognormal Distribution	
95% H-UCL	45.6221
95% Chebyshev (MVUE) UCL	53.65941
99% Chebyshev (MVUE) UCL	87.70385

Normal Q-Q Plot for Barium



N = 30, Mean = 2041.0467, Stdv = 3179.5816
Slope = 2573.2412, Intercept = 2041.0467, Correlation, R = 0.78727995
Shapiro-Wilk Statistic = 0.642, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Barium



N = 30, Mean = 6.5992, Stdv = 1.5288
Slope = 1.5410, Intercept = 6.5992, Correlation, R = 0.98056819
Shapiro-Wilk Statistic = 0.948, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Barium
Number of Samples	30
Minimum	62.4
Maximum	15600
Mean	2041.047
Median	606.5
Standard Deviation	3179.582
Variance	10109739
Coefficient of Variation	1.557819
Skewness	2.975983

95 % UCL (Assuming Normal Data)	
Student's-t	3027.406

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3332.923
Modified-t	3079.975

95 % Non-parametric UCL	
CLT	2995.9
Jackknife	3027.406
Standard Bootstrap	2993.626
Bootstrap-t	3749.982
Chebyshev (Mean, Std)	4571.429

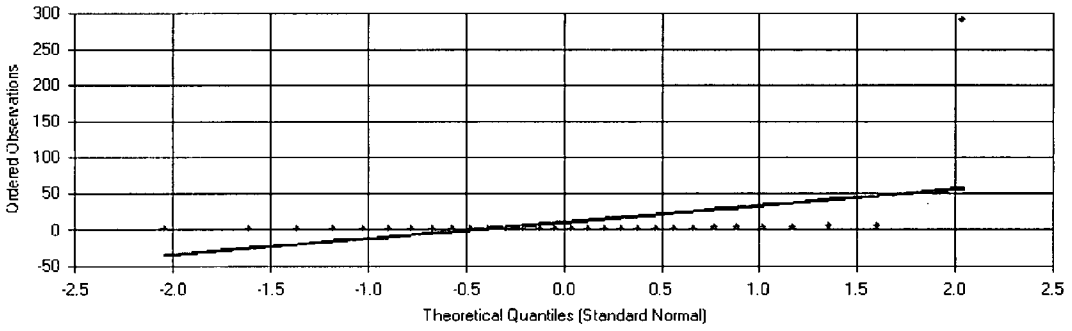
Summary Statistics for	ln(Barium)
Minimum	4.133565
Maximum	9.655026
Mean	6.599192
Standard Deviation	1.528782
Variance	2.337175
Shapiro-Wilk Test Statisitic	0.94798
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	2363.219
MLE Standard Deviation	7226.949
MLE Coefficient of Variation	3.058096
MLE Skewness	37.77345
MLE Median	734.5017
MLE 80% Quantile	2673.151
MLE 90% Quantile	5237.908
MLE 95% Quantile	9081.902
MLE 99% Quantile	25722.97
MVU Estimate of Median	706.4061
MVU Estimate of Mean	2188.598
MVU Estimate of Std. Dev.	5097.542
MVU Estimate of SE of Mean	774.4493

UCL Assuming Lognormal Distribution	
95% H-UCL	5765.107
95% Chebyshev (MVUE) UCL	5564.344
99% Chebyshev (MVUE) UCL	9894.272

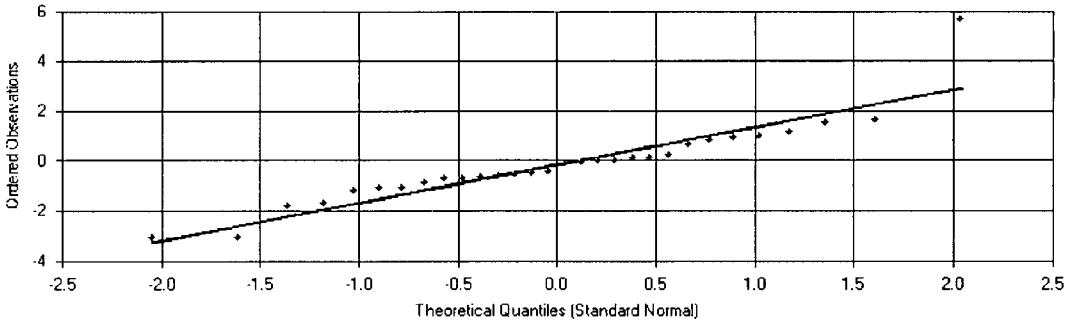
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Cadmium



N = 30, Mean = 10.8492, Stdv = 52.9267
Slope = 22.5489, Intercept = 10.8492, Correlation, R = 0.41444774
Shapiro-Wilk Statistic = 0.203, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Cadmium



N = 30, Mean = -0.1696, Stdv = 1.5900
Slope = 1.5114, Intercept = -0.1696, Correlation, R = 0.92468030
Shapiro-Wilk Statistic = 0.882, Critical Value(0.05) = 0.927, Data not Lognormal

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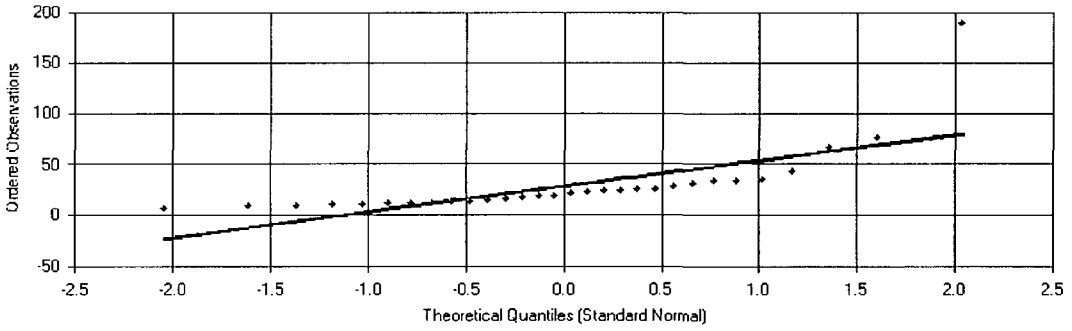
Summary Statistics for	Cadmium
Number of Samples	30
Minimum	0.045
Maximum	291
Mean	10.84917
Median	0.75
Standard Deviation	52.92668
Variance	2801.234
Coefficient of Variation	4.87841
Skewness	5.472382
95 % UCL (Assuming Normal Data)	
Student's-t	27.26791
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	37.05944
Modified-t	28.87699
95 % Non-parametric UCL	
CLT	26.74346
Jackknife	27.26791
Standard Bootstrap	26.0331
Bootstrap-t	560.1428
Chebyshev (Mean, Std)	52.96941
97.5 % Non-parametric UCL	
CLT	29.78839
Jackknife	30.61231
Standard Bootstrap	29.11306
Bootstrap-t	642.7933
Chebyshev (Mean, Std)	71.19487

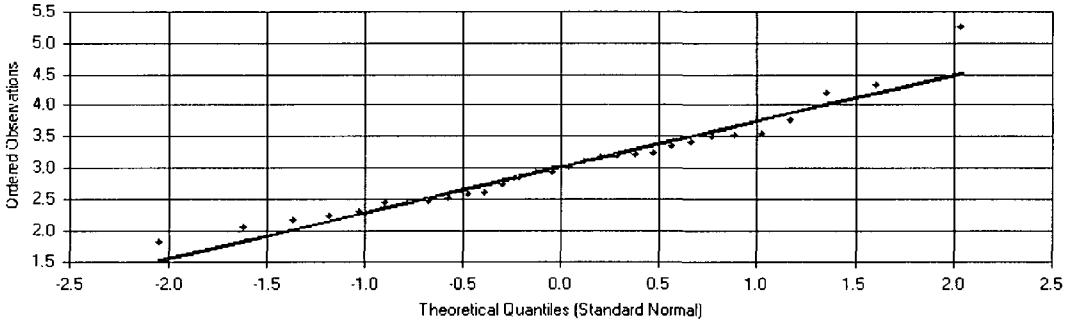
Summary Statistics for	ln(Cadmium)
Minimum	-3.10109
Maximum	5.673323
Mean	-0.16957
Standard Deviation	1.589999
Variance	2.528096
Shapiro-Wilk Test Statisitic	0.881642
Shapiro-Wilk 5% Critical Value	0.927
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	2.987635
MLE Standard Deviation	10.14461
MLE Coefficient of Variation	3.395531
MLE Skewness	49.33581
MLE Median	0.844031
MLE 80% Quantile	3.234851
MLE 90% Quantile	6.511582
MLE 95% Quantile	11.54188
MLE 99% Quantile	34.08206
MVU Estimate of Median	0.80916
MVU Estimate of Mean	2.741188
MVU Estimate of Std. Dev.	6.861388
MVU Estimate of SE of Mean	1.018349
UCL Assuming Lognormal Distribution	
95% H-UCL	7.752275
95% Chebyshev (MVUE) UCL	7.180067
99% Chebyshev (MVUE) UCL	12.87363

Normal Q-Q Plot for Chromium



N = 30, Mean = 28.4217, Stdv = 34.2112
Slope = 25.3293, Intercept = 28.4217, Correlation, R = 0.72023372
Shapiro-Wilk Statistic = 0.550, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Chromium



N = 30, Mean = 3.0146, Stdv = 0.7380
Slope = 0.7354, Intercept = 3.0146, Correlation, R = 0.96932889
Shapiro-Wilk Statistic = 0.947, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Chromium
Number of Samples	30
Minimum	6.1
Maximum	189
Mean	28.42167
Median	19.3
Standard Deviation	34.21121
Variance	1170.407
Coefficient of Variation	1.203702
Skewness	3.896032

95 % UCL (Assuming Normal Data)	
Student's-t	39.03456

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	43.4429
Modified-t	39.77504

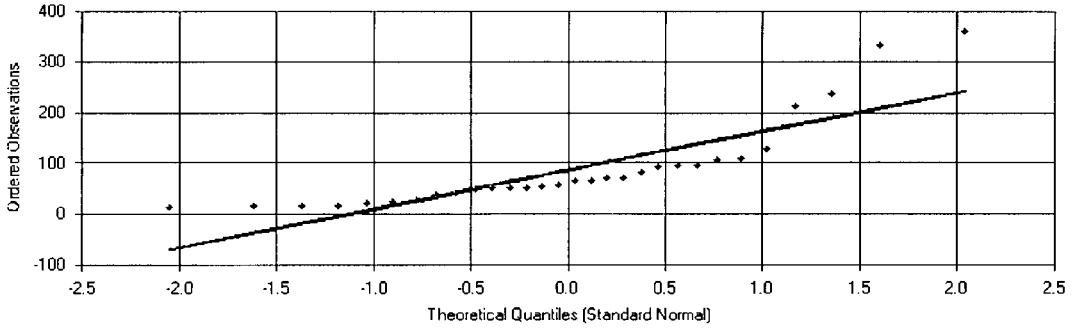
95 % Non-parametric UCL	
CLT	38.69556
Jackknife	39.03456
Standard Bootstrap	38.2993
Bootstrap-t	52.85945
Chebyshev (Mean, Std)	55.64772

Summary Statistics for	ln(Chromium)
Minimum	1.808289
Maximum	5.241747
Mean	3.014602
Standard Deviation	0.738013
Variance	0.544663
Shapiro-Wilk Test Statisitic	0.947075
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	26.76068
MLE Standard Deviation	22.7706
MLE Coefficient of Variation	0.850898
MLE Skewness	3.168767
MLE *Median*	20.38098
MLE 80% Quantile	38.02421
MLE 90% Quantile	52.61223
MLE 95% Quantile	68.62338
MLE 99% Quantile	113.4339
MVU Estimate of Median	20.19675
MVU Estimate of Mean	26.46086
MVU Estimate of Std. Dev.	21.60636
MVU Estimate of SE of Mean	3.884671

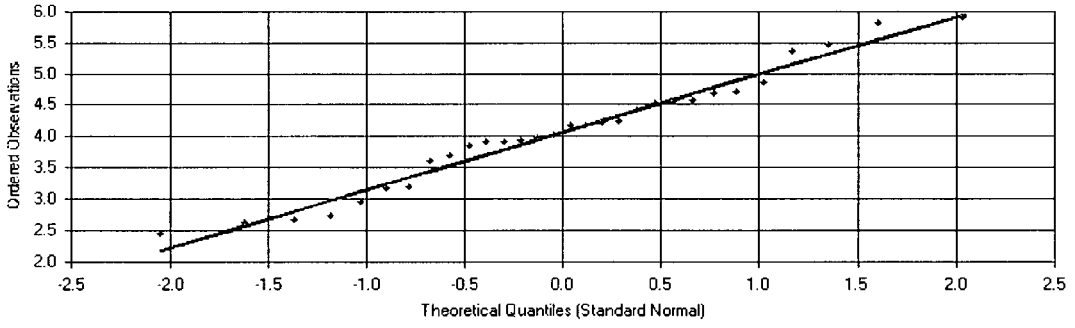
UCL Assuming Lognormal Distribution	
95% H-UCL	35.92321
95% Chebyshev (MVUE) UCL	43.39374
99% Chebyshev (MVUE) UCL	65.11284
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Copper



N = 30, Mean = 86.3917, Stdv = 87.3036
Slope = 76.8253, Intercept = 86.3917, Correlation, R = 0.85603359
Shapiro-Wilk Statistic = 0.736, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Copper



N = 30, Mean = 4.0602, Stdv = 0.9113
Slope = 0.9249, Intercept = 4.0602, Correlation, R = 0.98726722
Shapiro-Wilk Statistic = 0.964, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Copper
Number of Samples	30
Minimum	11.4
Maximum	358
Mean	86.39167
Median	59.4
Standard Deviation	87.30364
Variance	7621.925
Coefficient of Variation	1.010556
Skewness	2.045633

95 % UCL (Assuming Normal Data)	
Student's-t	113.4747

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	118.9705
Modified-t	114.4669

95 % Non-parametric UCL	
CLT	112.6096
Jackknife	113.4747
Standard Bootstrap	111.8058
Bootstrap-t	126.5567
Chebyshev (Mean, Std)	155.8699

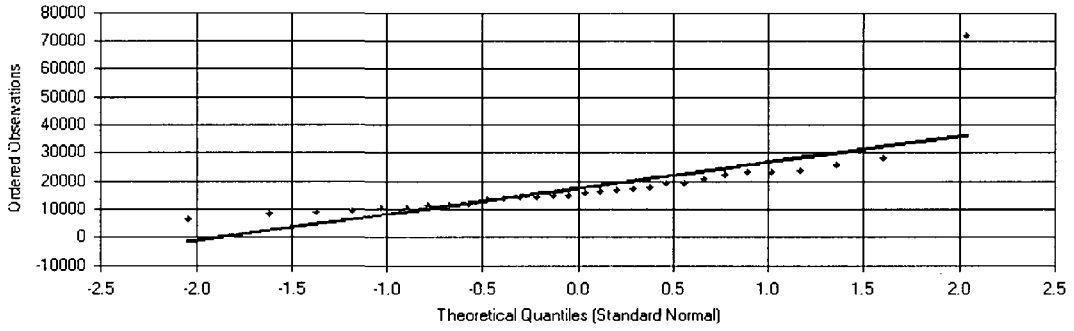
Summary Statistics for	ln(Copper)
Minimum	2.433613
Maximum	5.880533
Mean	4.060198
Standard Deviation	0.911348
Variance	0.830555
Shapiro-Wilk Test Statisitic	0.964062
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	87.83638
MLE Standard Deviation	99.94037
MLE Coefficient of Variation	1.137802
MLE Skewness	4.886394
MLE Median	57.9858
MLE 80% Quantile	125.2469
MLE 90% Quantile	187.0321
MLE 95% Quantile	259.6581
MLE 99% Quantile	482.9889
MVU Estimate of Median	57.1883
MVU Estimate of Mean	86.19364
MVU Estimate of Std. Dev.	91.58707
MVU Estimate of SE of Mean	16.18031

UCL Assuming Lognormal Distribution	
95% H-UCL	130.4032
95% Chebyshev (MVUE) UCL	156.722
99% Chebyshev (MVUE) UCL	247.1857

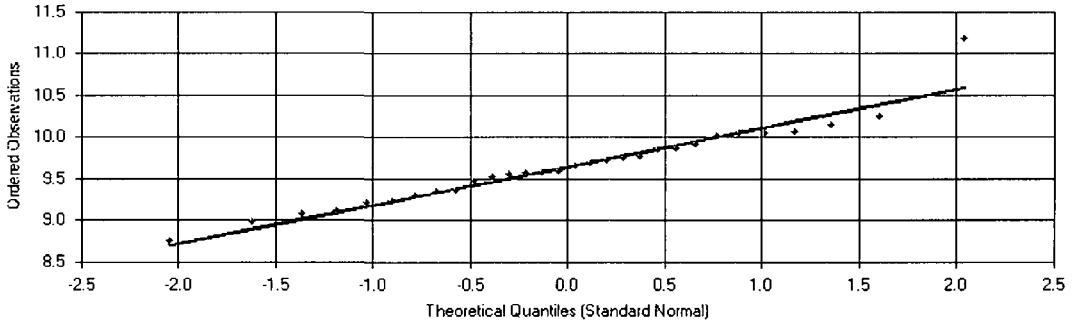
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Iron



N = 30, Mean = 17441.3333, Stdv = 11569.6868
Slope = 9235.9696, Intercept = 17441.3333, Correlation, R = 0.77656811
Shapiro-Wilk Statistic = 0.637, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Iron



N = 30, Mean = 9.6415, Stdv = 0.4695
Slope = 0.4654, Intercept = 9.6415, Correlation, R = 0.96427887
Shapiro-Wilk Statistic = 0.948, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Iron
Number of Samples	30
Minimum	6220
Maximum	71400
Mean	17441.33
Median	14950
Standard Deviation	11569.69
Variance	1.34E+08
Coefficient of Variation	0.663349
Skewness	3.668475

95 % UCL (Assuming Normal Data)	
Student's-t	21030.44

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	22427.5
Modified-t	21266.24

95 % Non-parametric UCL	
CLT	20915.8
Jackknife	21030.44
Standard Bootstrap	20836.36
Bootstrap-t	24190.33
Chebyshev (Mean, Std)	26648.75

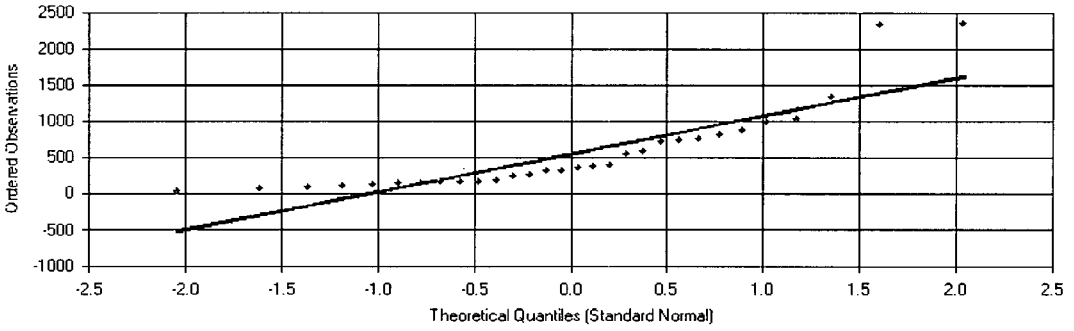
Summary Statistics for	ln(Iron)
Minimum	8.735525
Maximum	11.17605
Mean	9.641455
Standard Deviation	0.469458
Variance	0.220391
Shapiro-Wilk Test Statisitic	0.948008
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	17182.57
MLE Standard Deviation	8532.043
MLE Coefficient of Variation	0.496552
MLE Skewness	1.612088
MLE Median	15389.73
MLE 80% Quantile	22882.96
MLE 90% Quantile	28133.3
MLE 95% Quantile	33313.37
MLE 99% Quantile	45863.05
MVU Estimate of Median	15333.29
MVU Estimate of Mean	17113.36
MVU Estimate of Std. Dev.	8371.149
MVU Estimate of SE of Mean	1524.109

UCL Assuming Lognormal Distribution	
95% H-UCL	20296.9
95% Chebyshev (MVUE) UCL	23756.8
99% Chebyshev (MVUE) UCL	32278.05

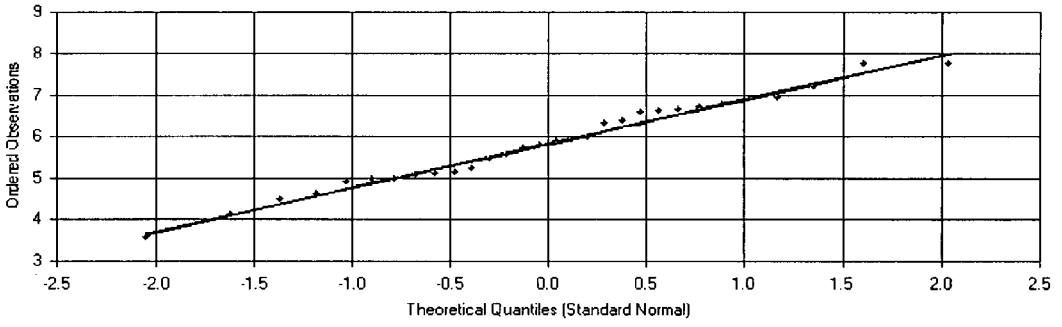
Recommended UCL to use:
Student's-t or H-UCL

Normal Q-Q Plot for Lead



N = 30, Mean = 553.1733, Stdv = 589.0156
Slope = 525.5516, Intercept = 553.1733, Correlation, R = 0.86797497
Shapiro-Wilk Statistic = 0.755, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Lead



N = 30, Mean = 5.8212, Stdv = 1.0481
Slope = 1.0698, Intercept = 5.8212, Correlation, R = 0.99294625
Shapiro-Wilk Statistic = 0.979, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Lead
Number of Samples	30
Minimum	34.6
Maximum	2340
Mean	553.1733
Median	339
Standard Deviation	589.0156
Variance	346939.4
Coefficient of Variation	1.064794
Skewness	1.990005

95 % UCL (Assuming Normal Data)	
Student's-t	735.8958

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	771.8078
Modified-t	742.4077

95 % Non-parametric UCL	
CLT	730.0593
Jackknife	735.8958
Standard Bootstrap	722.524
Bootstrap-t	809.3442
Chebyshev (Mean, Std)	1021.925

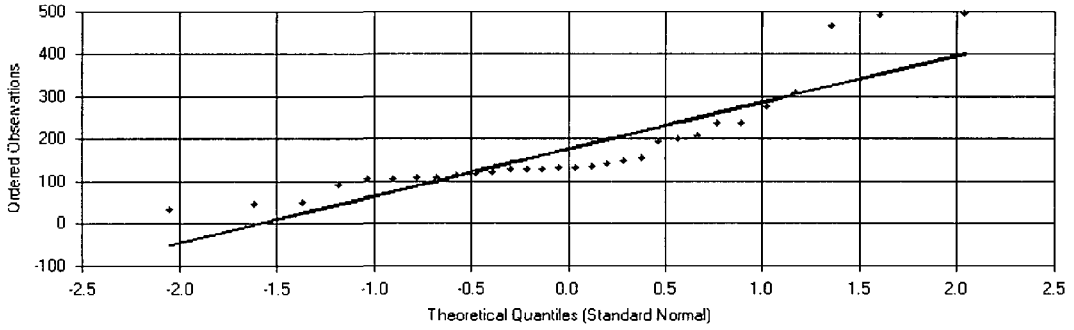
Summary Statistics for	ln(Lead)
Minimum	3.543854
Maximum	7.757906
Mean	5.821154
Standard Deviation	1.048126
Variance	1.098567
Shapiro-Wilk Test Statisitic	0.979248
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	584.3137
MLE Standard Deviation	826.3164
MLE Coefficient of Variation	1.414166
MLE Skewness	7.070636
MLE Median	337.3613
MLE 80% Quantile	817.9658
MLE 90% Quantile	1297.242
MLE 95% Quantile	1891.87
MLE 99% Quantile	3862.595
MVU Estimate of Median	331.237
MVU Estimate of Mean	568.7284
MVU Estimate of Std. Dev.	729.687
MVU Estimate of SE of Mean	126.2681

UCL Assuming Lognormal Distribution	
95% H-UCL	949.5932
95% Chebyshev (MVUE) UCL	1119.118
99% Chebyshev (MVUE) UCL	1825.08

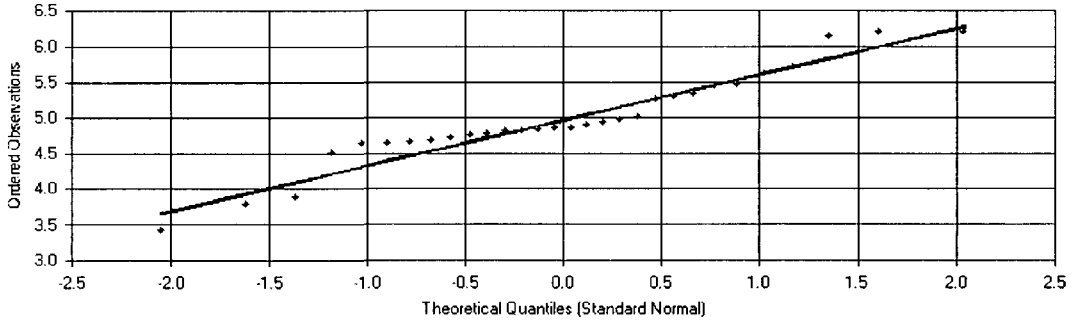
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Manganese



N = 30, Mean = 175.1567, Stdv = 121.0714
Slope = 110.6066, Intercept = 175.1567, Correlation, R = 0.88870651
Shapiro-Wilk Statistic = 0.788, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Manganese



N = 30, Mean = 4.9675, Stdv = 0.6437
Slope = 0.6402, Intercept = 4.9675, Correlation, R = 0.96749710
Shapiro-Wilk Statistic = 0.937, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Manganese
Number of Samples	30
Minimum	30.6
Maximum	492
Mean	175.1567
Median	127.5
Standard Deviation	121.0714
Variance	14658.28
Coefficient of Variation	0.691218
Skewness	1.645692

95 % UCL (Assuming Normal Data)	
Student's-t	212.715

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	218.6119
Modified-t	213.822

95 % Non-parametric UCL	
CLT	211.5154
Jackknife	212.715
Standard Bootstrap	209.9976
Bootstrap-t	223.6627
Chebyshev (Mean, Std)	271.508

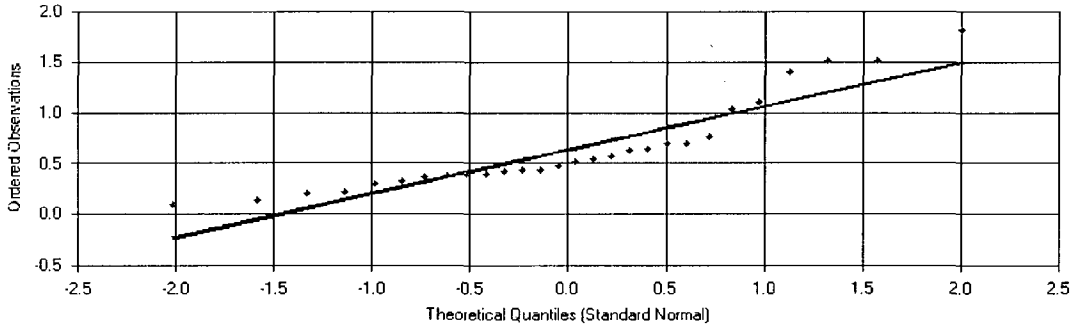
Summary Statistics for	ln(Manganese)
Minimum	3.421
Maximum	6.198479
Mean	4.967475
Standard Deviation	0.643736
Variance	0.414396
Shapiro-Wilk Test Statisitic	0.937439
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	176.7388
MLE Standard Deviation	126.6436
MLE Coefficient of Variation	0.716558
MLE Skewness	2.517596
MLE Median	143.6637
MLE 80% Quantile	247.5052
MLE 90% Quantile	328.5455
MLE 95% Quantile	414.2295
MLE 99% Quantile	642.1386
MVU Estimate of Median	142.6747
MVU Estimate of Mean	175.2989
MVU Estimate of Std. Dev.	121.8882
MVU Estimate of SE of Mean	22.04886

UCL Assuming Lognormal Distribution	
95% H-UCL	226.0097
95% Chebyshev (MVUE) UCL	271.4077
99% Chebyshev (MVUE) UCL	394.6823

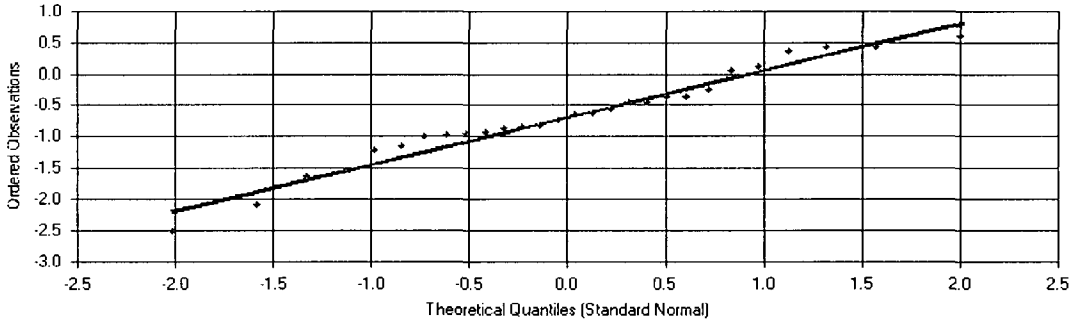
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Mercury



N = 28, Mean = 0.6332, Stdv = 0.4504
Slope = 0.4303, Intercept = 0.6332, Correlation, R = 0.92813007
Shapiro-Wilk Statistic = 0.858, Critical Value(0.05) = 0.924, Data not Normal

Lognormal Q-Q Plot for Mercury



N = 28, Mean = -0.6991, Stdv = 0.7399
Slope = 0.7491, Intercept = -0.6991, Correlation, R = 0.98346511
Shapiro-Wilk Statistic = 0.966, Critical Value(0.05) = 0.924, Data are Lognormal

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Summary Statistics for	Mercury
Number of Samples	28
Minimum	0.08
Maximum	1.8
Mean	0.633214
Median	0.49
Standard Deviation	0.450383
Variance	0.202845
Coefficient of Variation	0.711265
Skewness	1.248849

95 % UCL (Assuming Normal Data)	
Student's-t	0.778189

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.794679
Modified-t	0.781537

95 % Non-parametric UCL	
CLT	0.773215
Jackknife	0.778189
Standard Bootstrap	0.769551
Bootstrap-t	0.81465
Chebyshev (Mean, Std)	1.004219

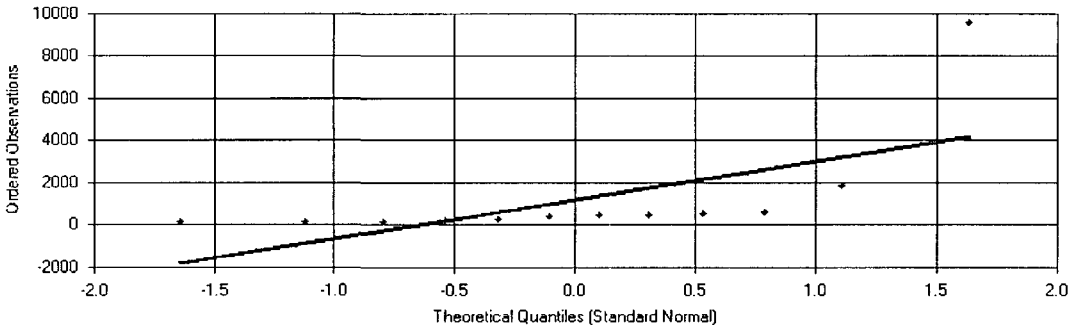
Summary Statistics for	ln(Mercury)
Minimum	-2.52573
Maximum	0.587787
Mean	-0.69905
Standard Deviation	0.739859
Variance	0.547391
Shapiro-Wilk Test Statisitic	0.966426
Shapiro-Wilk 5% Critical Value	0.924
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	0.653537
MLE Standard Deviation	0.557899
MLE Coefficient of Variation	0.853661
MLE Skewness	3.183075
MLE Median	0.497057
MLE 80% Quantile	0.928792
MLE 90% Quantile	1.286168
MLE 95% Quantile	1.678694
MLE 99% Quantile	2.778358
MVU Estimate of Median	0.49222
MVU Estimate of Mean	0.645662
MVU Estimate of Std. Dev.	0.527421
MVU Estimate of SE of Mean	0.098177

UCL Assuming Lognormal Distribution	
95% H-UCL	0.890067
95% Chebyshev (MVUE) UCL	1.073605
99% Chebyshev (MVUE) UCL	1.62251

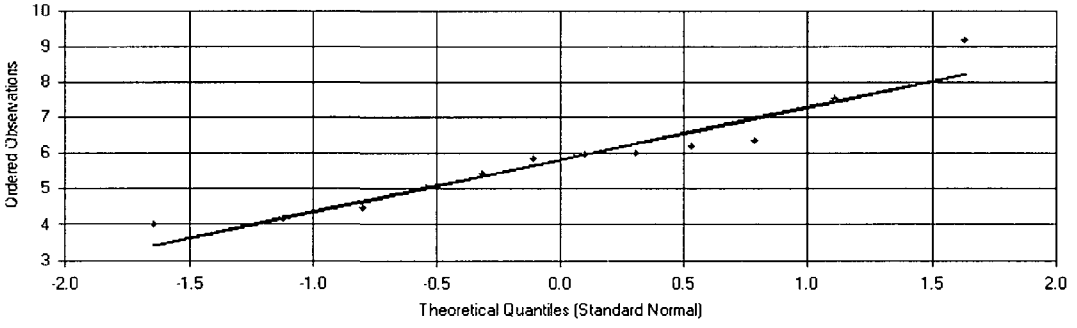
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Zinc



N = 12, Mean = 1167.5667, Stdv = 2666.1148
Slope = 1822.5591, Intercept = 1167.5667, Correlation, R = 0.64761531
Shapiro-Wilk Statistic = 0.450, Critical Value(0.05) = 0.859, Data not Normal

Lognormal Q-Q Plot for Zinc



N = 12, Mean = 5.8175, Stdv = 1.4565
Slope = 1.4691, Intercept = 5.8175, Correlation, R = 0.95554501
Shapiro-Wilk Statistic = 0.919, Critical Value(0.05) = 0.859, Data are Lognormal

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Summary Statistics for	Zinc
Number of Samples	12
Minimum	54.1
Maximum	9500
Mean	1167.567
Median	356.5
Standard Deviation	2666.115
Variance	7108168
Coefficient of Variation	2.28348
Skewness	3.28559

95 % UCL (Assuming Normal Data)	
Student's-t	2549.753

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3213.508
Modified-t	2671.417

95 % Non-parametric UCL	
CLT	2433.514
Jackknife	2549.753
Standard Bootstrap	2403.842
Bootstrap-t	15083.56
Chebyshev (Mean, Std)	4522.354

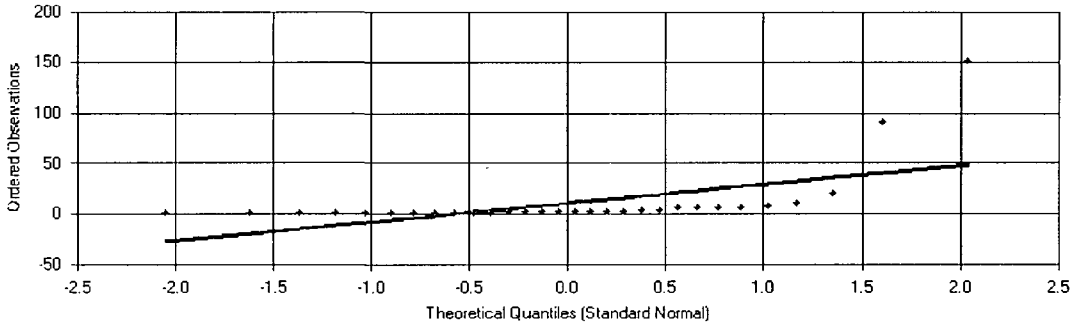
Summary Statistics for	ln(Zinc)
Minimum	3.990834
Maximum	9.159047
Mean	5.817512
Standard Deviation	1.456508
Variance	2.121415
Shapiro-Wilk Test Statisitic	0.919109
Shapiro-Wilk 5% Critical Value	0.859
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	970.8959
MLE Standard Deviation	2630.919
MLE Coefficient of Variation	2.709785
MLE Skewness	28.02714
MLE Median	336.1346
MLE 80% Quantile	1150.855
MLE 90% Quantile	2184.461
MLE 95% Quantile	3690.315
MLE 99% Quantile	9950.211
MVU Estimate of Median	307.5103
MVU Estimate of Mean	835.007
MVU Estimate of Std. Dev.	1459.05
MVU Estimate of SE of Mean	384.2538

UCL Assuming Lognormal Distribution	
95% H-UCL	5163.585
95% Chebyshev (MVUE) UCL	2509.93
99% Chebyshev (MVUE) UCL	4658.284

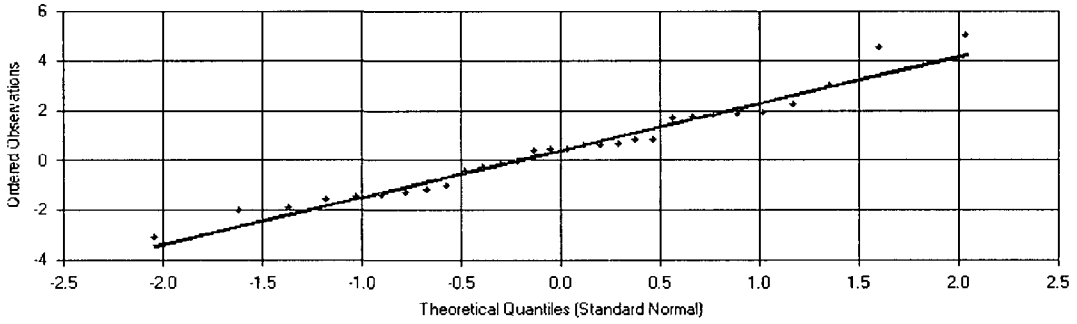
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(a)anthracene



N = 30, Mean = 10.5748, Stdv = 31.0238
Slope = 18.6471, Intercept = 10.5748, Correlation, R = 0.58470384
Shapiro-Wilk Statistic = 0.368, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Benzo(a)anthracene



N = 30, Mean = 0.3897, Stdv = 1.8792
Slope = 1.8966, Intercept = 0.3897, Correlation, R = 0.98176663
Shapiro-Wilk Statistic = 0.964, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Benzo(a)ar
Number of Samples	30
Minimum	0.044
Maximum	150
Mean	10.5748
Median	1.5
Standard Deviation	31.02381
Variance	962.4769
Coefficient of Variation	2.933749
Skewness	3.949884

95 % UCL (Assuming Normal Data)	
Student's-t	20.1989

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	24.25604
Modified-t	20.87968

95 % Non-parametric UCL	
CLT	19.89149
Jackknife	20.1989
Standard Bootstrap	19.84406
Bootstrap-t	75.59877
Chebyshev (Mean, Std)	35.26425

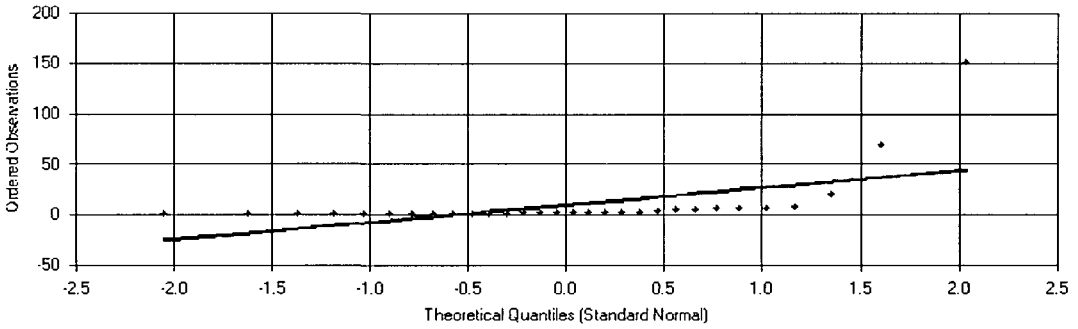
Summary Statistics for	ln(Benzo(a)anthracene)
Minimum	-3.12357
Maximum	5.010635
Mean	0.389689
Standard Deviation	1.879235
Variance	3.531523
Shapiro-Wilk Test Statisitic	0.964164
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	8.631778
MLE Standard Deviation	49.71783
MLE Coefficient of Variation	5.75986
MLE Skewness	208.3687
MLE Median	1.476521
MLE 80% Quantile	7.225686
MLE 90% Quantile	16.5189
MLE 95% Quantile	32.49317
MLE 99% Quantile	116.8381
MVU Estimate of Median	1.391967
MVU Estimate of Mean	7.490132
MVU Estimate of Std. Dev.	26.20329
MVU Estimate of SE of Mean	3.412464

UCL Assuming Lognormal Distribution	
95% H-UCL	30.95488
95% Chebyshev (MVUE) UCL	22.36472
99% Chebyshev (MVUE) UCL	41.44372

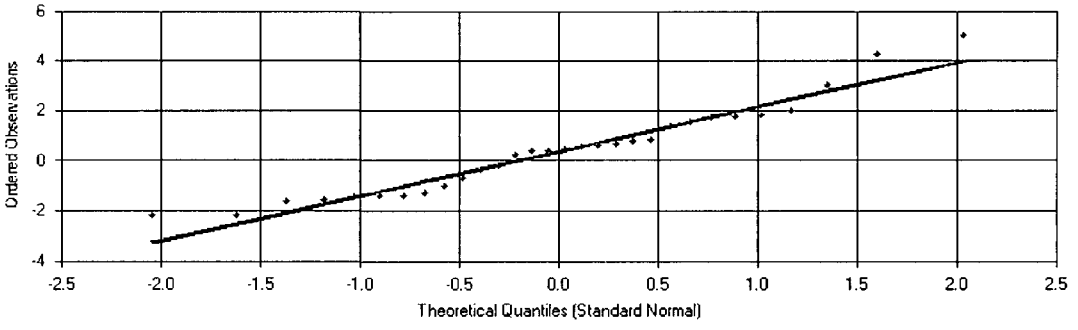
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(a)pyrene



N = 30, Mean = 9.6158, Stdv = 29.3230
Slope = 17.1438, Intercept = 9.6158, Correlation, R = 0.56874565
Shapiro-Wilk Statistic = 0.353, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Benzo(a)pyrene



N = 30, Mean = 0.3587, Stdv = 1.7853
Slope = 1.7840, Intercept = 0.3587, Correlation, R = 0.97207998
Shapiro-Wilk Statistic = 0.941, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Benzo(a)py
Number of Samples	30
Minimum	0.11
Maximum	150
Mean	9.615833
Median	1.45
Standard Deviation	29.323
Variance	859.8383
Coefficient of Variation	3.04945
Skewness	4.325569

95 % UCL (Assuming Normal Data)	
Student's-t	18.71232

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	22.93939
Modified-t	19.41698

95 % Non-parametric UCL	
CLT	18.42176
Jackknife	18.71232
Standard Bootstrap	18.32615
Bootstrap-t	67.24863
Chebyshev (Mean, Std)	32.95173

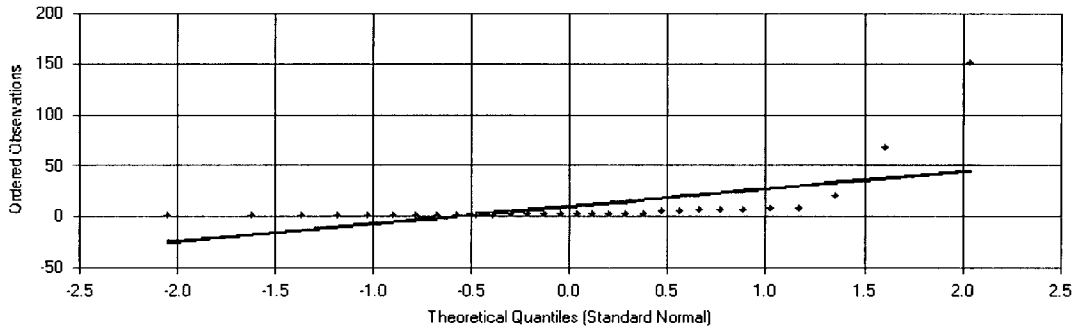
Summary Statistics for	ln(Benzo(a)pyrene)
Minimum	-2.20727
Maximum	5.010635
Mean	0.358691
Standard Deviation	1.785255
Variance	3.187134
Shapiro-Wilk Test Statisitic	0.940618
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	7.044574
MLE Standard Deviation	33.945
MLE Coefficient of Variation	4.818602
MLE Skewness	126.3386
MLE Median	1.431454
MLE 80% Quantile	6.470354
MLE 90% Quantile	14.19291
MLE 95% Quantile	26.98914
MLE 99% Quantile	91.03035
MVU Estimate of Median	1.357277
MVU Estimate of Mean	6.238757
MVU Estimate of Std. Dev.	19.59167
MVU Estimate of SE of Mean	2.671721

UCL Assuming Lognormal Distribution	
95% H-UCL	22.61175
95% Chebyshev (MVUE) UCL	17.88452
99% Chebyshev (MVUE) UCL	32.82205

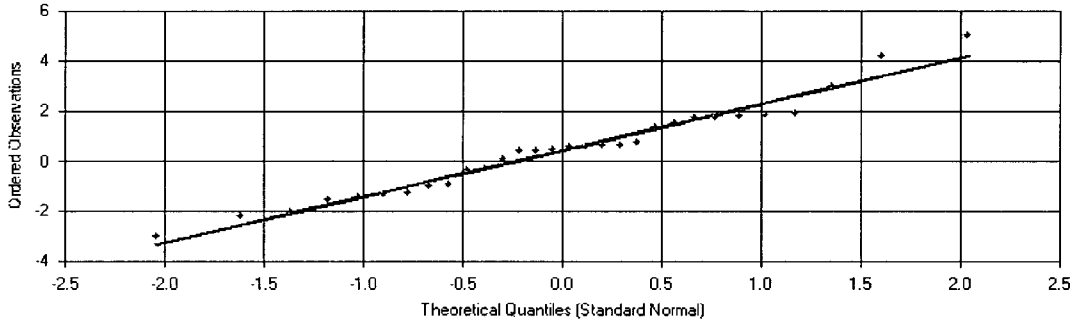
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(b)fluoranthene



N = 30, Mean = 9.7796, Stdv = 29.2093
Slope = 17.1620, Intercept = 9.7796, Correlation, R = 0.57156355
Shapiro-Wilk Statistic = 0.357, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Benzo(b)fluoranthene



N = 30, Mean = 0.4325, Stdv = 1.8313
Slope = 1.8513, Intercept = 0.4325, Correlation, R = 0.98340916
Shapiro-Wilk Statistic = 0.969, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Benzo(b)flu
Number of Samples	30
Minimum	0.047
Maximum	150
Mean	9.779567
Median	1.7
Standard Deviation	29.20934
Variance	853.1856
Coefficient of Variation	2.986773
Skewness	4.344499

95 % UCL (Assuming Normal Data)	
Student's-t	18.84079

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	23.07117
Modified-t	19.54579

95 % Non-parametric UCL	
CLT	18.55136
Jackknife	18.84079
Standard Bootstrap	18.3655
Bootstrap-t	67.83719
Chebyshev (Mean, Std)	33.02502

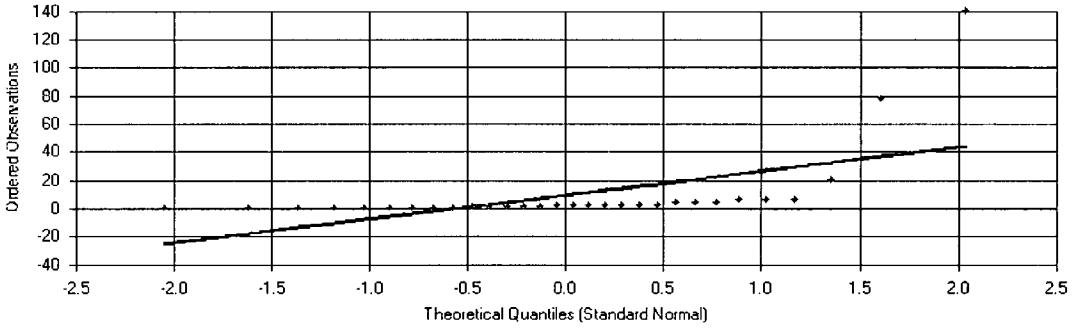
Summary Statistics for	ln(Benzo(b)fluoranthene)
Minimum	-3.05761
Maximum	5.010635
Mean	0.432513
Standard Deviation	1.831328
Variance	3.353761
Shapiro-Wilk Test Statisitic	0.968745
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	8.24324
MLE Standard Deviation	43.31439
MLE Coefficient of Variation	5.254534
MLE Skewness	160.842
MLE Median	1.541126
MLE 80% Quantile	7.242634
MLE 90% Quantile	16.21228
MLE 95% Quantile	31.34476
MLE 99% Quantile	109.0909
MVU Estimate of Median	1.457199
MVU Estimate of Mean	7.229799
MVU Estimate of Std. Dev.	23.93994
MVU Estimate of SE of Mean	3.193132

UCL Assuming Lognormal Distribution	
95% H-UCL	27.9174
95% Chebyshev (MVUE) UCL	21.14834
99% Chebyshev (MVUE) UCL	39.00107

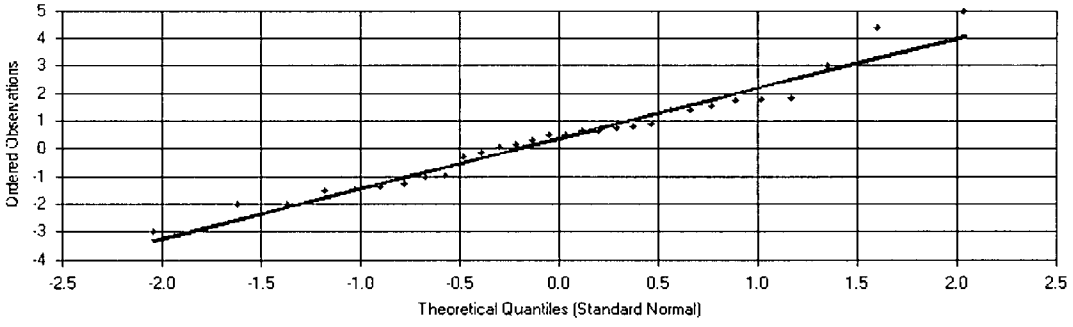
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzo(k)fluoranthene



N = 30, Mean = 9.5499, Stdv = 28.4238
Slope = 16.8662, Intercept = 9.5499, Correlation, R = 0.57723732
Shapiro-Wilk Statistic = 0.361, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Benzo(k)fluoranthene



N = 30, Mean = 0.3652, Stdv = 1.8044
Slope = 1.8157, Intercept = 0.3652, Correlation, R = 0.97890556
Shapiro-Wilk Statistic = 0.961, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Benzo(k)flu
Number of Samples	30
Minimum	0.048
Maximum	140
Mean	9.549933
Median	1.6
Standard Deviation	28.42383
Variance	807.9139
Coefficient of Variation	2.976338
Skewness	4.054872

95 % UCL (Assuming Normal Data)	
Student's-t	18.36748

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	22.19088
Modified-t	19.00778

95 % Non-parametric UCL	
CLT	18.08583
Jackknife	18.36748
Standard Bootstrap	18.08775
Bootstrap-t	67.0138
Chebyshev (Mean, Std)	32.17025

Summary Statistics for	ln(Benzo(k)fluoranthene)
Minimum	-3.03655
Maximum	4.941642
Mean	0.365194
Standard Deviation	1.804387
Variance	3.255812
Shapiro-Wilk Test Statisitic	0.960617
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

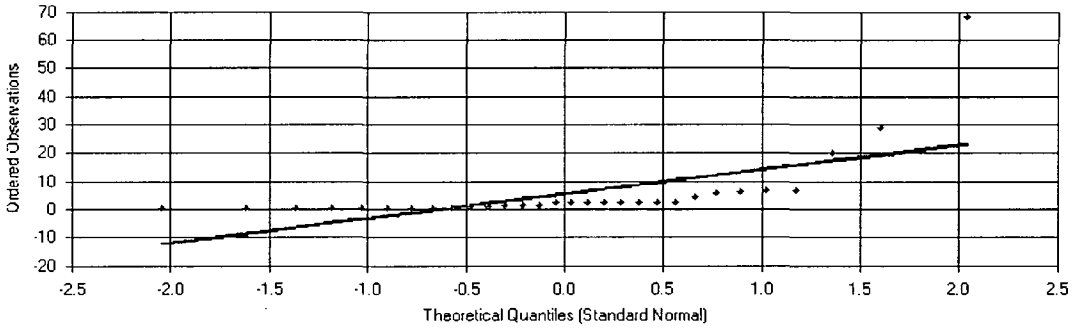
Estimates Assuming Lognormal Distribution	
MLE Mean	7.338252
MLE Standard Deviation	36.64771
MLE Coefficient of Variation	4.994065
MLE Skewness	139.5376
MLE Median	1.440794
MLE 80% Quantile	6.618716
MLE 90% Quantile	14.64109
MLE 95% Quantile	28.0338
MLE 99% Quantile	95.79386
MVU Estimate of Median	1.364565
MVU Estimate of Mean	6.473131
MVU Estimate of Std. Dev.	20.78055
MVU Estimate of SE of Mean	2.808165

UCL Assuming Lognormal Distribution	
95% H-UCL	24.08104
95% Chebyshev (MVUE) UCL	18.71364
99% Chebyshev (MVUE) UCL	34.41402

Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

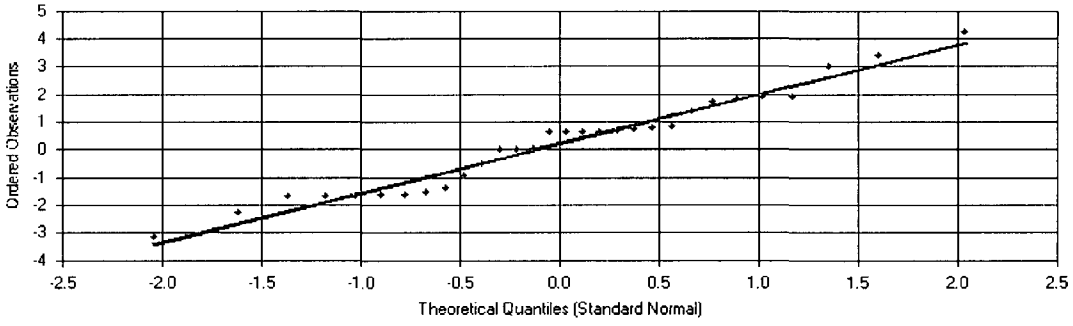
301799

Normal Q-Q Plot for Carbazole



N = 30, Mean = 5.5117, Stdv = 13.2679
Slope = 8.7226, Intercept = 5.5117, Correlation, R = 0.63953256
Shapiro-Wilk Statistic = 0.439, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Carbazole



N = 30, Mean = 0.2011, Stdv = 1.7628
Slope = 1.7824, Intercept = 0.2011, Correlation, R = 0.98361858
Shapiro-Wilk Statistic = 0.965, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Carbazole
Number of Samples	30
Minimum	0.042
Maximum	68
Mean	5.511733
Median	1.8
Standard Deviation	13.26789
Variance	176.0368
Coefficient of Variation	2.407208
Skewness	4.059186

95 % UCL (Assuming Normal Data)	
Student's-t	9.627653

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	11.41441
Modified-t	9.926857

95 % Non-parametric UCL	
CLT	9.496183
Jackknife	9.627653
Standard Bootstrap	9.4736
Bootstrap-t	17.77638
Chebyshev (Mean, Std)	16.07061

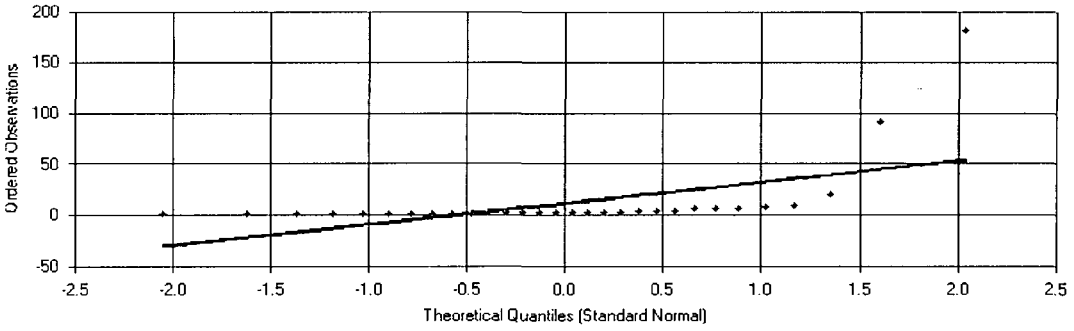
Summary Statistics for	ln(Carbazole)
Minimum	-3.17009
Maximum	4.219508
Mean	0.201086
Standard Deviation	1.762801
Variance	3.107467
Shapiro-Wilk Test Statisitic	0.964935
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5.782406
MLE Standard Deviation	26.72718
MLE Coefficient of Variation	4.622156
MLE Skewness	112.6157
MLE Median	1.22273
MLE 80% Quantile	5.423022
MLE 90% Quantile	11.77861
MLE 95% Quantile	22.2178
MLE 99% Quantile	73.80019
MVU Estimate of Median	1.160915
MVU Estimate of Mean	5.144239
MVU Estimate of Std. Dev.	15.74155
MVU Estimate of SE of Mean	2.169349

UCL Assuming Lognormal Distribution	
95% H-UCL	18.09033
95% Chebyshev (MVUE) UCL	14.60021
99% Chebyshev (MVUE) UCL	26.72899

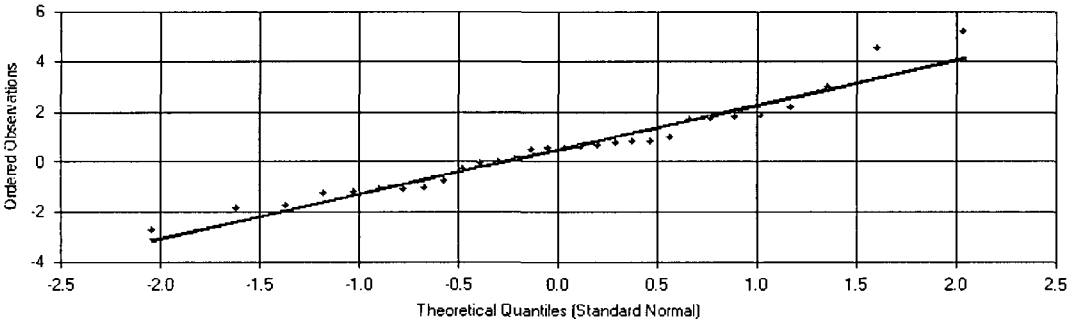
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Chrysene



N = 30, Mean = 11.5198, Stdv = 35.8340
Slope = 20.7760, Intercept = 11.5198, Correlation, R = 0.56400841
Shapiro-Wilk Statistic = 0.347, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Chrysene



N = 30, Mean = 0.4828, Stdv = 1.7822
Slope = 1.7850, Intercept = 0.4828, Correlation, R = 0.97432824
Shapiro-Wilk Statistic = 0.953, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Chrysene
Number of Samples	30
Minimum	0.063
Maximum	180
Mean	11.51977
Median	1.7
Standard Deviation	35.83399
Variance	1284.075
Coefficient of Variation	3.110653
Skewness	4.214882

95 % UCL (Assuming Normal Data)	
Student's-t	22.63607

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	27.66047
Modified-t	23.47516

95 % Non-parametric UCL	
CLT	22.281
Jackknife	22.63607
Standard Bootstrap	22.49228
Bootstrap-t	101.964
Chebyshev (Mean, Std)	40.03726

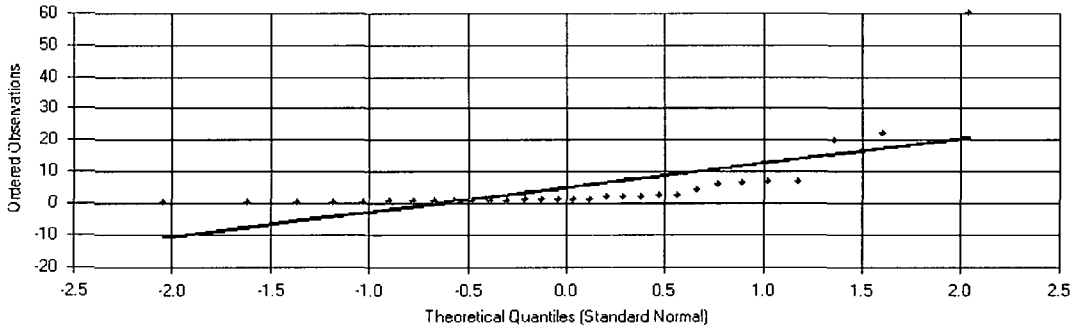
Summary Statistics for	ln(Chrysene)
Minimum	-2.76462
Maximum	5.192957
Mean	0.482753
Standard Deviation	1.782217
Variance	3.176297
Shapiro-Wilk Test Statisitic	0.952895
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	7.931972
MLE Standard Deviation	38.00556
MLE Coefficient of Variation	4.791439
MLE Skewness	124.3756
MLE Median	1.620529
MLE 80% Quantile	7.306222
MLE 90% Quantile	16.00501
MLE 95% Quantile	30.40174
MLE 99% Quantile	102.3286
MVU Estimate of Median	1.536833
MVU Estimate of Mean	7.029009
MVU Estimate of Std. Dev.	21.99616
MVU Estimate of SE of Mean	3.003923

UCL Assuming Lognormal Distribution	
95% H-UCL	25.37145
95% Chebyshev (MVUE) UCL	20.12281
99% Chebyshev (MVUE) UCL	36.91767

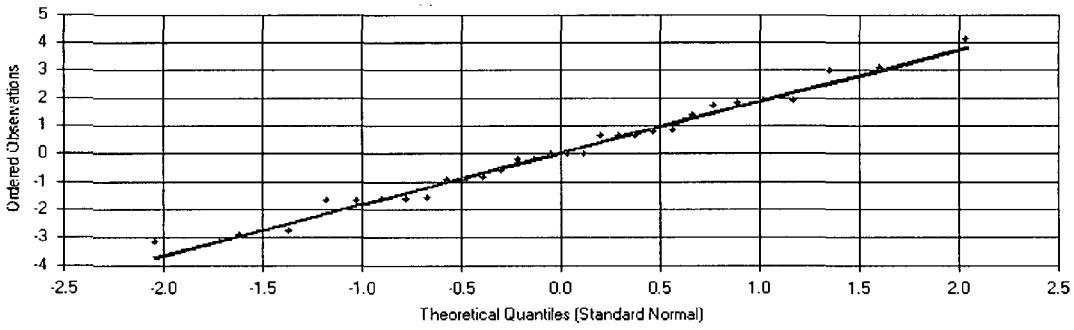
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Dibenzo(a,h)anthracene



N = 30, Mean = 4.9014, Stdv = 11.6471
Slope = 7.7544, Intercept = 4.9014, Correlation, R = 0.64766044
Shapiro-Wilk Statistic = 0.449, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Dibenzo(a,h)anthracene



N = 30, Mean = 0.0325, Stdv = 1.8150
Slope = 1.8491, Intercept = 0.0325, Correlation, R = 0.99108113
Shapiro-Wilk Statistic = 0.975, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Dibenzo(a,
Number of Samples	30
Minimum	0.042
Maximum	60
Mean	4.9014
Median	0.95
Standard Deviation	11.6471
Variance	135.6548
Coefficient of Variation	2.376279
Skewness	4.062166

95 % UCL (Assuming Normal Data)	
Student's-t	8.514523

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	10.08425
Modified-t	8.77737

95 % Non-parametric UCL	
CLT	8.399114
Jackknife	8.514523
Standard Bootstrap	8.395952
Bootstrap-t	14.21187
Chebyshev (Mean, Std)	14.17042

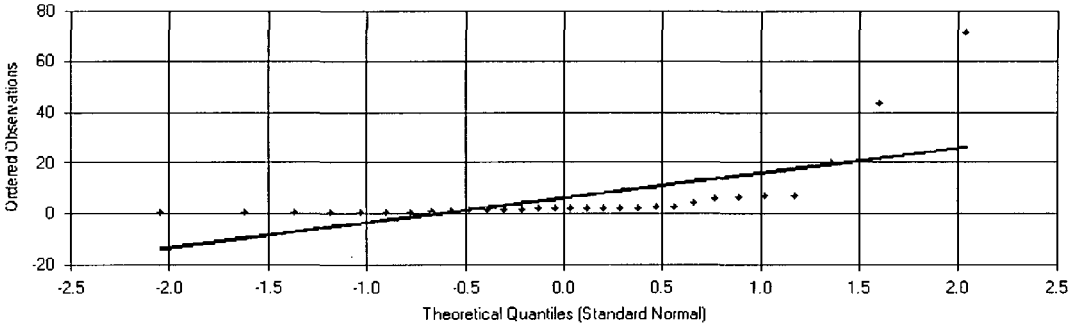
Summary Statistics for	ln(Dibenzo(a,h)anthracene)
Minimum	-3.17009
Maximum	4.094345
Mean	0.032519
Standard Deviation	1.815001
Variance	3.294229
Shapiro-Wilk Test Statisitic	0.975401
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5.363589
MLE Standard Deviation	27.32622
MLE Coefficient of Variation	5.094764
MLE Skewness	147.5271
MLE Median	1.033053
MLE 80% Quantile	4.788393
MLE 90% Quantile	10.64186
MLE 95% Quantile	20.45435
MLE 99% Quantile	70.40128
MVU Estimate of Median	0.977768
MVU Estimate of Mean	4.720681
MVU Estimate of Std. Dev.	15.3409
MVU Estimate of SE of Mean	2.062511

UCL Assuming Lognormal Distribution	
95% H-UCL	17.82007
95% Chebyshev (MVUE) UCL	13.71096
99% Chebyshev (MVUE) UCL	25.2424

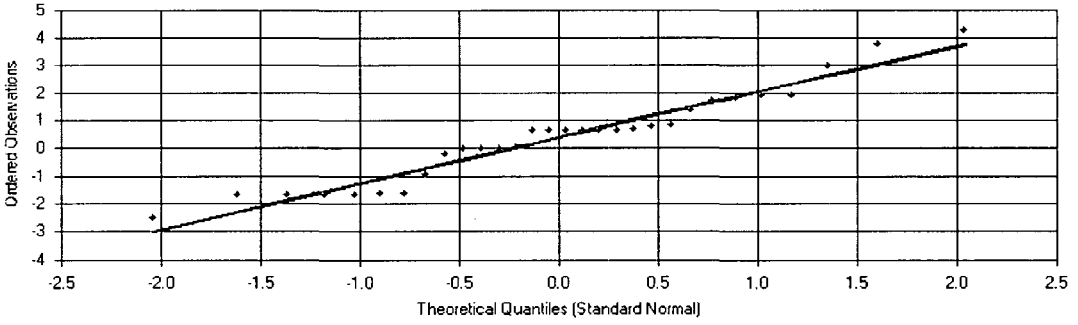
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Dibenzofuran



N = 30, Mean = 6.1928, Stdv = 14.8167
Slope = 9.7812, Intercept = 6.1928, Correlation, R = 0.64218105
Shapiro-Wilk Statistic = 0.438, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Dibenzofuran



N = 30, Mean = 0.3819, Stdv = 1.6593
Slope = 1.6625, Intercept = 0.3819, Correlation, R = 0.97463189
Shapiro-Wilk Statistic = 0.947, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Dibenzofur
Number of Samples	30
Minimum	0.078
Maximum	71
Mean	6.192767
Median	1.8
Standard Deviation	14.81674
Variance	219.5357
Coefficient of Variation	2.392587
Skewness	3.672012

95 % UCL (Assuming Normal Data)	
Student's-t	10.78917

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	12.58018
Modified-t	11.09143

95 % Non-parametric UCL	
CLT	10.64235
Jackknife	10.78917
Standard Bootstrap	10.58959
Bootstrap-t	22.87535
Chebyshev (Mean, Std)	17.98426

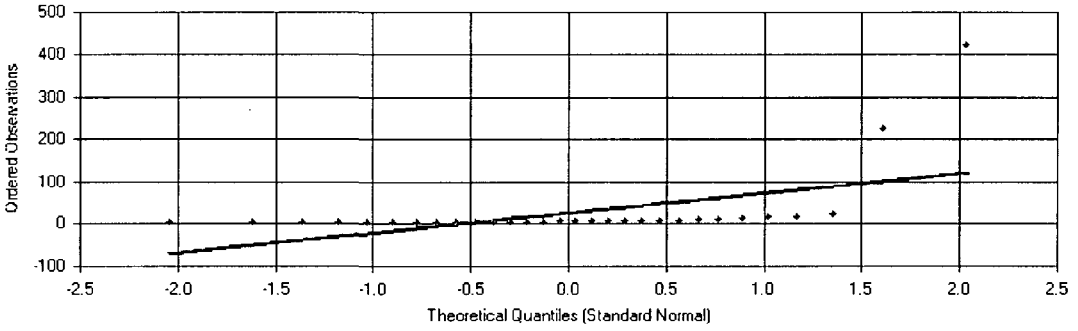
Summary Statistics for	ln(Dibenzofuran)
Minimum	-2.55105
Maximum	4.26268
Mean	0.381874
Standard Deviation	1.659341
Variance	2.753411
Shapiro-Wilk Test Statisitic	0.946563
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5.80419
MLE Standard Deviation	22.25064
MLE Coefficient of Variation	3.833547
MLE Skewness	67.83878
MLE Median	1.465028
MLE 80% Quantile	5.953726
MLE 90% Quantile	12.35582
MLE 95% Quantile	22.45447
MLE 99% Quantile	69.51209
MVU Estimate of Median	1.399222
MVU Estimate of Mean	5.264259
MVU Estimate of Std. Dev.	14.28853
MVU Estimate of SE of Mean	2.061461

UCL Assuming Lognormal Distribution	
95% H-UCL	16.19728
95% Chebyshev (MVUE) UCL	14.24996
99% Chebyshev (MVUE) UCL	25.77554

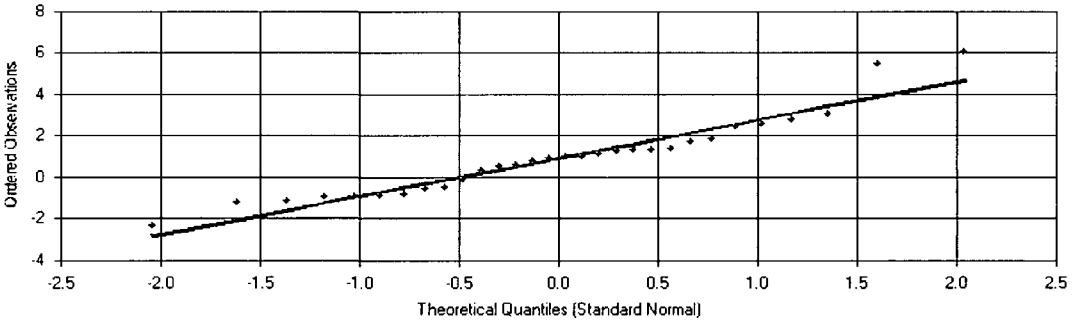
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Fluoranthene



N = 30, Mean = 25.0532, Stdv = 84.9451
Slope = 47.2539, Intercept = 25.0532, Correlation, R = 0.54115045
Shapiro-Wilk Statistic = 0.321, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Fluoranthene



N = 30, Mean = 0.8993, Stdv = 1.8660
Slope = 1.8449, Intercept = 0.8993, Correlation, R = 0.96178280
Shapiro-Wilk Statistic = 0.930, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Fluoranthei
Number of Samples	30
Minimum	0.095
Maximum	420
Mean	25.05317
Median	2.5
Standard Deviation	84.94507
Variance	7215.664
Coefficient of Variation	3.390592
Skewness	4.176852

95 % UCL (Assuming Normal Data)	
Student's-t	51.40454

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	63.1999
Modified-t	53.37567

95 % Non-parametric UCL	
CLT	50.56283
Jackknife	51.40454
Standard Bootstrap	50.51271
Bootstrap-t	430.8556
Chebyshev (Mean, Std)	92.65436

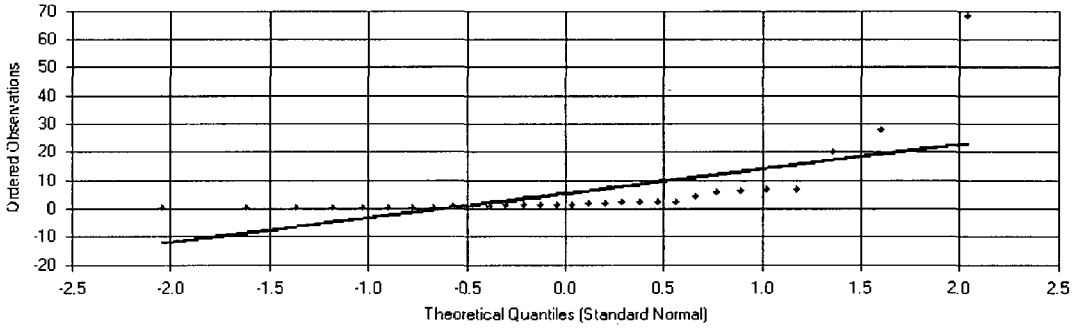
Summary Statistics for	ln(Fluoranthene)
Minimum	-2.35388
Maximum	6.040255
Mean	0.89927
Standard Deviation	1.865966
Variance	3.48183
Shapiro-Wilk Test Statisitic	0.930213
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	14.0158
MLE Standard Deviation	78.68746
MLE Coefficient of Variation	5.614195
MLE Skewness	193.7975
MLE Median	2.457809
MLE 80% Quantile	11.89374
MLE 90% Quantile	27.03242
MLE 95% Quantile	52.92019
MLE 99% Quantile	188.5773
MVU Estimate of Median	2.318988
MVU Estimate of Mean	12.19884
MVU Estimate of Std. Dev.	42.03209
MVU Estimate of SE of Mean	5.510691

UCL Assuming Lognormal Distribution	
95% H-UCL	49.46517
95% Chebyshev (MVUE) UCL	36.21939
99% Chebyshev (MVUE) UCL	67.02953

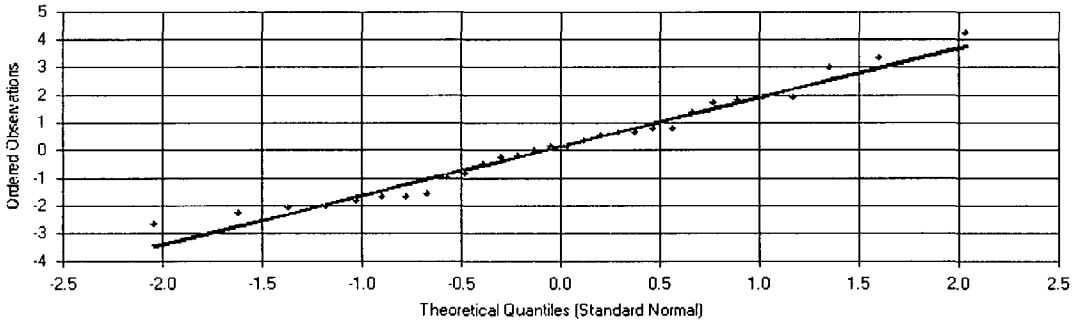
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 30, Mean = 5.3883, Stdv = 13.2371
Slope = 8.6609, Intercept = 5.3883, Correlation, R = 0.63648364
Shapiro-Wilk Statistic = 0.435, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Indeno(1,2,3-cd)pyrene



N = 30, Mean = 0.1334, Stdv = 1.7538
Slope = 1.7781, Intercept = 0.1334, Correlation, R = 0.98626115
Shapiro-Wilk Statistic = 0.965, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Indeno(1,2.
Number of Samples	30
Minimum	0.069
Maximum	68
Mean	5.3883
Median	1.1
Standard Deviation	13.23708
Variance	175.2202
Coefficient of Variation	2.456633
Skewness	4.091292

95 % UCL (Assuming Normal Data)	
Student's-t	9.494662

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	11.29241
Modified-t	9.795533

95 % Non-parametric UCL	
CLT	9.363497
Jackknife	9.494662
Standard Bootstrap	9.328037
Bootstrap-t	16.94463
Chebyshev (Mean, Std)	15.92266

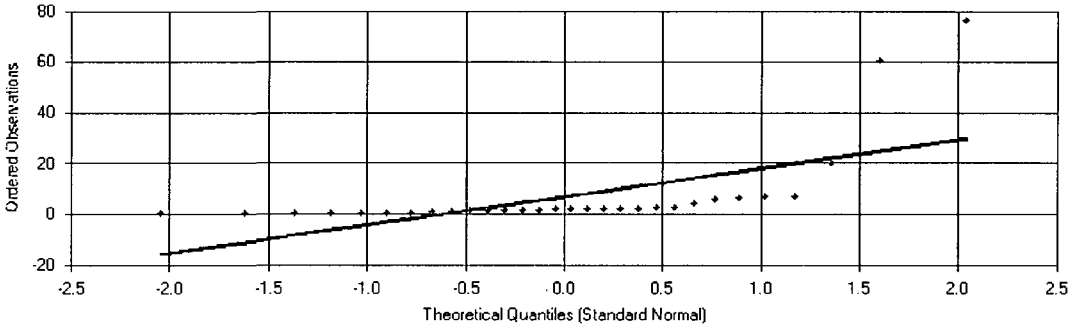
Summary Statistics for	ln(Indeno(1,2,3-cd)pyrene)
Minimum	-2.67365
Maximum	4.219508
Mean	0.133367
Standard Deviation	1.753785
Variance	3.075763
Shapiro-Wilk Test Statisitic	0.964894
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	5.318804
MLE Standard Deviation	24.17946
MLE Coefficient of Variation	4.546032
MLE Skewness	107.5883
MLE Median	1.142669
MLE 80% Quantile	5.029475
MLE 90% Quantile	10.8806
MLE 95% Quantile	20.45738
MLE 99% Quantile	67.53674
MVU Estimate of Median	1.085477
MVU Estimate of Mean	4.740255
MVU Estimate of Std. Dev.	14.35513
MVU Estimate of SE of Mean	1.986538

UCL Assuming Lognormal Distribution	
95% H-UCL	16.47091
95% Chebyshev (MVUE) UCL	13.39937
99% Chebyshev (MVUE) UCL	24.50606

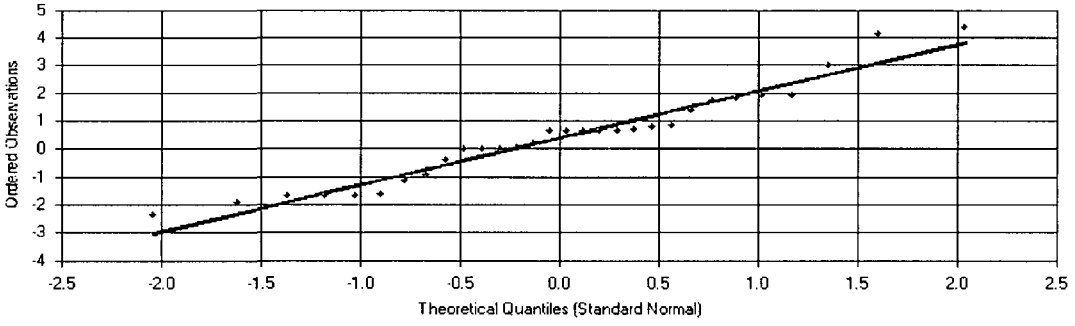
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Naphthalene



N = 30, Mean = 6.8872, Stdv = 17.1553
Slope = 11.1250, Intercept = 6.8872, Correlation, R = 0.63084468
Shapiro-Wilk Statistic = 0.419, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Naphthalene



N = 30, Mean = 0.3857, Stdv = 1.6780
Slope = 1.6843, Intercept = 0.3857, Correlation, R = 0.97646919
Shapiro-Wilk Statistic = 0.948, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Naphthaler
Number of Samples	30
Minimum	0.091
Maximum	76
Mean	6.8872
Median	1.8
Standard Deviation	17.15529
Variance	294.304
Coefficient of Variation	2.490895
Skewness	3.49272

95 % UCL (Assuming Normal Data)	
Student's-t	12.20906
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	14.1732
Modified-t	12.54194
95 % Non-parametric UCL	
CLT	12.03907
Jackknife	12.20906
Standard Bootstrap	11.93822
Bootstrap-t	28.82312
Chebyshev (Mean, Std)	20.53977

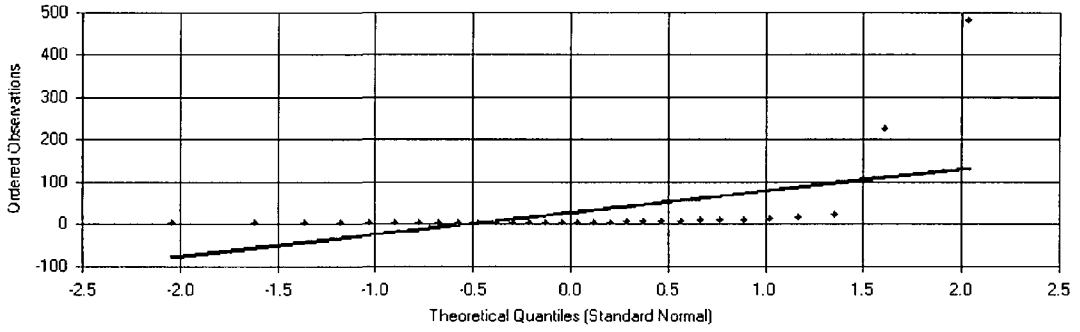
Summary Statistics for	ln(Naphthalene)
Minimum	-2.3969
Maximum	4.330733
Mean	0.385726
Standard Deviation	1.677984
Variance	2.815631
Shapiro-Wilk Test Statisitic	0.948187
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	6.010702
MLE Standard Deviation	23.81916
MLE Coefficient of Variation	3.962792
MLE Skewness	74.11894
MLE Median	1.470681
MLE 80% Quantile	6.071602
MLE 90% Quantile	12.70424
MLE 95% Quantile	23.24314
MLE 99% Quantile	72.87294
MVU Estimate of Median	1.403161
MVU Estimate of Mean	5.43365
MVU Estimate of Std. Dev.	15.07161
MVU Estimate of SE of Mean	2.157233

UCL Assuming Lognormal Distribution	
95% H-UCL	17.11394
95% Chebyshev (MVUE) UCL	14.83681
99% Chebyshev (MVUE) UCL	26.89785

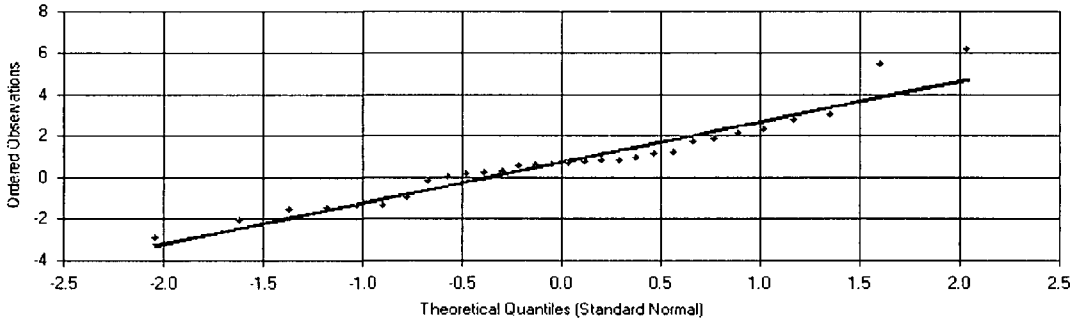
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Phenanthrene



N = 30, Mean = 26.6021, Stdv = 94.8116
Slope = 51.4656, Intercept = 26.6021, Correlation, R = 0.52804837
Shapiro-Wilk Statistic = 0.308, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Phenanthrene



N = 30, Mean = 0.7053, Stdv = 1.9843
Slope = 1.9677, Intercept = 0.7053, Correlation, R = 0.96457423
Shapiro-Wilk Statistic = 0.938, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Phenanthre
Number of Samples	30
Minimum	0.052
Maximum	480
Mean	26.60207
Median	1.825
Standard Deviation	94.81163
Variance	8989.246
Coefficient of Variation	3.56407
Skewness	4.362055

95 % UCL (Assuming Normal Data)	
Student's-t	56.01422

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	69.80505
Modified-t	58.31185

95 % Non-parametric UCL	
CLT	55.07474
Jackknife	56.01422
Standard Bootstrap	54.52351
Bootstrap-t	572.6373
Chebyshev (Mean, Std)	102.0553

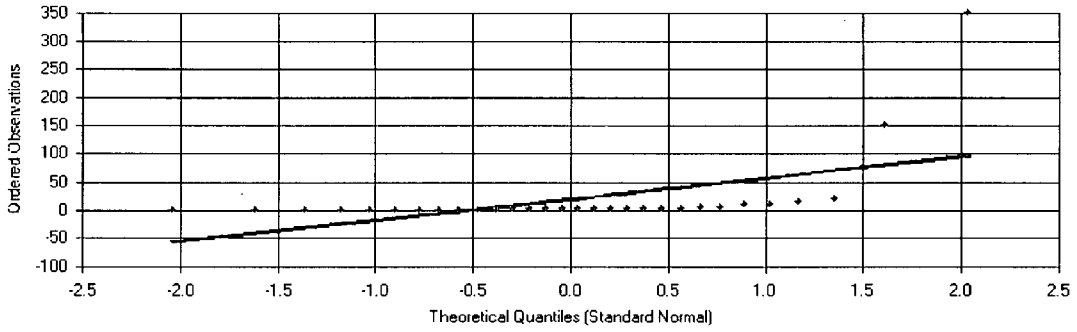
Summary Statistics for	ln(Phenanthrene)
Minimum	-2.95651
Maximum	6.173786
Mean	0.705333
Standard Deviation	1.984295
Variance	3.937428
Shapiro-Wilk Test Statisitic	0.937589
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	14.49852
MLE Standard Deviation	102.8134
MLE Coefficient of Variation	7.091301
MLE Skewness	377.8709
MLE Median	2.02452
MLE 80% Quantile	10.82721
MLE 90% Quantile	25.92356
MLE 95% Quantile	52.95797
MLE 99% Quantile	204.5482
MVU Estimate of Median	1.895664
MVU Estimate of Mean	12.26258
MVU Estimate of Std. Dev.	48.36948
MVU Estimate of SE of Mean	5.959695

UCL Assuming Lognormal Distribution	
95% H-UCL	59.25461
95% Chebyshev (MVUE) UCL	38.24028
99% Chebyshev (MVUE) UCL	71.56079

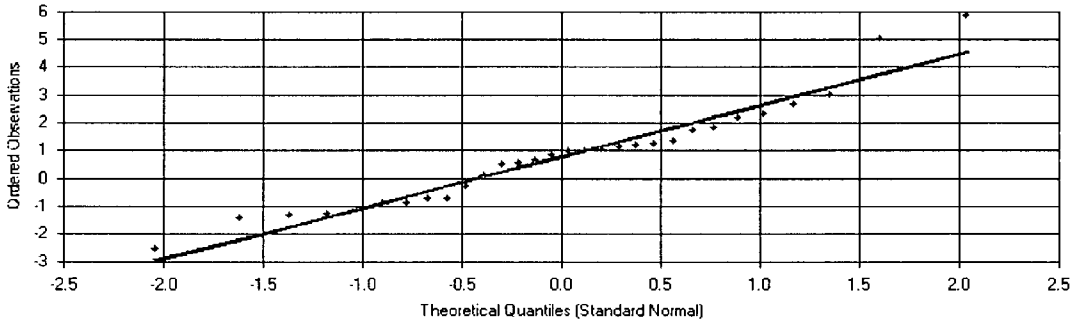
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Pyrene



N = 30, Mean = 19.9452, Stdv = 68.0440
Slope = 37.4841, Intercept = 19.9452, Correlation, R = 0.53589097
Shapiro-Wilk Statistic = 0.317, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Pyrene



N = 30, Mean = 0.7789, Stdv = 1.8548
Slope = 1.8471, Intercept = 0.7789, Correlation, R = 0.96878488
Shapiro-Wilk Statistic = 0.944, Critical Value(0.05) = 0.927, Data are Lognormal

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Summary Statistics for	Pyrene
Number of Samples	30
Minimum	0.077
Maximum	350
Mean	19.94523
Median	2.45
Standard Deviation	68.04399
Variance	4629.984
Coefficient of Variation	3.411541
Skewness	4.463185

95 % UCL (Assuming Normal Data)	
Student's-t	41.05361

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	51.19605
Modified-t	42.7408

95 % Non-parametric UCL	
CLT	40.37937
Jackknife	41.05361
Standard Bootstrap	40.55852
Bootstrap-t	295.9027
Chebyshev (Mean, Std)	74.09617

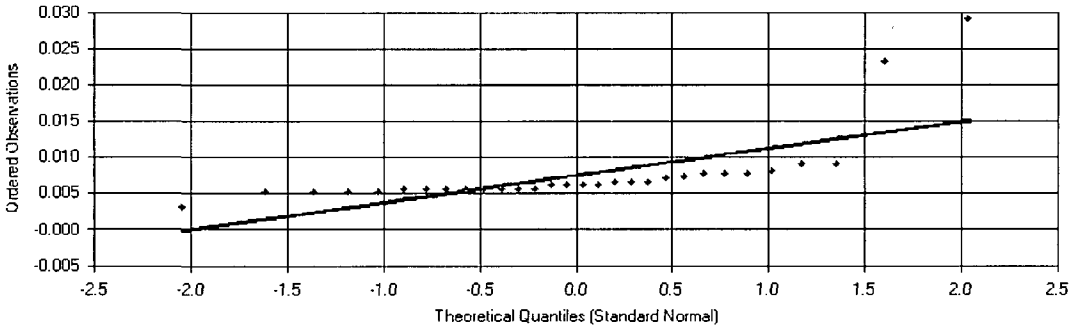
Summary Statistics for	ln(Pyrene)
Minimum	-2.56395
Maximum	5.857933
Mean	0.778917
Standard Deviation	1.854759
Variance	3.440132
Shapiro-Wilk Test Statisitic	0.943971
Shapiro-Wilk 5% Critical Value	0.927
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	12.17011
MLE Standard Deviation	66.8704
MLE Coefficient of Variation	5.494641
MLE Skewness	182.373
MLE Median	2.179111
MLE 80% Quantile	10.44568
MLE 90% Quantile	23.62447
MLE 95% Quantile	46.06237
MLE 99% Quantile	162.892
MVU Estimate of Median	2.057466
MVU Estimate of Mean	10.61908
MVU Estimate of Std. Dev.	36.12163
MVU Estimate of SE of Mean	4.762449

UCL Assuming Lognormal Distribution	
95% H-UCL	42.3786
95% Chebyshev (MVUE) UCL	31.37812
99% Chebyshev (MVUE) UCL	58.00486

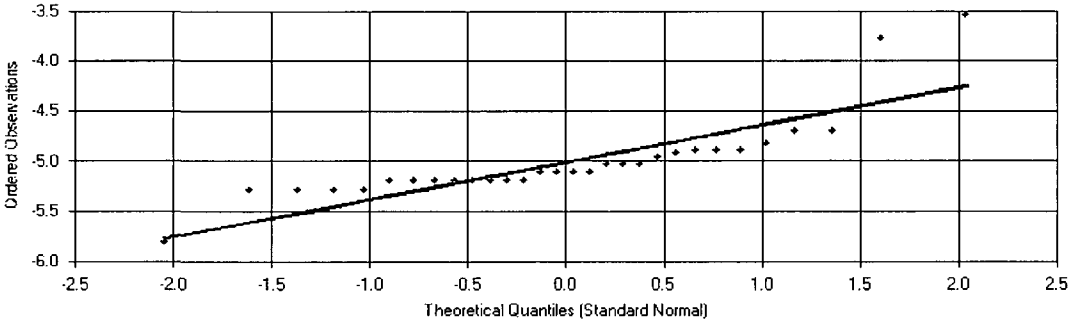
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Benzene



N = 30, Mean = 0.0075, Stdv = 0.0052
Slope = 0.0037, Intercept = 0.0075, Correlation, R = 0.69317597
Shapiro-Wilk Statistic = 0.507, Critical Value(0.05) = 0.927, Data not Normal

Lognormal Q-Q Plot for Benzene



N = 30, Mean = -5.0109, Stdv = 0.4263
Slope = 0.3717, Intercept = -5.0109, Correlation, R = 0.84821728
Shapiro-Wilk Statistic = 0.746, Critical Value(0.05) = 0.927, Data not Lognormal

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Summary Statistics for	Benzene
Number of Samples	30
Minimum	0.003
Maximum	0.029
Mean	0.007508
Median	0.006
Standard Deviation	0.005242
Variance	2.75E-05
Coefficient of Variation	0.698128
Skewness	3.441267
95 % UCL (Assuming Normal Data)	
Student's-t	0.009134
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.009725
Modified-t	0.009235
95 % Non-parametric UCL	
CLT	0.009082
Jackknife	0.009134
Standard Bootstrap	0.009012
Bootstrap-t	0.013431
Chebyshev (Mean, Std)	0.01168

Summary Statistics for	ln(Benzene)
Minimum	-5.80914
Maximum	-3.54046
Mean	-5.01092
Standard Deviation	0.426308
Variance	0.181739
Shapiro-Wilk Test Statisitic	0.746357
Shapiro-Wilk 5% Critical Value	0.927
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.007299
MLE Standard Deviation	0.003258
MLE Coefficient of Variation	0.446431
MLE Skewness	1.428268
MLE Median	0.006665
MLE 80% Quantile	0.009555
MLE 90% Quantile	0.011526
MLE 95% Quantile	0.013438
MLE 99% Quantile	0.017965
MVU Estimate of Median	0.006645
MVU Estimate of Mean	0.007275
MVU Estimate of Std. Dev.	0.003208
MVU Estimate of SE of Mean	0.000585
UCL Assuming Lognormal Distribution	
95% H-UCL	0.00847
95% Chebyshev (MVUE) UCL	0.009823
99% Chebyshev (MVUE) UCL	0.013092

Upper PRM Aquifer - Groundwater

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Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	29	28.85	33300	3149.16	584	6789.114	2.155849	3.579483	46092070
Antimony	29	0.8	18.7	2.462069	0.8	3.638427	1.477793	3.545864	13.23815
Arsenic	28	0.65	7130	480.9893	22.7	1399.849	2.910355	4.32516	1959578
Barium	29	49.85	36500	1782.771	191	6780.679	3.80345	5.148016	45977608
Beryllium	29	0.1	12.8	1.042759	0.1	2.439883	2.339835	4.314695	5.953028
Cadmium	29	0.1	45.7	3.09931	0.1	8.695502	2.805625	4.535974	75.61176
Chromium	29	1.1	84	19.29655	6.8	23.95064	1.241188	1.532207	573.6334
Copper	29	2.2	226	29.34483	13.1	48.20106	1.642574	3.127552	2323.343
Iron	29	274	250000	32177.38	16200	49563	1.540306	3.351645	2.46E+09
Lead	29	0.35	192	13.34724	3.4	35.74315	2.677943	4.789112	1277.573
Manganese	29	6.7	4490	850.3	550	975.4423	1.147174	2.28985	951487.6
Mercury	29	0.025	0.8	0.093276	0.05	0.141309	1.514962	4.785364	0.019968
Nickel	29	2.3	85.7	18.53103	12.05	19.62268	1.058909	2.016868	385.0495
Selenium	29	1.425	18.8	3.803448	2.225	3.963014	1.041953	2.530657	15.70548
Thallium	29	1.3	12.8	2.655172	1.3	3.403421	1.281808	2.4043	11.58328
Vanadium	29	0.2	185	20.03379	5.4	36.49383	1.821613	3.621796	1331.799
Zinc	29	0.35	2100	311.769	164	463.8457	1.487787	2.577257	215152.8
Chlordane - alpha	55	0.005	0.15	0.009418	0.005	0.022078	2.344177	5.644395	0.000487
Dieldrin	55	0.01	0.099	0.013364	0.01	0.01409	1.054364	5.007077	0.000199
Heptachlor Epoxide	55	0.005	0.055	0.005909	0.005	0.006742	1.140954	7.416198	4.55E-05
Cresol-o	54	1.4	490	11.51481	2.5	66.34234	5.761477	7.348402	4401.306
Cresol-p	54	1.3	1400	28.41481	2.5	190.1714	6.692686	7.348392	36165.17
Ether, bis(2-chloroethyl)	54	1.2	150	5.514815	2.5	20.11574	3.647583	7.259182	404.6432
Naphthalene	54	1.6	2600	58.96481	2.5	354.0685	6.004741	7.240124	125364.5
Nitrosodiphenylamine-n	54	1.7	70	4.717593	2.5	10.36919	2.197983	5.541985	107.5201
Phenol	54	1.1	7200	135.8556	2.5	979.4465	7.20947	7.348462	959315.5
Benzene	50	0.16	150	9.1954	0.27	27.92133	3.036445	3.944102	779.6004
Chloroethane	51	0.25	5.3	0.61	0.25	1.157264	1.897154	3.231787	1.33926
Dichlorobenzene-1,3	43	0.25	5	0.371628	0.25	0.72538	1.951898	6.48355	0.526176
Dichlorobenzene-1,4	44	0.16	5	0.416932	0.25	0.767386	1.840556	5.389221	0.588882
Dichloroethane-1,1	52	0.15	120	4.511635	0.5775	17.3516	3.845968	6.192731	301.0781
Dichloroethane-1,2	50	0.21	5	0.446	0.25	0.819477	1.837393	4.78086	0.671543
Dichloroethene-1,2 trans	51	0.16	20.5	1.507255	0.25	3.965203	2.630745	3.583558	15.72284
Dichloroethylene-1,2 cis	55	0.25	355	25.55073	4.4	69.95192	2.737766	3.827929	4893.271
Dichloropropane-1,2	51	0.25	5	0.424314	0.25	0.721006	1.699228	5.539053	0.519849
Ethylbenzene	47	0.16	45	3.243511	0.25	9.357057	2.884855	3.395554	87.55452
Methyl isobutyl ketone (4-methyl-2	45	1.36	240	8.890222	2.5	35.94185	4.042851	6.353201	1291.816
Methyl tertiary butyl ether (MTBE)	52	0.25	65	9.114038	3.35	14.59749	1.601648	2.527621	213.0866
Tetrachloroethylene	52	0.15	5	0.391923	0.25	0.683277	1.743394	6.342498	0.466867
Trichloroethane-1,1,2	50	0.25	5	0.3468	0.25	0.671612	1.936598	7.06715	0.451063
Trichloroethylene	52	0.15	11	1.143077	0.25	2.02279	1.769601	3.490986	4.091681
Vinyl chloride	51	0.25	58	4.715784	0.535	10.69229	2.267341	3.979656	114.3251
Xylenes, total	47	0.25	89.5	4.684255	0.25	15.50356	3.309716	4.597203	240.3603

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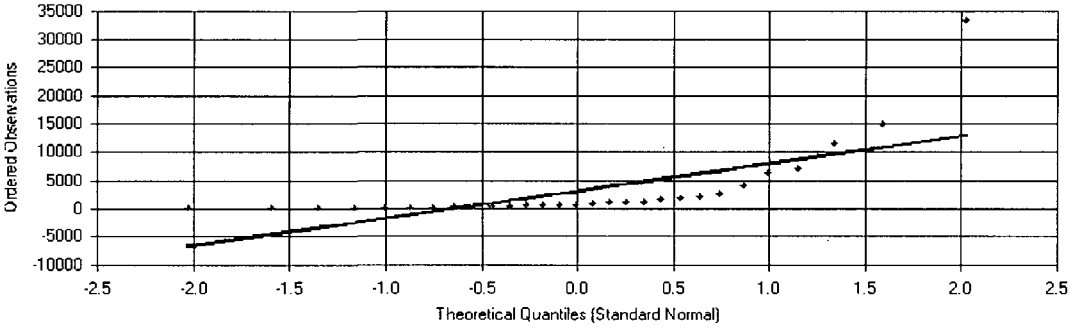
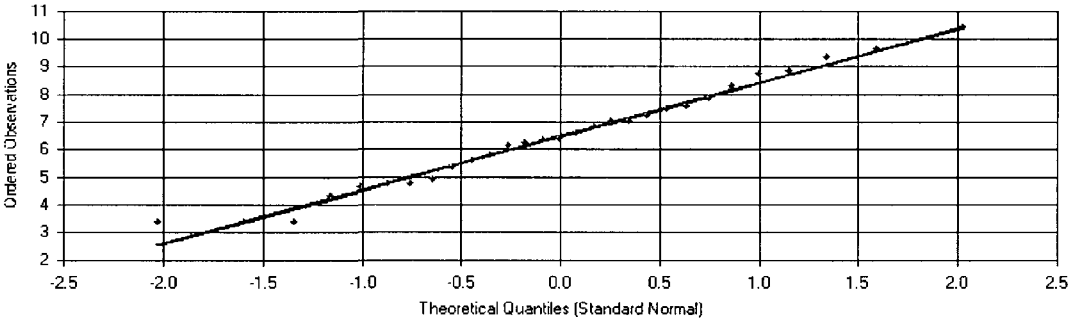
Variable name	NumObs	Minimum	Maximum	Mean	Median	Std. Dev.	CV	Skewness	Variance
Aluminum	29	3.36211	10.41331	6.474514	6.369901	1.90063	0.293556	0.151565	3.612394
Antimony	29	-0.22314	2.928524	0.3936	-0.22314	0.881862	2.240502	1.355583	0.777681
Arsenic	28	-0.43078	8.872067	3.383508	3.119211	2.522497	0.745527	0.431444	6.362992
Barium	29	3.909018	10.50507	5.637934	5.252273	1.41625	0.2512	1.894229	2.005765
Beryllium	29	-2.30259	2.549445	-1.24445	-2.30259	1.459164	-1.17254	1.06972	2.12916
Cadmium	29	-2.30259	3.822098	-0.86167	-2.30259	1.878726	-2.18032	1.012946	3.52961
Chromium	29	0.09531	4.430817	2.16281	1.916923	1.340272	0.61969	0.202677	1.796329
Copper	29	0.788457	5.420535	2.591615	2.572612	1.214323	0.468559	0.528874	1.474582
Iron	29	5.613128	12.42922	9.394196	9.692767	1.659887	0.176693	-0.56427	2.755225
Lead	29	-1.04982	5.257495	1.2329	1.223775	1.574369	1.276964	0.408586	2.478639
Manganese	29	1.902108	8.409608	6.10715	6.309918	1.371811	0.224624	-1.18988	1.881866
Mercury	29	-3.68888	-0.22314	-2.71659	-2.99573	0.6579	-0.24218	2.262005	0.432832
Nickel	29	0.832909	4.450853	2.465764	2.489065	0.973952	0.39499	0.157999	0.948583
Selenium	29	0.354172	2.933857	1.003847	0.799757	0.756384	0.753485	1.002099	0.572116
Thallium	29	0.262364	2.549445	0.576616	0.262364	0.741542	1.286023	2.14278	0.549885
Vanadium	29	-1.60944	5.220356	1.862266	1.686399	1.618928	0.869332	-0.02058	2.620928
Zinc	29	-1.04982	7.649693	4.500187	5.099866	2.122958	0.471749	-1.17589	4.506952
Chlordane - alpha	55	-5.29832	-1.89712	-5.15564	-5.29832	0.623482	-0.12093	4.485484	0.38873
Dieldrin	55	-4.60517	-2.31264	-4.48691	-4.60517	0.442643	-0.09865	3.831048	0.195932
Heptachlor Epoxide	55	-5.29832	-2.90042	-5.25472	-5.29832	0.323332	-0.06153	7.416198	0.104544
Cresol-o	54	0.336472	6.194405	1.006045	0.916291	0.724005	0.719655	7.193361	0.524183
Cresol-p	54	0.262364	7.244228	1.034899	0.916291	0.873773	0.844307	7.027054	0.763479
Ether, bis(2-chloroethyl)	54	0.182322	5.010635	1.025803	0.916291	0.631024	0.615151	5.314075	0.398192
Naphthalene	54	0.470004	7.863267	1.304465	0.916291	1.330015	1.019587	3.590898	1.768941
Nitrosodiphenylamine-n	54	0.530628	4.248495	1.084736	0.916291	0.632579	0.583164	4.025977	0.400156
Phenol	54	0.09531	8.881836	1.066704	0.916291	1.101406	1.032533	6.998847	1.213096
Benzene	50	-1.83258	5.010635	-0.237	-1.31002	1.840808	-7.76713	1.653244	3.388575
Chloroethane	51	-1.38629	1.667707	-1.11996	-1.38629	0.818818	-0.73111	2.854068	0.670463
Dichlorobenzene-1,3	43	-1.38629	1.609438	-1.28831	-1.38629	0.477217	-0.37042	5.735612	0.227736
Dichlorobenzene-1,4	44	-1.83258	1.609438	-1.25601	-1.38629	0.606342	-0.48275	3.701465	0.367651
Dichloroethane-1,1	52	-1.89712	4.787492	-0.20674	-0.55063	1.474666	-7.13296	1.307109	2.174639
Dichloroethane-1,2	50	-1.56065	1.609438	-1.20785	-1.38629	0.617514	-0.51125	3.740851	0.381324
Dichloroethene-1,2 trans	51	-1.83258	3.020425	-0.91756	-1.38629	1.2011	-1.30902	2.366673	1.44264
Dichloroethylene-1,2 cis	55	-1.38629	5.872118	1.264362	1.481605	2.031873	1.607033	0.269936	4.128506
Dichloropropane-1,2	51	-1.38629	1.609438	-1.20438	-1.38629	0.595841	-0.49473	3.446216	0.355026
Ethylbenzene	47	-1.83258	3.806662	-0.68405	-1.38629	1.458031	-2.13147	2.1337	2.125855
Methyl isobutyl ketone (4-methyl-2	45	0.307485	5.480639	1.090947	0.916291	0.820623	0.752211	4.593694	0.673422
Methyl tertiary butyl ether (MTBE)	52	-1.38629	4.174387	1.055253	1.208849	1.659647	1.572748	0.022489	2.75443
Tetrachloroethylene	52	-1.89712	1.609438	-1.2401	-1.38629	0.539395	-0.43496	3.839614	0.290947
Trichloroethane-1,1,2	50	-1.38629	1.609438	-1.32023	-1.38629	0.425003	-0.32192	6.963331	0.180627
Trichloroethylene	52	-1.89712	2.397895	-0.61409	-1.38629	1.077867	-1.75523	1.114903	1.161797
Vinyl chloride	51	-1.38629	4.060443	0.068871	-0.62549	1.680289	24.3977	0.690713	2.823373
Xylenes, total	47	-1.38629	4.494239	-0.59441	-1.38629	1.598823	-2.68975	1.987174	2.556235

Normal Q-Q Plot for Aluminum



N = 29, Mean = 3149.1603, Stdv = 6789.1141
Slope = 4846.2225, Intercept = 3149.1603, Correlation, R = 0.69390394
Shapiro-Wilk Statistic = 0.508, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Aluminum



N = 29, Mean = 6.4745, Stdv = 1.9006
Slope = 1.9411, Intercept = 6.4745, Correlation, R = 0.99277937
Shapiro-Wilk Statistic = 0.974, Critical Value(0.05) = 0.926, Data are Lognormal

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Summary Statistics for	Aluminum
Number of Samples	29
Minimum	28.85
Maximum	33300
Mean	3149.16
Median	584
Standard Deviation	6789.114
Variance	46092070
Coefficient of Variation	2.155849
Skewness	3.579483

95 % UCL (Assuming Normal Data)	
Student's-t	5293.787

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6118.236
Modified-t	5433.451

95 % Non-parametric UCL	
CLT	5222.839
Jackknife	5293.787
Standard Bootstrap	5175.446
Bootstrap-t	8211.286
Chebyshev (Mean, Std)	8644.454

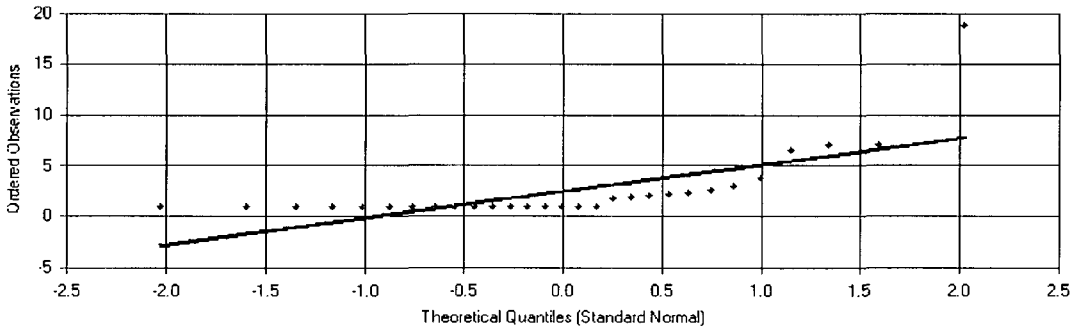
Summary Statistics for	ln(Aluminum)
Minimum	3.36211
Maximum	10.41331
Mean	6.474514
Standard Deviation	1.90063
Variance	3.612394
Shapiro-Wilk Test Statisitic	0.973698
Shapiro-Wilk 5% Critical Value	0.926
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	3946.999
MLE Standard Deviation	23699.96
MLE Coefficient of Variation	6.004551
MLE Skewness	234.5056
MLE Median	648.404
MLE 80% Quantile	3230.997
MLE 90% Quantile	7456.364
MLE 95% Quantile	14780.29
MLE 99% Quantile	53926.58
MVU Estimate of Median	609.1724
MVU Estimate of Mean	3392.878
MVU Estimate of Std. Dev.	12024.73
MVU Estimate of SE of Mean	1584.162

UCL Assuming Lognormal Distribution	
95% H-UCL	15033.59
95% Chebyshev (MVUE) UCL	10298.08
99% Chebyshev (MVUE) UCL	19155.09

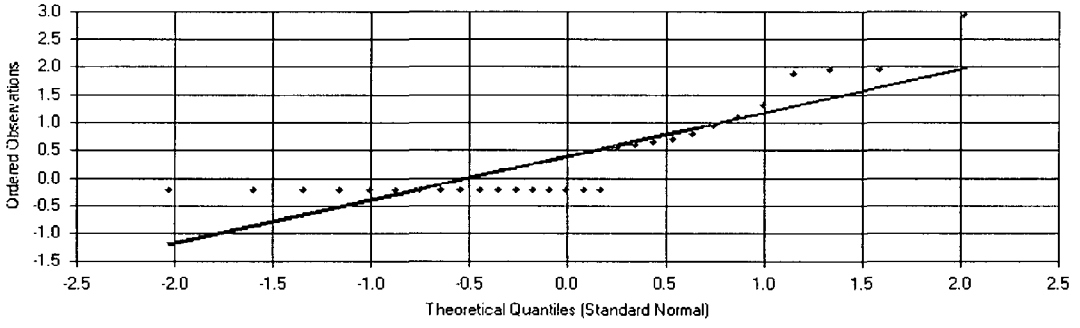
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Antimony



N = 29, Mean = 2.4621, Stdv = 3.6384
Slope = 2.6292, Intercept = 2.4621, Correlation, R = 0.70244548
Shapiro-Wilk Statistic = 0.520, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Antimony



N = 29, Mean = 0.3936, Stdv = 0.8819
Slope = 0.7813, Intercept = 0.3936, Correlation, R = 0.86118996
Shapiro-Wilk Statistic = 0.739, Critical Value(0.05) = 0.926, Data not Lognormal

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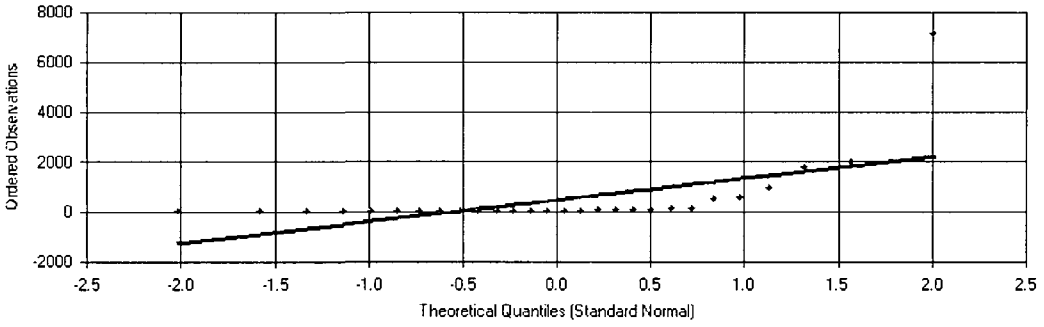
Summary Statistics for	Antimony
Number of Samples	29
Minimum	0.8
Maximum	18.7
Mean	2.462069
Median	0.8
Standard Deviation	3.638427
Variance	13.23815
Coefficient of Variation	1.477793
Skewness	3.545864
95 % UCL (Assuming Normal Data)	
Student's-t	3.611419
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	4.048751
Modified-t	3.685565
95 % Non-parametric UCL	
CLT	3.573396
Jackknife	3.611419
Standard Bootstrap	3.571973
Bootstrap-t	5.026567
Chebyshev (Mean, Std)	5.407111

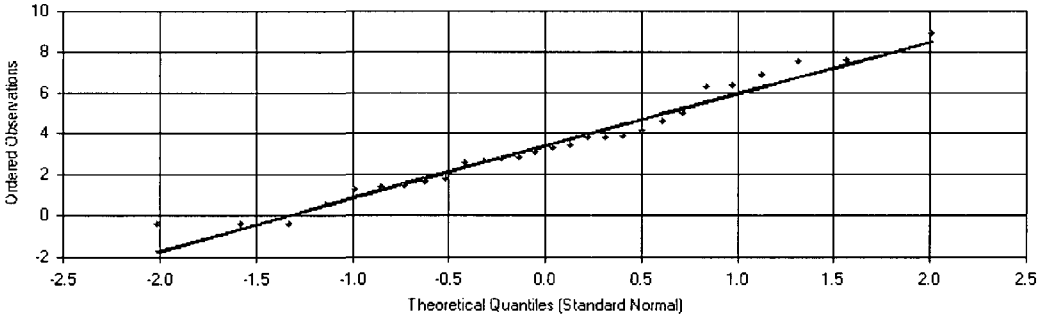
Summary Statistics for	ln(Antimony)
Minimum	-0.22314
Maximum	2.928524
Mean	0.3936
Standard Deviation	0.881862
Variance	0.777681
Shapiro-Wilk Test Statisitic	0.738623
Shapiro-Wilk 5% Critical Value	0.926
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	2.186804
MLE Standard Deviation	2.371871
MLE Coefficient of Variation	1.084629
MLE Skewness	4.529866
MLE Median	1.482308
MLE 80% Quantile	3.122938
MLE 90% Quantile	4.603393
MLE 95% Quantile	6.323444
MLE 99% Quantile	11.52839
MVU Estimate of Median	1.462557
MVU Estimate of Mean	2.147867
MVU Estimate of Std. Dev.	2.183128
MVU Estimate of SE of Mean	0.393843
UCL Assuming Lognormal Distribution	
95% H-UCL	3.215603
95% Chebyshev (MVUE) UCL	3.864587
99% Chebyshev (MVUE) UCL	6.066551

Normal Q-Q Plot for Arsenic



N = 28, Mean = 480.9893, Stdv = 1399.8493
Slope = 865.4698, Intercept = 480.9893, Correlation, R = 0.60055323
Shapiro-Wilk Statistic = 0.391, Critical Value(0.05) = 0.924, Data not Normal

Lognormal Q-Q Plot for Arsenic



N = 28, Mean = 3.3835, Stdv = 2.5225
Slope = 2.5541, Intercept = 3.3835, Correlation, R = 0.98353484
Shapiro-Wilk Statistic = 0.956, Critical Value(0.05) = 0.924, Data are Lognormal

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Summary Statistics for	Arsenic
Number of Samples	28
Minimum	0.65
Maximum	7130
Mean	480.9893
Median	22.7
Standard Deviation	1399.849
Variance	1959578
Coefficient of Variation	2.910355
Skewness	4.32516

95 % UCL (Assuming Normal Data)	
Student's-t	931.5885

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1147.18
Modified-t	967.6276

95 % Non-parametric UCL	
CLT	916.1298
Jackknife	931.5885
Standard Bootstrap	907.5217
Bootstrap-t	1895.979
Chebyshev (Mean, Std)	1634.121

99 % Non-parametric UCL	
Chebyshev (Mean, Std)	3113.195

Summary Statistics for	ln(Arsenic)
Minimum	-0.430783
Maximum	8.872067
Mean	3.383508
Standard Deviation	2.522497
Variance	6.362992
Shapiro-Wilk Test Statisitic	0.956431
Shapiro-Wilk 5% Critical Value	0.924

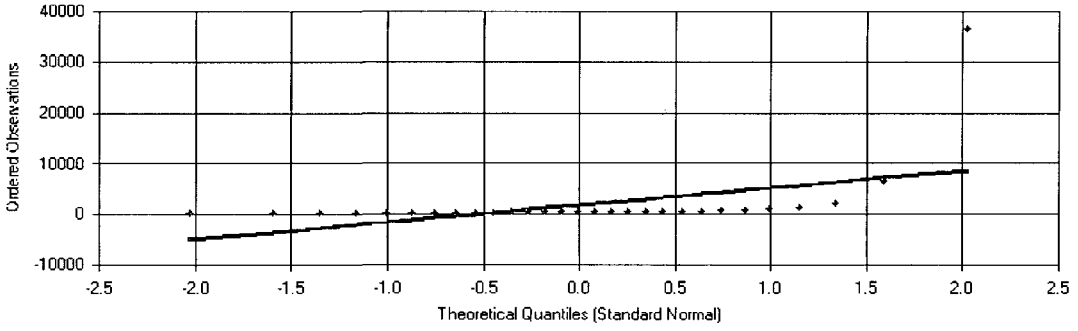
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	709.8147
MLE Standard Deviation	17079.55
MLE Coefficient of Variation	24.06198
MLE Skewness	14003.57
MLE Median	29.47399
MLE 80% Quantile	248.3945
MLE 90% Quantile	753.6416
MLE 95% Quantile	1868.733
MLE 99% Quantile	10413.27
MVU Estimate of Median	26.29644
MVU Estimate of Mean	488.2362
MVU Estimate of Std. Dev.	3374.082
MVU Estimate of SE of Mean	314.4665

UCL Assuming Lognormal Distribution	
95% H-UCL	7129.612
95% Chebyshev (MVUE) UCL	1858.964
99% Chebyshev (MVUE) UCL	3617.138

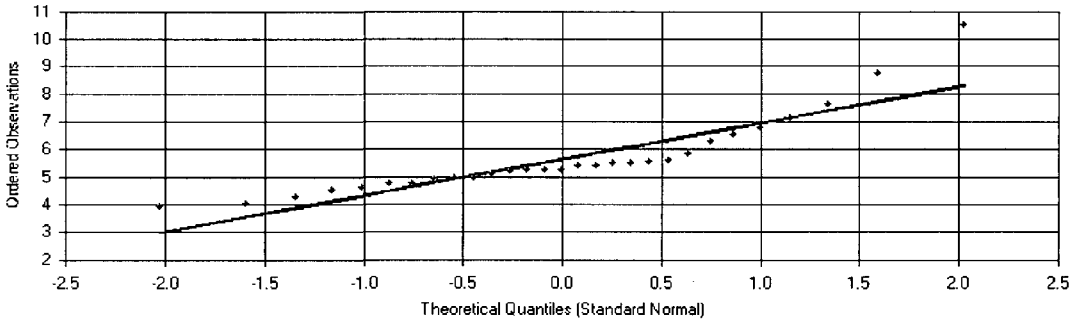
Recommended UCL to use:
Greater of
99 % Chebyshev (MVUE) UCL
99 % Chebyshev (Mean, Std)

Normal Q-Q Plot for Barium



N = 29, Mean = 1782.7707, Stdv = 6780.6790
Slope = 3383.0710, Intercept = 1782.7707, Correlation, R = 0.48500592
Shapiro-Wilk Statistic = 0.267, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Barium



N = 29, Mean = 5.6379, Stdv = 1.4163
Slope = 1.3126, Intercept = 5.6379, Correlation, R = 0.90096774
Shapiro-Wilk Statistic = 0.825, Critical Value(0.05) = 0.926, Data not Lognormal

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Summary Statistics for	Barium
Number of Samples	29
Minimum	49.85
Maximum	36500
Mean	1782.771
Median	191
Standard Deviation	6780.679
Variance	45977608
Coefficient of Variation	3.80345
Skewness	5.148016

95 % UCL (Assuming Normal Data)	
Student's-t	3924.733

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	5140.034
Modified-t	4125.348

95 % Non-parametric UCL	
CLT	3853.872
Jackknife	3924.733
Standard Bootstrap	3788.092
Bootstrap-t	29371.15
Chebyshev (Mean, Std)	7271.237

97.5 % Non-parametric UCL	
CLT	4250.641
Jackknife	4362.002
Standard Bootstrap	4250.724
Bootstrap-t	38953.68
Chebyshev (Mean, Std)	9646.1

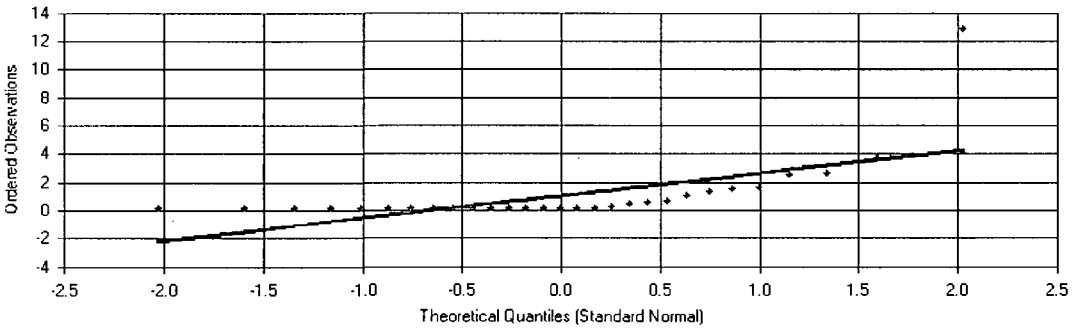
Summary Statistics for	ln(Barium)
Minimum	3.909018
Maximum	10.50507
Mean	5.637934
Standard Deviation	1.41625
Variance	2.005765
Shapiro-Wilk Test Statisitic	0.825001
Shapiro-Wilk 5% Critical Value	0.926

Data not Lognormal at 5% Significance Level
Data not Normal: Try Non-parametric UCL

Estimates Assuming Lognormal Distribution	
MLE Mean	765.7196
MLE Standard Deviation	1941.937
MLE Coefficient of Variation	2.536095
MLE Skewness	23.91988
MLE Median	280.8817
MLE 80% Quantile	929.517
MLE 90% Quantile	1733.357
MLE 95% Quantile	2886.111
MLE 99% Quantile	7571.389
MVU Estimate of Median	271.3234
MVU Estimate of Mean	718.5673
MVU Estimate of Std. Dev.	1455.542
MVU Estimate of SE of Mean	234.3171

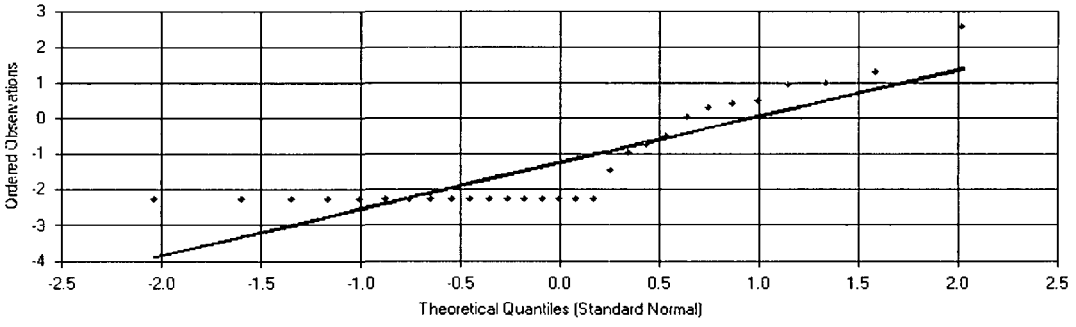
UCL Assuming Lognormal Distribution	
95% H-UCL	1710.858
95% Chebyshev (MVUE) UCL	1739.932
99% Chebyshev (MVUE) UCL	3049.993

Normal Q-Q Plot for Beryllium



N = 29, Mean = 1.0428, Stdv = 2.4399
Slope = 1.5943, Intercept = 1.0428, Correlation, R = 0.63519939
Shapiro-Wilk Statistic = 0.435, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Beryllium



N = 29, Mean = -1.2445, Stdv = 1.4592
Slope = 1.3026, Intercept = -1.2445, Correlation, R = 0.86779611
Shapiro-Wilk Statistic = 0.745, Critical Value(0.05) = 0.926, Data not Lognormal

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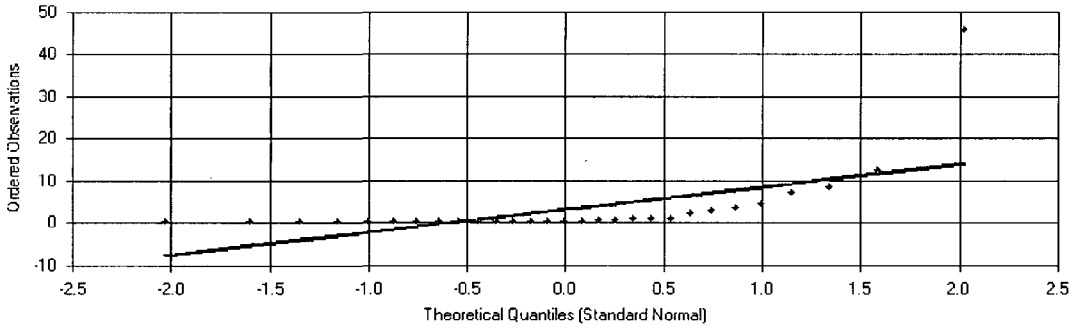
Summary Statistics for	Beryllium
Number of Samples	29
Minimum	0.1
Maximum	12.8
Mean	1.042759
Median	0.1
Standard Deviation	2.439883
Variance	5.953028
Coefficient of Variation	2.339835
Skewness	4.314695
95 % UCL (Assuming Normal Data)	
Student's-t	1.813498
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.175884
Modified-t	1.874
95 % Non-parametric UCL	
CLT	1.788
Jackknife	1.813498
Standard Bootstrap	1.774305
Bootstrap-t	3.057581
Chebyshev (Mean, Std)	3.017666
97.5 % Non-parametric UCL	
CLT	1.930769
Jackknife	1.97084
Standard Bootstrap	1.928851
Bootstrap-t	3.494542
Chebyshev (Mean, Std)	3.87221

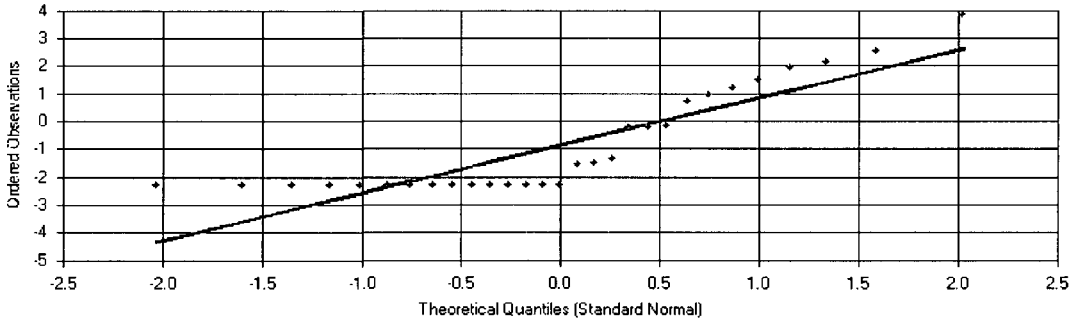
Summary Statistics for	ln(Beryllium)
Minimum	-2.30259
Maximum	2.549445
Mean	-1.24445
Standard Deviation	1.459164
Variance	2.12916
Shapiro-Wilk Test Statisitic	0.745225
Shapiro-Wilk 5% Critical Value	0.926
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.835377
MLE Standard Deviation	2.273669
MLE Coefficient of Variation	2.721728
MLE Skewness	28.32721
MLE Median	0.288099
MLE 80% Quantile	0.988607
MLE 90% Quantile	1.878688
MLE 95% Quantile	3.176795
MLE 99% Quantile	8.581114
MVU Estimate of Median	0.277702
MVU Estimate of Mean	0.779511
MVU Estimate of Std. Dev.	1.661491
MVU Estimate of SE of Mean	0.263754
UCL Assuming Lognormal Distribution	
95% H-UCL	1.945048
95% Chebyshev (MVUE) UCL	1.929186
99% Chebyshev (MVUE) UCL	3.403826

Normal Q-Q Plot for Cadmium



N = 29, Mean = 3.0993, Stdv = 8.6955
Slope = 5.3522, Intercept = 3.0993, Correlation, R = 0.59834064
Shapiro-Wilk Statistic = 0.390, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Cadmium



N = 29, Mean = -0.8617, Stdv = 1.8787
Slope = 1.7113, Intercept = -0.8617, Correlation, R = 0.88545393
Shapiro-Wilk Statistic = 0.774, Critical Value(0.05) = 0.926, Data not Lognormal

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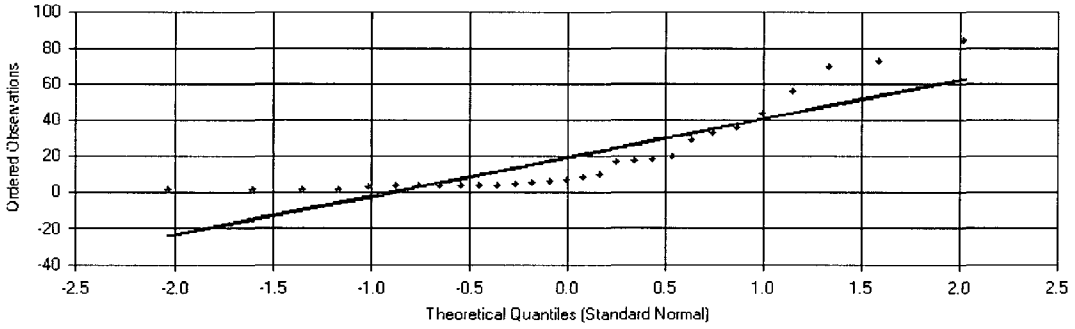
Summary Statistics for	Cadmium
Number of Samples	29
Minimum	0.1
Maximum	45.7
Mean	3.09931
Median	0.1
Standard Deviation	8.695502
Variance	75.61176
Coefficient of Variation	2.805625
Skewness	4.535974
95 % UCL (Assuming Normal Data)	
Student's-t	5.84615
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	7.208553
Modified-t	6.072832
95 % Non-parametric UCL	
CLT	5.755279
Jackknife	5.84615
Standard Bootstrap	5.778412
Bootstrap-t	12.22489
Chebyshev (Mean, Std)	10.13769
97.5 % Non-parametric UCL	
CLT	6.264092
Jackknife	6.406902
Standard Bootstrap	6.253655
Bootstrap-t	14.70003
Chebyshev (Mean, Std)	13.1832

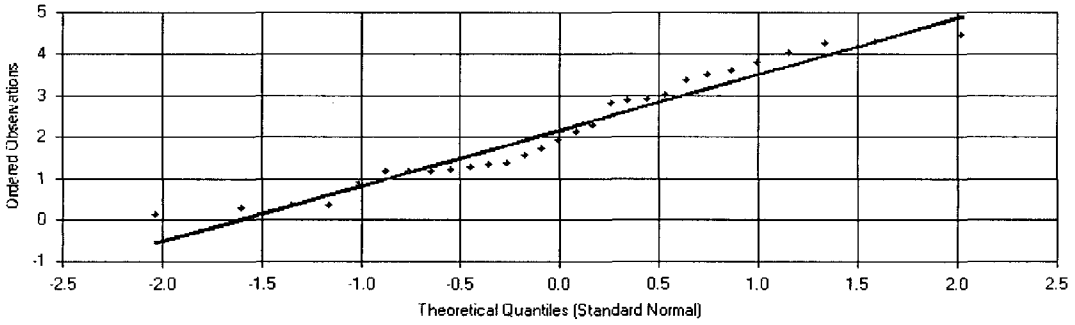
Summary Statistics for	ln(Cadmium)
Minimum	-2.30259
Maximum	3.822098
Mean	-0.86167
Standard Deviation	1.878726
Variance	3.52961
Shapiro-Wilk Test Statisitic	0.773557
Shapiro-Wilk 5% Critical Value	0.926
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	2.467318
MLE Standard Deviation	14.19741
MLE Coefficient of Variation	5.754188
MLE Skewness	207.7876
MLE Median	0.422454
MLE 80% Quantile	2.066486
MLE 90% Quantile	4.723211
MLE 95% Quantile	9.288994
MLE 99% Quantile	33.38953
MVU Estimate of Median	0.397463
MVU Estimate of Mean	2.132052
MVU Estimate of Std. Dev.	7.371394
MVU Estimate of SE of Mean	0.981871
UCL Assuming Lognormal Distribution	
95% H-UCL	9.143709
95% Chebyshev (MVUE) UCL	6.411926
99% Chebyshev (MVUE) UCL	11.90154

Normal Q-Q Plot for Chromium



N = 29, Mean = 19.2966, Stdv = 23.9506
Slope = 21.4333, Intercept = 19.2966, Correlation, R = 0.86992222
Shapiro-Wilk Statistic = 0.751, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Chromium



N = 29, Mean = 2.1628, Stdv = 1.3403
Slope = 1.3457, Intercept = 2.1628, Correlation, R = 0.97601353
Shapiro-Wilk Statistic = 0.933, Critical Value(0.05) = 0.926, Data are Lognormal

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Summary Statistics for	Chromium
Number of Samples	29
Minimum	1.1
Maximum	84
Mean	19.29655
Median	6.8
Standard Deviation	23.95064
Variance	573.6334
Coefficient of Variation	1.241188
Skewness	1.532207

95 % UCL (Assuming Normal Data)	
Student's-t	26.86237

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	27.9642
Modified-t	27.07327

95 % Non-parametric UCL	
CLT	26.61208
Jackknife	26.86237
Standard Bootstrap	26.52633
Bootstrap-t	28.91732
Chebyshev (Mean, Std)	38.68286

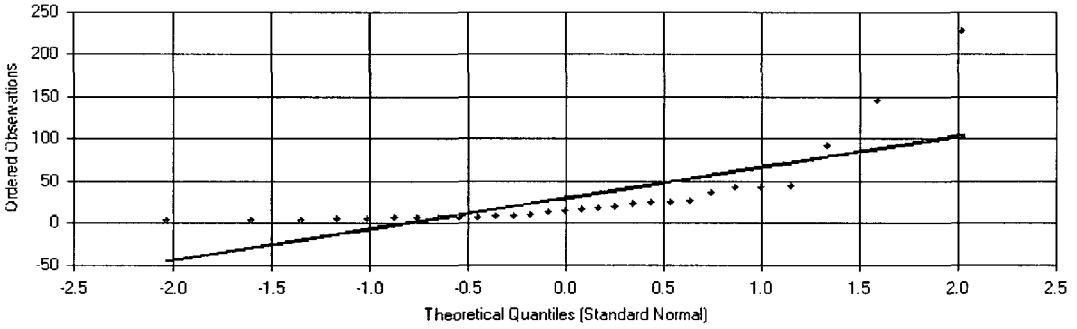
Summary Statistics for	ln(Chromium)
Minimum	0.09531
Maximum	4.430817
Mean	2.16281
Standard Deviation	1.340272
Variance	1.796329
Shapiro-Wilk Test Statisitic	0.9331
Shapiro-Wilk 5% Critical Value	0.926
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	21.34834
MLE Standard Deviation	47.86732
MLE Coefficient of Variation	2.242204
MLE Skewness	17.99924
MLE Median	8.695534
MLE 80% Quantile	26.98657
MLE 90% Quantile	48.66981
MLE 95% Quantile	78.85074
MLE 99% Quantile	196.4252
MVU Estimate of Median	8.430081
MVU Estimate of Mean	20.21831
MVU Estimate of Std. Dev.	37.3855
MVU Estimate of SE of Mean	6.158145

UCL Assuming Lognormal Distribution	
95% H-UCL	44.47117
95% Chebyshev (MVUE) UCL	47.06104
99% Chebyshev (MVUE) UCL	81.49108

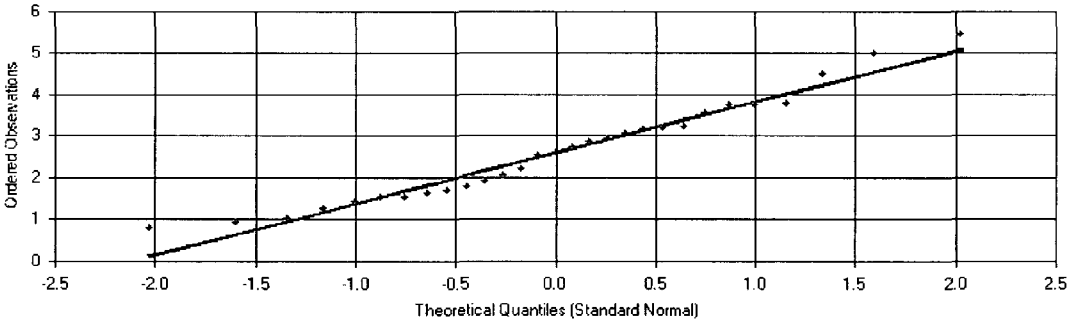
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Copper



N = 29, Mean = 29.3448, Stdv = 48.2011
Slope = 36.7851, Intercept = 29.3448, Correlation, R = 0.74186517
Shapiro-Wilk Statistic = 0.571, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Copper



N = 29, Mean = 2.5916, Stdv = 1.2143
Slope = 1.2270, Intercept = 2.5916, Correlation, R = 0.98226125
Shapiro-Wilk Statistic = 0.956, Critical Value(0.05) = 0.926, Data are Lognormal

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Summary Statistics for	Copper
Number of Samples	29
Minimum	2.2
Maximum	226
Mean	29.34483
Median	13.1
Standard Deviation	48.20106
Variance	2323.343
Coefficient of Variation	1.642574
Skewness	3.127552

95 % UCL (Assuming Normal Data)	
Student's-t	44.57116

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	49.62192
Modified-t	45.43755

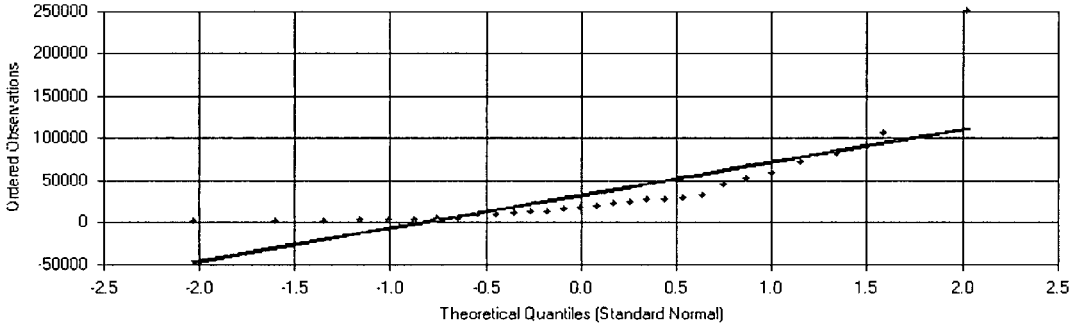
95 % Non-parametric UCL	
CLT	44.06744
Jackknife	44.57116
Standard Bootstrap	44.07748
Bootstrap-t	63.73456
Chebyshev (Mean, Std)	68.36008

Summary Statistics for	ln(Copper)
Minimum	0.788457
Maximum	5.420535
Mean	2.591615
Standard Deviation	1.214323
Variance	1.474582
Shapiro-Wilk Test Statisitic	0.955909
Shapiro-Wilk 5% Critical Value	0.926
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	27.90778
MLE Standard Deviation	51.22585
MLE Coefficient of Variation	1.83554
MLE Skewness	11.69093
MLE Median	13.35131
MLE 80% Quantile	37.25246
MLE 90% Quantile	63.56229
MLE 95% Quantile	98.41339
MLE 99% Quantile	225.0069
MVU Estimate of Median	13.01587
MVU Estimate of Mean	26.77634
MVU Estimate of Std. Dev.	42.41617
MVU Estimate of SE of Mean	7.220717

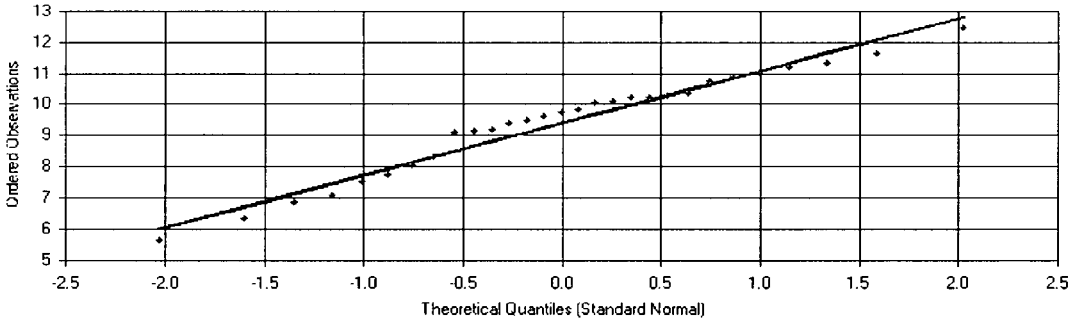
UCL Assuming Lognormal Distribution	
95% H-UCL	52.1615
95% Chebyshev (MVUE) UCL	58.25072
99% Chebyshev (MVUE) UCL	98.62157
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Iron



N = 29, Mean = 32177.3793, Stdv = 49562.9976
Slope = 39244.4587, Intercept = 32177.3793, Correlation, R = 0.76971490
Shapiro-Wilk Statistic = 0.618, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Iron



N = 29, Mean = 9.3942, Stdv = 1.6599
Slope = 1.6771, Intercept = 9.3942, Correlation, R = 0.98215199
Shapiro-Wilk Statistic = 0.961, Critical Value(0.05) = 0.926, Data are Lognormal

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Summary Statistics for	Iron
Number of Samples	29
Minimum	274
Maximum	250000
Mean	32177.38
Median	16200
Standard Deviation	49563
Variance	2.46E+09
Coefficient of Variation	1.540306
Skewness	3.351645

95 % UCL (Assuming Normal Data)	
Student's-t	47833.94

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	53436.64
Modified-t	48788.63

95 % Non-parametric UCL	
CLT	47315.98
Jackknife	47833.94
Standard Bootstrap	47026.1
Bootstrap-t	62908.52
Chebyshev (Mean, Std)	72295.02

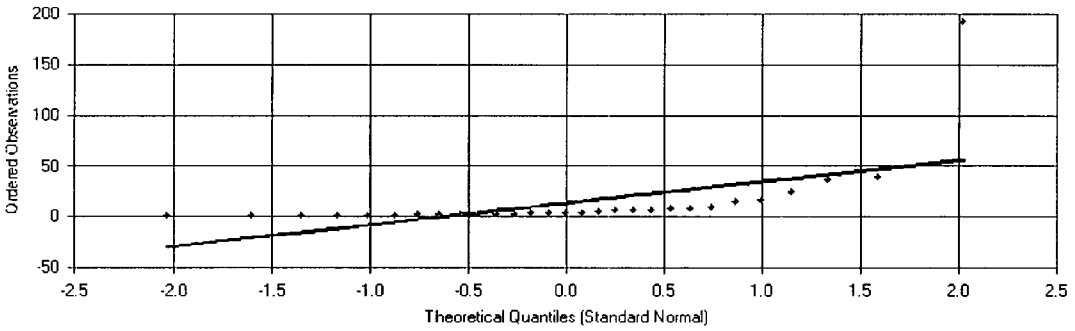
Summary Statistics for	ln(Iron)
Minimum	5.613128
Maximum	12.42922
Mean	9.394196
Standard Deviation	1.659887
Variance	2.755225
Shapiro-Wilk Test Statisitic	0.961364
Shapiro-Wilk 5% Critical Value	0.926
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	47658.12
MLE Standard Deviation	182876.6
MLE Coefficient of Variation	3.837261
MLE Skewness	68.0138
MLE Median	12018.42
MLE 80% Quantile	48864.21
MLE 90% Quantile	101432.7
MLE 95% Quantile	184371.9
MLE 99% Quantile	570970.6
MVU Estimate of Median	11459.98
MVU Estimate of Mean	43089.6
MVU Estimate of Std. Dev.	116061.9
MVU Estimate of SE of Mean	17087.29

UCL Assuming Lognormal Distribution	
95% H-UCL	136644.2
95% Chebyshev (MVUE) UCL	117571.4
99% Chebyshev (MVUE) UCL	213106

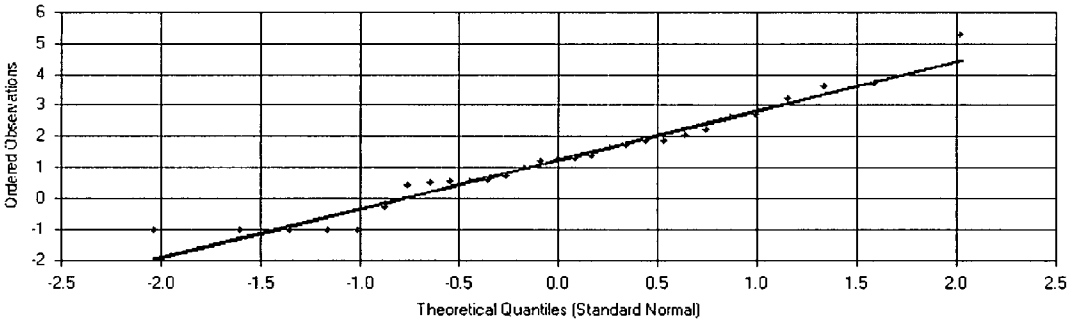
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Lead



N = 29, Mean = 13.3472, Stdv = 35.7431
Slope = 21.3681, Intercept = 13.3472, Correlation, R = 0.58114068
Shapiro-Wilk Statistic = 0.371, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Lead



N = 29, Mean = 1.2329, Stdv = 1.5744
Slope = 1.5855, Intercept = 1.2329, Correlation, R = 0.97895914
Shapiro-Wilk Statistic = 0.953, Critical Value(0.05) = 0.926, Data are Lognormal

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Summary Statistics for	Lead
Number of Samples	29
Minimum	0.35
Maximum	192
Mean	13.34724
Median	3.4
Standard Deviation	35.74315
Variance	1277.573
Coefficient of Variation	2.677943
Skewness	4.789112

95 % UCL (Assuming Normal Data)	
Student's-t	24.63822

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	30.57179
Modified-t	25.622

95 % Non-parametric UCL	
CLT	24.26469
Jackknife	24.63822
Standard Bootstrap	23.85959
Bootstrap-t	54.05729
Chebyshev (Mean, Std)	42.27872

Summary Statistics for	ln(Lead)
Minimum	-1.04982
Maximum	5.257495
Mean	1.2329
Standard Deviation	1.574369
Variance	2.478639
Shapiro-Wilk Test Statisitic	0.953454
Shapiro-Wilk 5% Critical Value	0.926

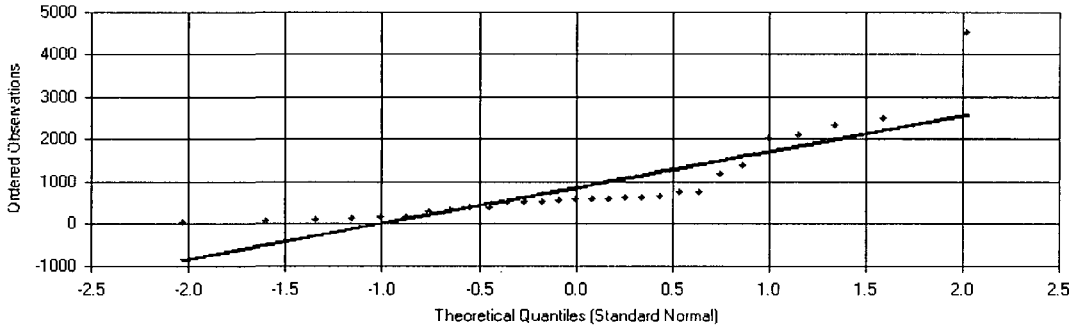
Data are Lognormal at 5% Significance Level

Estimates Assuming Lognormal Distribution	
MLE Mean	11.84872
MLE Standard Deviation	39.16358
MLE Coefficient of Variation	3.305302
MLE Skewness	46.0264
MLE Median	3.431166
MLE 80% Quantile	12.97783
MLE 90% Quantile	25.94463
MLE 95% Quantile	45.72923
MLE 99% Quantile	133.6044
MVU Estimate of Median	3.287422
MVU Estimate of Mean	10.86953
MVU Estimate of Std. Dev.	26.51816
MVU Estimate of SE of Mean	4.039464

UCL Assuming Lognormal Distribution	
95% H-UCL	30.99195
95% Chebyshev (MVUE) UCL	28.47715
99% Chebyshev (MVUE) UCL	51.0617

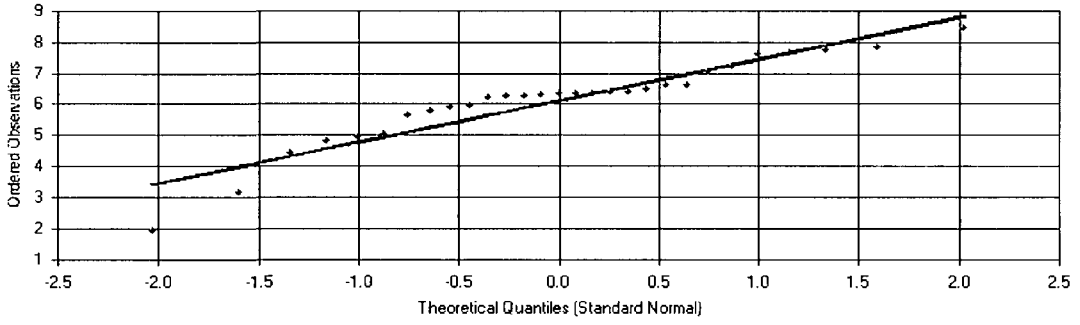
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Manganese



N = 29, Mean = 850.3000, Stdv = 975.4423
Slope = 847.5845, Intercept = 850.3000, Correlation, R = 0.84467680
Shapiro-Wilk Statistic = 0.729, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Manganese



N = 29, Mean = 6.1072, Stdv = 1.3718
Slope = 1.3365, Intercept = 6.1072, Correlation, R = 0.94706549
Shapiro-Wilk Statistic = 0.909, Critical Value(0.05) = 0.926, Data not Lognormal

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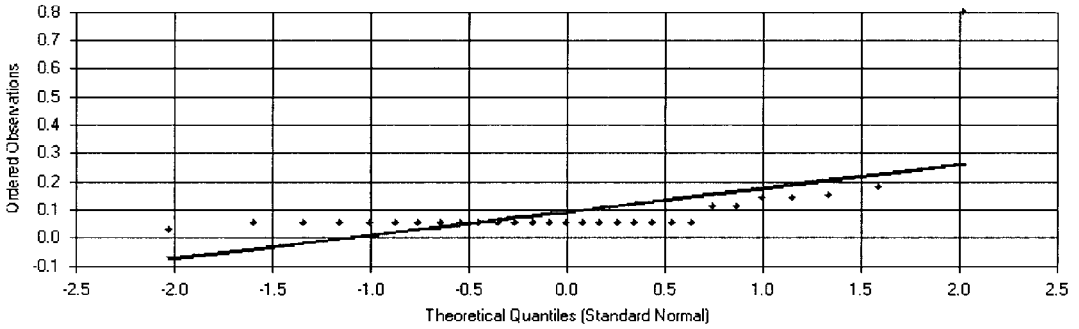
Summary Statistics for	Manganese
Number of Samples	29
Minimum	6.7
Maximum	4490
Mean	850.3
Median	550
Standard Deviation	975.4423
Variance	951487.6
Coefficient of Variation	1.147174
Skewness	2.28985
95 % UCL (Assuming Normal Data)	
Student's-t	1158.434
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1230.539
Modified-t	1171.271
95 % Non-parametric UCL	
CLT	1148.241
Jackknife	1158.434
Standard Bootstrap	1138.267
Bootstrap-t	1285.503
Chebyshev (Mean, Std)	1639.85
97.5 % Non-parametric UCL	
CLT	1205.318
Jackknife	1221.338
Standard Bootstrap	1197.288
Bootstrap-t	1466.77
Chebyshev (Mean, Std)	1981.488

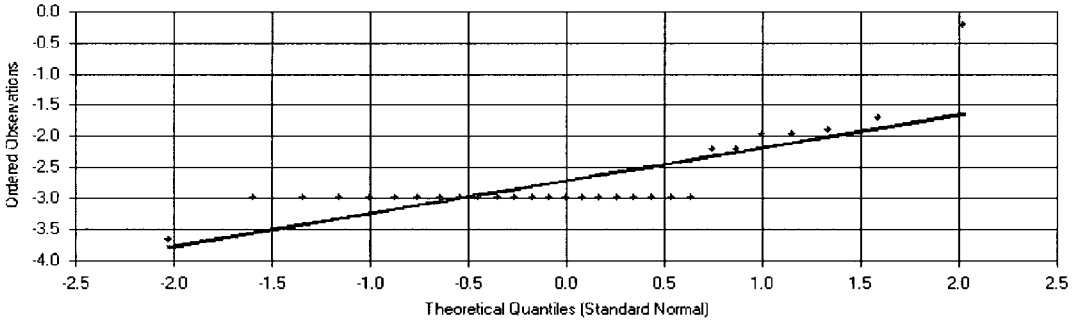
Summary Statistics for	ln(Manganese)
Minimum	1.902108
Maximum	8.409608
Mean	6.10715
Standard Deviation	1.371811
Variance	1.881866
Shapiro-Wilk Test Statisitic	0.908703
Shapiro-Wilk 5% Critical Value	0.926
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1150.651
MLE Standard Deviation	2714.597
MLE Coefficient of Variation	2.359184
MLE Skewness	20.20817
MLE Median	449.0572
MLE 80% Quantile	1431.289
MLE 90% Quantile	2617.376
MLE 95% Quantile	4288.875
MLE 99% Quantile	10915.98
MVU Estimate of Median	434.7056
MVU Estimate of Mean	1085.742
MVU Estimate of Std. Dev.	2085.433
MVU Estimate of SE of Mean	340.3522
UCL Assuming Lognormal Distribution	
95% H-UCL	2466.581
95% Chebyshev (MVUE) UCL	2569.303
99% Chebyshev (MVUE) UCL	4472.204

Normal Q-Q Plot for Mercury



N = 29, Mean = 0.0933, Stdv = 0.1413
Slope = 0.0833, Intercept = 0.0933, Correlation, R = 0.57279541
Shapiro-Wilk Statistic = 0.363, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Mercury



N = 29, Mean = -2.7166, Stdv = 0.6579
Slope = 0.5305, Intercept = -2.7166, Correlation, R = 0.78387458
Shapiro-Wilk Statistic = 0.643, Critical Value(0.05) = 0.926, Data not Lognormal

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Summary Statistics for	Mercury
Number of Samples	29
Minimum	0.025
Maximum	0.8
Mean	0.093276
Median	0.05
Standard Deviation	0.141309
Variance	0.019968
Coefficient of Variation	1.514962
Skewness	4.785364

95 % UCL (Assuming Normal Data)	
Student's-t	0.137914

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.161353
Modified-t	0.141801

95 % Non-parametric UCL	
CLT	0.136438
Jackknife	0.137914
Standard Bootstrap	0.136055
Bootstrap-t	0.236867
Chebyshev (Mean, Std)	0.207656

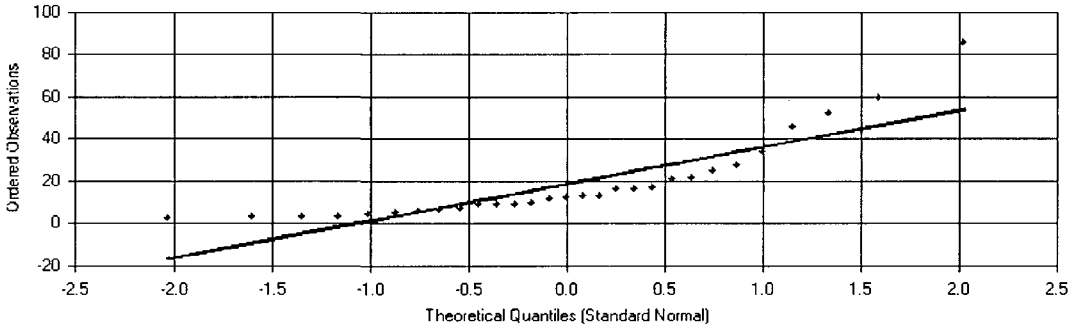
Summary Statistics for	ln(Mercury)
Minimum	-3.68888
Maximum	-0.22314
Mean	-2.71659
Standard Deviation	0.6579
Variance	0.432832
Shapiro-Wilk Test Statisitic	0.643471
Shapiro-Wilk 5% Critical Value	0.926

Data not Lognormal at 5% Significance Level
Data not Normal: Try Non-parametric UCL

Estimates Assuming Lognormal Distribution	
MLE Mean	0.082071
MLE Standard Deviation	0.0604
MLE Coefficient of Variation	0.735947
MLE Skewness	2.606442
MLE Median	0.0661
MLE 80% Quantile	0.115249
MLE 90% Quantile	0.153941
MLE 95% Quantile	0.19508
MLE 99% Quantile	0.305345
MVU Estimate of Median	0.065608
MVU Estimate of Mean	0.081344
MVU Estimate of Std. Dev.	0.057945
MVU Estimate of SE of Mean	0.010654

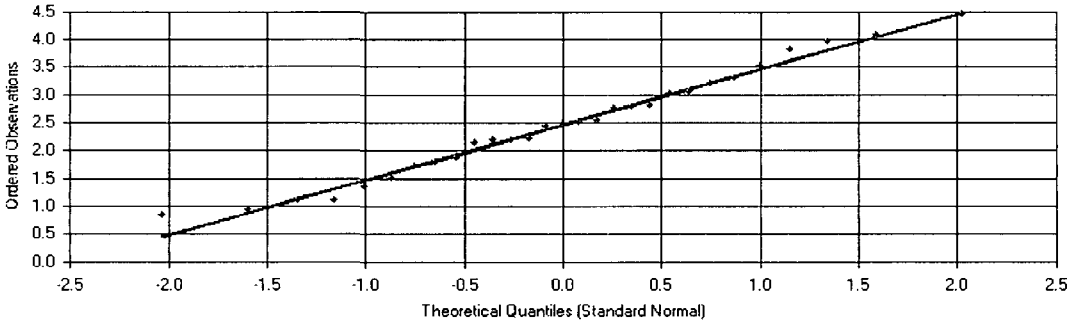
UCL Assuming Lognormal Distribution	
95% H-UCL	0.106275
95% Chebyshev (MVUE) UCL	0.127784
99% Chebyshev (MVUE) UCL	0.18735

Normal Q-Q Plot for Nickel



N = 29, Mean = 18.5310, Stdv = 19.6227
Slope = 17.5004, Intercept = 18.5310, Correlation, R = 0.86696148
Shapiro-Wilk Statistic = 0.760, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Nickel



N = 29, Mean = 2.4658, Stdv = 0.9740
Slope = 0.9950, Intercept = 2.4658, Correlation, R = 0.99312529
Shapiro-Wilk Statistic = 0.974, Critical Value(0.05) = 0.926, Data are Lognormal

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Summary Statistics for	Nickel
Number of Samples	29
Minimum	2.3
Maximum	85.7
Mean	18.53103
Median	12.05
Standard Deviation	19.62268
Variance	385.0495
Coefficient of Variation	1.058909
Skewness	2.016868

95 % UCL (Assuming Normal Data)	
Student's-t	24.72968

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	25.98282
Modified-t	24.95713

95 % Non-parametric UCL	
CLT	24.52462
Jackknife	24.72968
Standard Bootstrap	24.43405
Bootstrap-t	27.73657
Chebyshev (Mean, Std)	34.41417

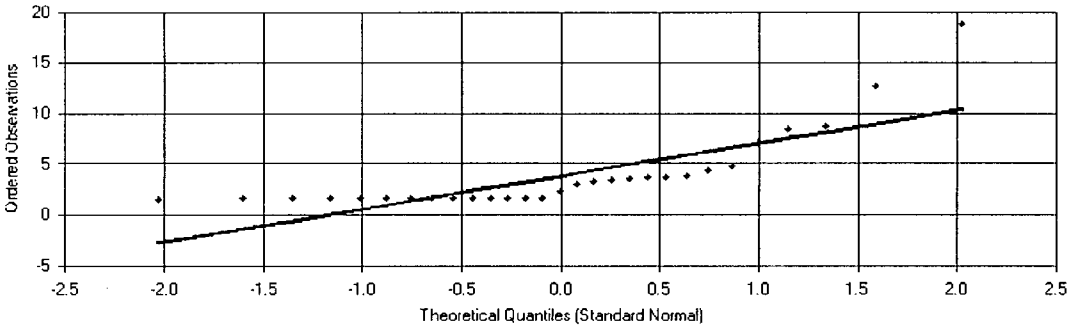
Summary Statistics for	ln(Nickel)
Minimum	0.832909
Maximum	4.450853
Mean	2.465764
Standard Deviation	0.973952
Variance	0.948583
Shapiro-Wilk Test Statisitic	0.974435
Shapiro-Wilk 5% Critical Value	0.926
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	18.91689
MLE Standard Deviation	23.79358
MLE Coefficient of Variation	1.257795
MLE Skewness	5.763278
MLE Median	11.77247
MLE 80% Quantile	26.80943
MLE 90% Quantile	41.15283
MLE 95% Quantile	58.43502
MLE 99% Quantile	113.429
MVU Estimate of Median	11.5814
MVU Estimate of Mean	18.48509
MVU Estimate of Std. Dev.	21.39698
MVU Estimate of SE of Mean	3.813504

UCL Assuming Lognormal Distribution	
95% H-UCL	29.53355
95% Chebyshev (MVUE) UCL	35.10777
99% Chebyshev (MVUE) UCL	56.42898

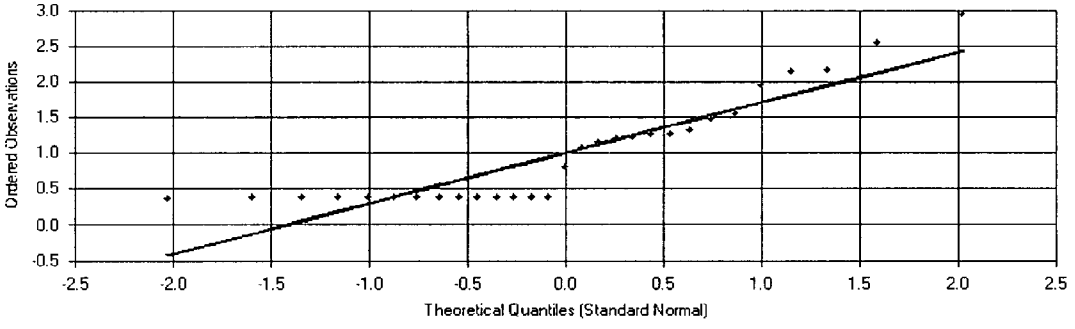
Recommended UCL to use:
H-UCL

Normal Q-Q Plot for Selenium



N = 29, Mean = 3.8034, Stdv = 3.9630
Slope = 3.2561, Intercept = 3.8034, Correlation, R = 0.79869502
Shapiro-Wilk Statistic = 0.652, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Selenium



N = 29, Mean = 1.0038, Stdv = 0.7564
Slope = 0.7058, Intercept = 1.0038, Correlation, R = 0.90711942
Shapiro-Wilk Statistic = 0.813, Critical Value(0.05) = 0.926, Data not Lognormal

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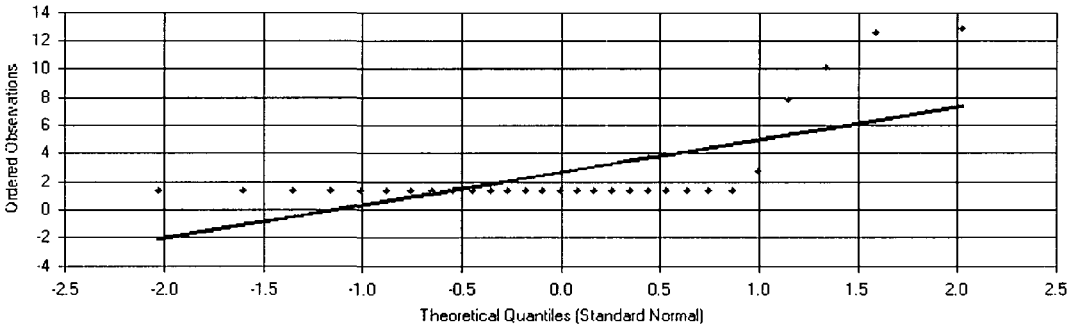
Summary Statistics for	Selenium
Number of Samples	29
Minimum	1.425
Maximum	18.8
Mean	3.803448
Median	2.225
Standard Deviation	3.963014
Variance	15.70548
Coefficient of Variation	1.041953
Skewness	2.530657
95 % UCL (Assuming Normal Data)	
Student's-t	5.055333
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	5.383441
Modified-t	5.112971
95 % Non-parametric UCL	
CLT	5.013918
Jackknife	5.055333
Standard Bootstrap	5.013582
Bootstrap-t	5.939614
Chebyshev (Mean, Std)	7.01122

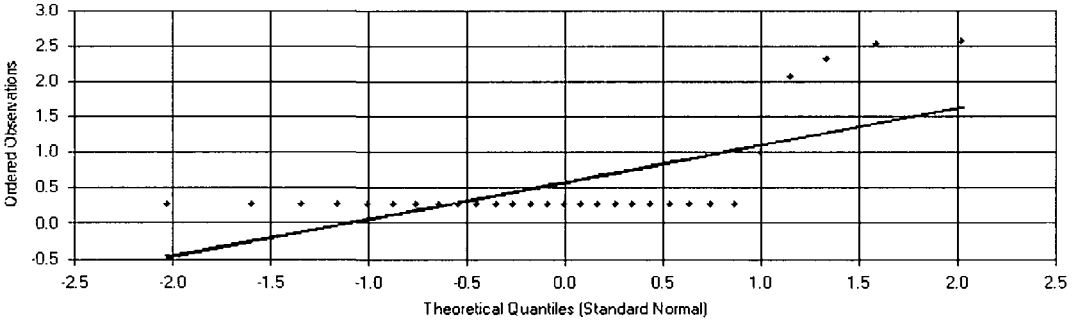
Summary Statistics for	ln(Selenium)
Minimum	0.354172
Maximum	2.933857
Mean	1.003847
Standard Deviation	0.756384
Variance	0.572116
Shapiro-Wilk Test Statisitic	0.813169
Shapiro-Wilk 5% Critical Value	0.926
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	3.632442
MLE Standard Deviation	3.191619
MLE Coefficient of Variation	0.878643
MLE Skewness	3.314252
MLE Median	2.728759
MLE 80% Quantile	5.170612
MLE 90% Quantile	7.212387
MLE 95% Quantile	9.469708
MLE 99% Quantile	15.85041
MVU Estimate of Median	2.701966
MVU Estimate of Mean	3.587857
MVU Estimate of Std. Dev.	3.013779
MVU Estimate of SE of Mean	0.550428
UCL Assuming Lognormal Distribution	
95% H-UCL	4.958413
95% Chebyshev (MVUE) UCL	5.987117
99% Chebyshev (MVUE) UCL	9.064547

Normal Q-Q Plot for Thallium



N = 29, Mean = 2.6552, Stdv = 3.4034
Slope = 2.3334, Intercept = 2.6552, Correlation, R = 0.66646320
Shapiro-Wilk Statistic = 0.451, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Thallium



N = 29, Mean = 0.5766, Stdv = 0.7415
Slope = 0.5209, Intercept = 0.5766, Correlation, R = 0.68282312
Shapiro-Wilk Statistic = 0.468, Critical Value(0.05) = 0.926, Data not Lognormal

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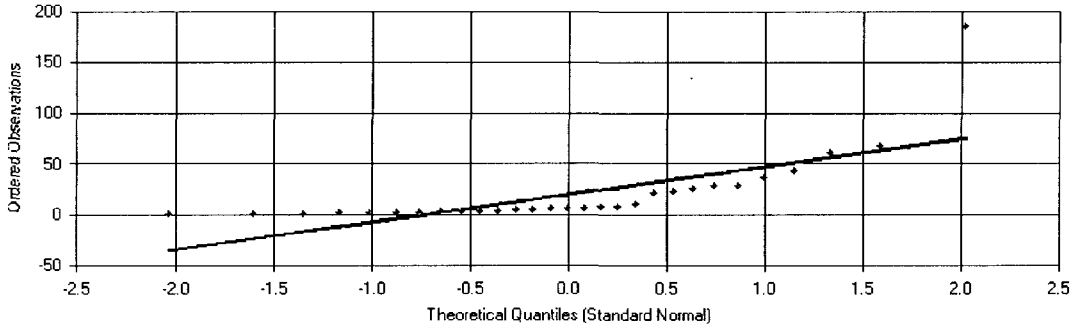
Summary Statistics for	Thallium
Number of Samples	29
Minimum	1.3
Maximum	12.8
Mean	2.655172
Median	1.3
Standard Deviation	3.403421
Variance	11.58328
Coefficient of Variation	1.281808
Skewness	2.4043
95 % UCL (Assuming Normal Data)	
Student's-t	3.730286
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	3.996219
Modified-t	3.777314
95 % Non-parametric UCL	
CLT	3.694719
Jackknife	3.730286
Standard Bootstrap	3.71202
Bootstrap-t	4.647988
Chebyshev (Mean, Std)	5.409994

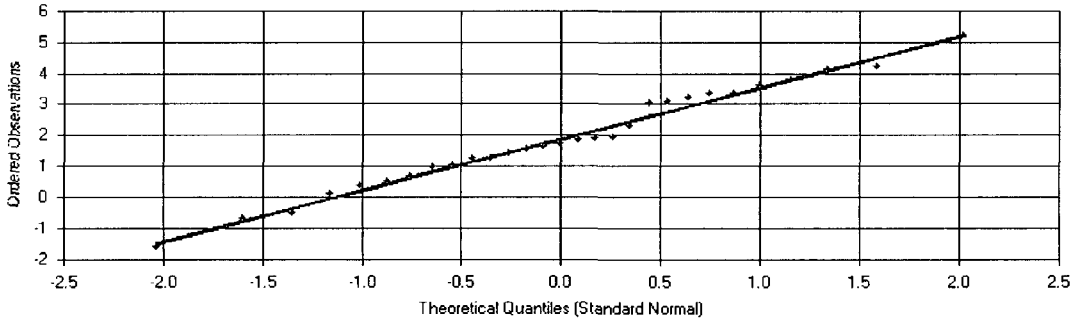
Summary Statistics for	ln(Thallium)
Minimum	0.262364
Maximum	2.549445
Mean	0.576616
Standard Deviation	0.741542
Variance	0.549885
Shapiro-Wilk Test Statisitic	0.468045
Shapiro-Wilk 5% Critical Value	0.926
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	2.343297
MLE Standard Deviation	2.006297
MLE Coefficient of Variation	0.856186
MLE Skewness	3.196186
MLE Median	1.780005
MLE 80% Quantile	3.330824
MLE 90% Quantile	4.61586
MLE 95% Quantile	6.02823
MLE 99% Quantile	9.988593
MVU Estimate of Median	1.763204
MVU Estimate of Mean	2.315857
MVU Estimate of Std. Dev.	1.899456
MVU Estimate of SE of Mean	0.347315
UCL Assuming Lognormal Distribution	
95% H-UCL	3.172402
95% Chebyshev (MVUE) UCL	3.829769
99% Chebyshev (MVUE) UCL	5.771599

Normal Q-Q Plot for Vanadium



N = 29, Mean = 20.0338, Stdv = 36.4938
Slope = 27.2667, Intercept = 20.0338, Correlation, R = 0.72631046
Shapiro-Wilk Statistic = 0.555, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Vanadium



N = 29, Mean = 1.8623, Stdv = 1.6189
Slope = 1.6550, Intercept = 1.8623, Correlation, R = 0.99373474
Shapiro-Wilk Statistic = 0.985, Critical Value(0.05) = 0.926, Data are Lognormal

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Summary Statistics for	Vanadium
Number of Samples	29
Minimum	0.2
Maximum	185
Mean	20.03379
Median	5.4
Standard Deviation	36.49383
Variance	1331.799
Coefficient of Variation	1.821613
Skewness	3.621796

95 % UCL (Assuming Normal Data)	
Student's-t	31.5619

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	36.05049
Modified-t	32.32152

95 % Non-parametric UCL	
CLT	31.18053
Jackknife	31.5619
Standard Bootstrap	30.75945
Bootstrap-t	42.64091
Chebyshev (Mean, Std)	49.57289

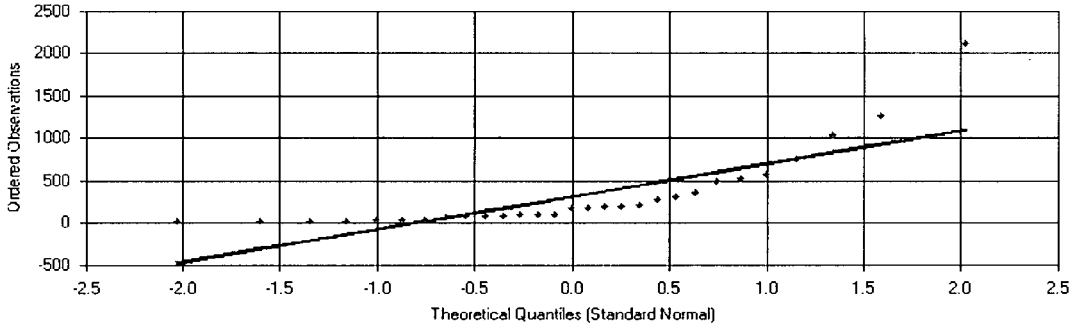
Summary Statistics for	ln(Vanadium)
Minimum	-1.60944
Maximum	5.220356
Mean	1.862266
Standard Deviation	1.618928
Variance	2.620928
Shapiro-Wilk Test Statisitic	0.985368
Shapiro-Wilk 5% Critical Value	0.926
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	23.87256
MLE Standard Deviation	85.23698
MLE Coefficient of Variation	3.5705
MLE Skewness	56.22993
MLE Median	6.438308
MLE 80% Quantile	25.28623
MLE 90% Quantile	51.55185
MLE 95% Quantile	92.33306
MLE 99% Quantile	278.0754
MVU Estimate of Median	6.153426
MVU Estimate of Mean	21.73923
MVU Estimate of Std. Dev.	55.85027
MVU Estimate of SE of Mean	8.360907

UCL Assuming Lognormal Distribution	
95% H-UCL	65.46278
95% Chebyshev (MVUE) UCL	58.18358
99% Chebyshev (MVUE) UCL	104.9292

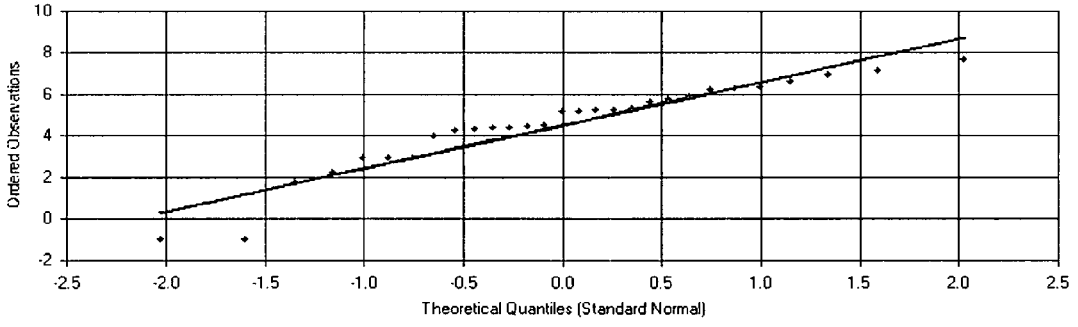
Recommended UCL to use:
95 % Chebyshev (MVUE) UCL

Normal Q-Q Plot for Zinc



N = 29, Mean = 311.7690, Stdv = 463.8457
Slope = 387.8786, Intercept = 311.7690, Correlation, R = 0.81288937
Shapiro-Wilk Statistic = 0.677, Critical Value(0.05) = 0.926, Data not Normal

Lognormal Q-Q Plot for Zinc



N = 29, Mean = 4.5002, Stdv = 2.1230
Slope = 2.0772, Intercept = 4.5002, Correlation, R = 0.95114386
Shapiro-Wilk Statistic = 0.904, Critical Value(0.05) = 0.926, Data not Lognormal

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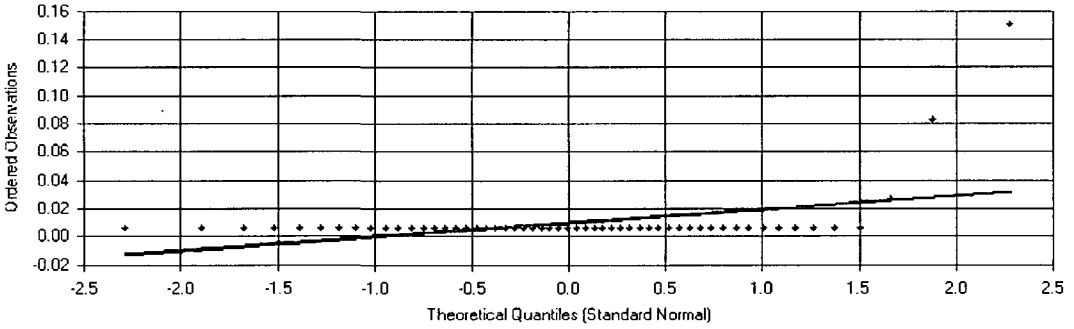
Summary Statistics for	Zinc
Number of Samples	29
Minimum	0.35
Maximum	2100
Mean	311.769
Median	164
Standard Deviation	463.8457
Variance	215152.8
Coefficient of Variation	1.487787
Skewness	2.577257
95 % UCL (Assuming Normal Data)	
Student's-t	458.2941
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	497.4935
Modified-t	465.1645
95 % Non-parametric UCL	
CLT	453.4468
Jackknife	458.2941
Standard Bootstrap	448.7348
Bootstrap-t	545.5304
Chebyshev (Mean, Std)	687.2183
99 % Non-parametric UCL	
CLT	512.1466
Jackknife	524.2736
Standard Bootstrap	505.1345
Bootstrap-t	742.7873
Chebyshev (Mean, Std)	1168.791

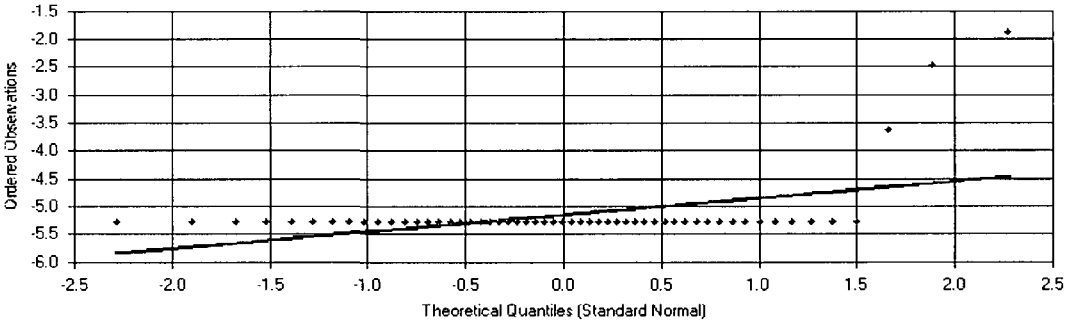
Summary Statistics for	ln(Zinc)
Minimum	-1.04982
Maximum	7.649693
Mean	4.500187
Standard Deviation	2.122958
Variance	4.506952
Shapiro-Wilk Test Statisitic	0.90402
Shapiro-Wilk 5% Critical Value	0.926
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	857.1926
MLE Standard Deviation	8115.994
MLE Coefficient of Variation	9.468111
MLE Skewness	877.1743
MLE Median	90.03393
MLE 80% Quantile	541.361
MLE 90% Quantile	1377.724
MLE 95% Quantile	2958.545
MLE 99% Quantile	12558.94
MVU Estimate of Median	83.28579
MVU Estimate of Mean	693.1941
MVU Estimate of Std. Dev.	3153.129
MVU Estimate of SE of Mean	367.9827
UCL Assuming Lognormal Distribution	
95% H-UCL	4387.822
95% Chebyshev (MVUE) UCL	2297.194
99% Chebyshev (MVUE) UCL	4354.576

Normal Q-Q Plot for Chlordane - alpha



N = 55, Mean = 0.0094, Stdv = 0.0221
Slope = 0.0098, Intercept = 0.0094, Correlation, R = 0.43621567
Lilliefors Statistic = 0.525, Critical Value(0.05) = 0.119, Data not Normal

Lognormal Q-Q Plot for Chlordane - alpha



N = 55, Mean = -5.1556, Stdv = 0.6235
Slope = 0.3028, Intercept = -5.1556, Correlation, R = 0.47725216
Lilliefors Statistic = 0.536, Critical Value(0.05) = 0.119, Data not Lognormal

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Summary Statistics for	Chlordane
Number of Samples	55
Minimum	0.005
Maximum	0.15
Mean	0.009418
Median	0.005
Standard Deviation	0.022078
Variance	0.000487
Coefficient of Variation	2.344177
Skewness	5.644395

95 % UCL (Assuming Normal Data)	
Student's-t	0.0144

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.016736
Modified-t	0.014778

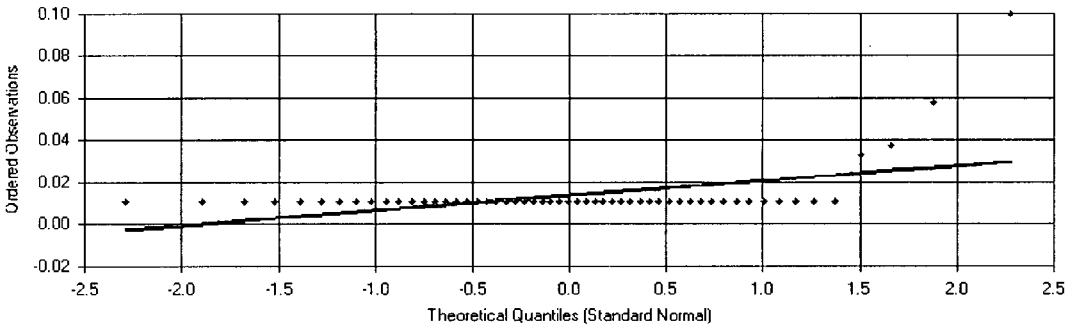
95 % Non-parametric UCL	
CLT	0.014315
Jackknife	0.0144
Standard Bootstrap	0.01416
Bootstrap-t	0.040889
Chebyshev (Mean, Std)	0.022395

Summary Statistics for	ln(Chlordane - alpha)
Minimum	-5.29832
Maximum	-1.89712
Mean	-5.15564
Standard Deviation	0.623482
Variance	0.38873
Lilliefors Test Statisitic	0.535956
Lilliefors 5% Critical Value	0.119468
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	

Estimates Assuming Lognormal Distribution	
MLE Mean	0.007004
MLE Standard Deviation	0.004828
MLE Coefficient of Variation	0.689279
MLE Skewness	2.395319
MLE Median	0.005767
MLE 80% Quantile	0.009766
MLE 90% Quantile	0.012849
MLE 95% Quantile	0.016083
MLE 99% Quantile	0.02459
MVU Estimate of Median	0.005746
MVU Estimate of Mean	0.006975
MVU Estimate of Std. Dev.	0.004731
MVU Estimate of SE of Mean	0.000632

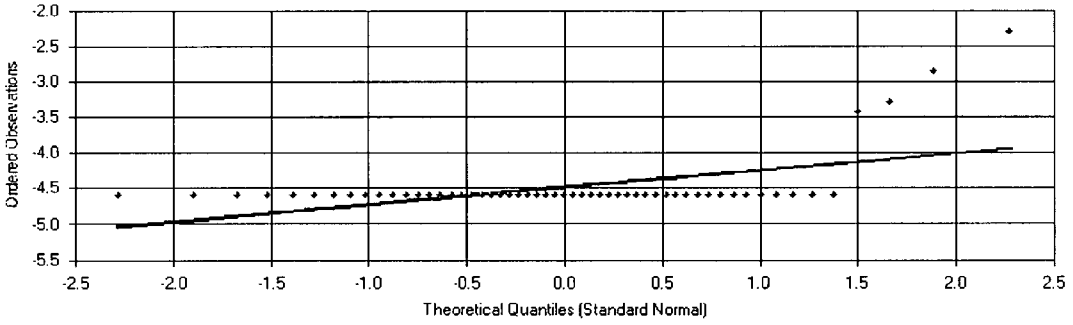
UCL Assuming Lognormal Distribution	
95% H-UCL	0.008269
95% Chebyshev (MVUE) UCL	0.009729
99% Chebyshev (MVUE) UCL	0.013262

Normal Q-Q Plot for Dieldrin



N = 55, Mean = 0.0134, Stdv = 0.0141
Slope = 0.0071, Intercept = 0.0134, Correlation, R = 0.49477738
Lilliefors Statistic = 0.522, Critical Value(0.05) = 0.119, Data not Normal

Lognormal Q-Q Plot for Dieldrin



N = 55, Mean = -4.4869, Stdv = 0.4426
Slope = 0.2388, Intercept = -4.4869, Correlation, R = 0.53018263
Lilliefors Statistic = 0.533, Critical Value(0.05) = 0.119, Data not Lognormal

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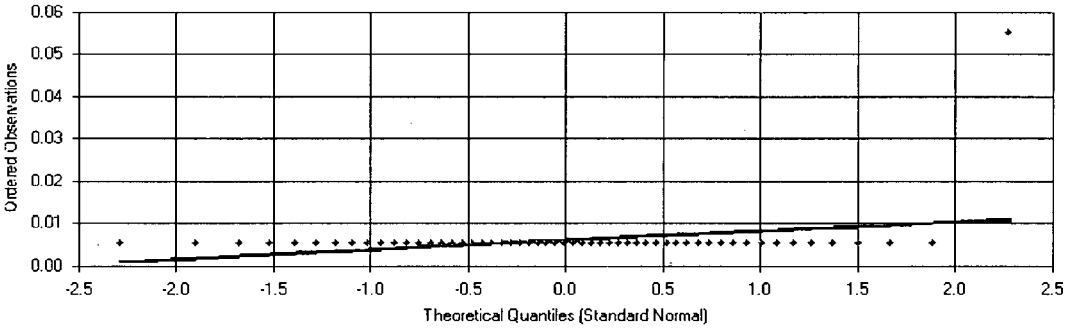
Summary Statistics for	Dieldrin
Number of Samples	55
Minimum	0.01
Maximum	0.099
Mean	0.013364
Median	0.01
Standard Deviation	0.01409
Variance	0.000199
Coefficient of Variation	1.054364
Skewness	5.007077
95 % UCL (Assuming Normal Data)	
Student's-t	0.016543
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.017859
Modified-t	0.016757
95 % Non-parametric UCL	
CLT	0.016489
Jackknife	0.016543
Standard Bootstrap	0.0164
Bootstrap-t	0.022055
Chebyshev (Mean, Std)	0.021645

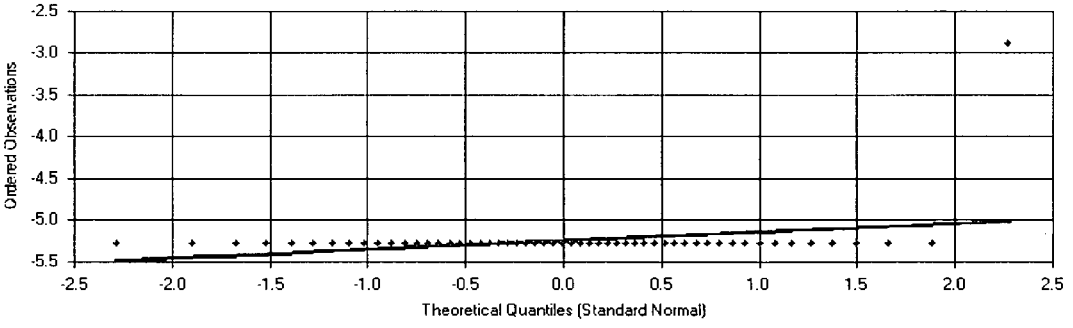
Summary Statistics for	ln(Dieldrin)
Minimum	-4.60517
Maximum	-2.31264
Mean	-4.48691
Standard Deviation	0.442643
Variance	0.195932
Lilliefors Test Statisitic	0.532606
Lilliefors 5% Critical Value	0.119468
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.012414
MLE Standard Deviation	0.005775
MLE Coefficient of Variation	0.465236
MLE Skewness	1.496406
MLE Median	0.011255
MLE 80% Quantile	0.016361
MLE 90% Quantile	0.019879
MLE 95% Quantile	0.023313
MLE 99% Quantile	0.031514
MVU Estimate of Median	0.011235
MVU Estimate of Mean	0.01239
MVU Estimate of Std. Dev.	0.005721
MVU Estimate of SE of Mean	0.000769
UCL Assuming Lognormal Distribution	
95% H-UCL	0.013864
95% Chebyshev (MVUE) UCL	0.015744
99% Chebyshev (MVUE) UCL	0.020046

Normal Q-Q Plot for Heptachlor Epoxide



N = 55, Mean = 0.0059, Stdv = 0.0067
Slope = 0.0022, Intercept = 0.0059, Correlation, R = 0.31857115
Lilliefors Statistic = 0.535, Critical Value(0.05) = 0.119, Data not Normal

Lognormal Q-Q Plot for Heptachlor Epoxide



N = 55, Mean = -5.2547, Stdv = 0.3233
Slope = 0.1048, Intercept = -5.2547, Correlation, R = 0.31857115
Lilliefors Statistic = 0.535, Critical Value(0.05) = 0.119, Data not Lognormal

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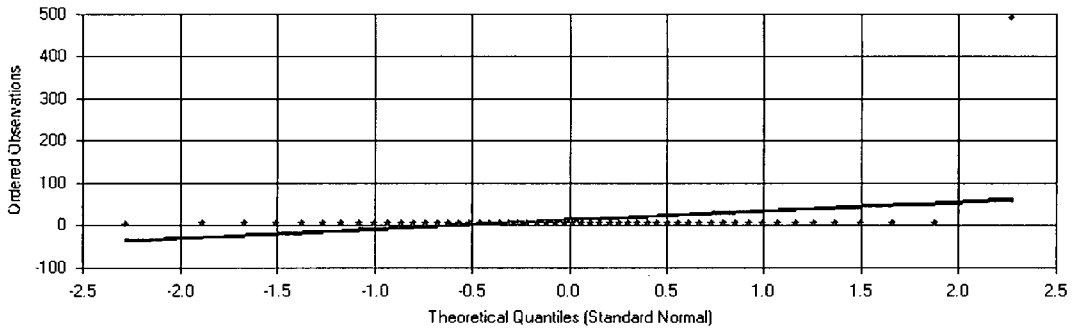
Summary Statistics for	Heptachlor
Number of Samples	55
Minimum	0.005
Maximum	0.055
Mean	0.005909
Median	0.005
Standard Deviation	0.006742
Variance	4.55E-05
Coefficient of Variation	1.140954
Skewness	7.416198
95 % UCL (Assuming Normal Data)	
Student's-t	0.007431
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.008376
Modified-t	0.007582
95 % Non-parametric UCL	
CLT	0.007404
Jackknife	0.007431
Standard Bootstrap	0.007354
Bootstrap-t	-1.#QNAN
Chebyshev (Mean, Std)	0.009872

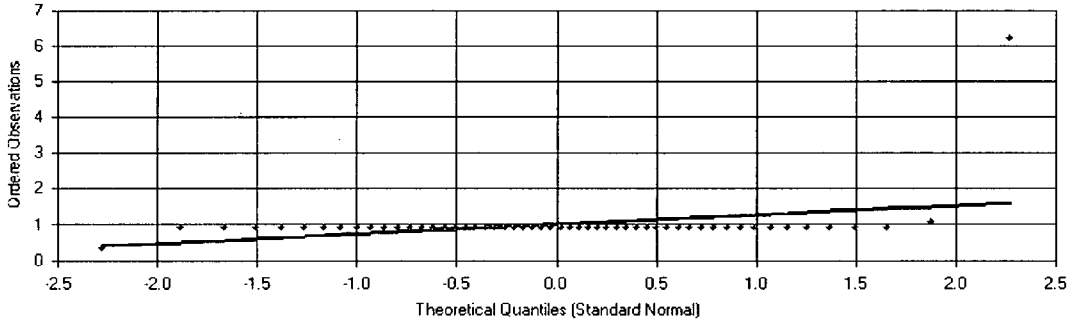
Summary Statistics for	ln(Heptachlor Epoxide)
Minimum	-5.29832
Maximum	-2.90042
Mean	-5.25472
Standard Deviation	0.323332
Variance	0.104544
Lilliefors Test Statisitic	0.535449
Lilliefors 5% Critical Value	0.119468
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.005503
MLE Standard Deviation	0.001827
MLE Coefficient of Variation	0.33197
MLE Skewness	1.032493
MLE Median	0.005223
MLE 80% Quantile	0.006864
MLE 90% Quantile	0.007913
MLE 95% Quantile	0.00889
MLE 99% Quantile	0.01108
MVU Estimate of Median	0.005218
MVU Estimate of Mean	0.005498
MVU Estimate of Std. Dev.	0.001818
MVU Estimate of SE of Mean	0.000245
UCL Assuming Lognormal Distribution	
95% H-UCL	0.005948
95% Chebyshev (MVUE) UCL	0.006565
99% Chebyshev (MVUE) UCL	0.007935

Normal Q-Q Plot for Cresol-o



N = 54, Mean = 11.5148, Stdv = 66.3423
Slope = 21.7177, Intercept = 11.5148, Correlation, R = 0.32164573
Lilliefors Statistic = 0.533, Critical Value(0.05) = 0.121, Data not Normal

Lognormal Q-Q Plot for Cresol-o



N = 54, Mean = 1.0060, Stdv = 0.7240
Slope = 0.2657, Intercept = 1.0060, Correlation, R = 0.36052780
Lilliefors Statistic = 0.512, Critical Value(0.05) = 0.121, Data not Lognormal

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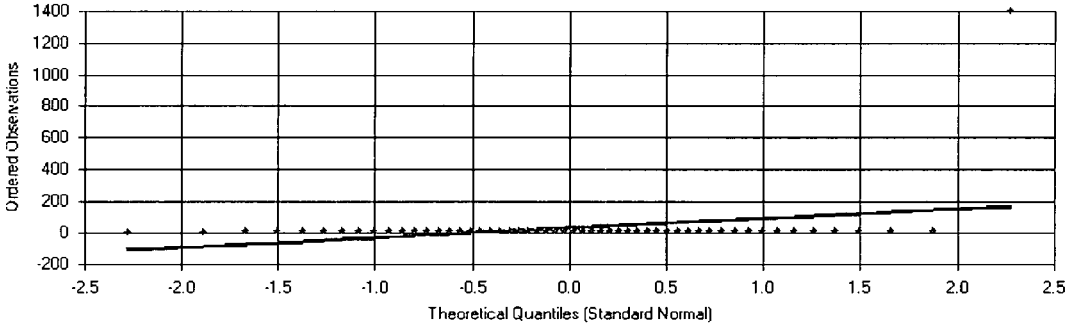
Summary Statistics for	Cresol-o
Number of Samples	54
Minimum	1.4
Maximum	490
Mean	11.51481
Median	2.5
Standard Deviation	66.34234
Variance	4401.306
Coefficient of Variation	5.761477
Skewness	7.348402
95 % UCL (Assuming Normal Data)	
Student's-t	26.62881
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	36.01115
Modified-t	28.13348
95 % Non-parametric UCL	
CLT	26.36463
Jackknife	26.62881
Standard Bootstrap	25.98465
Bootstrap-t	1.#INF
Chebyshev (Mean, Std)	50.86717

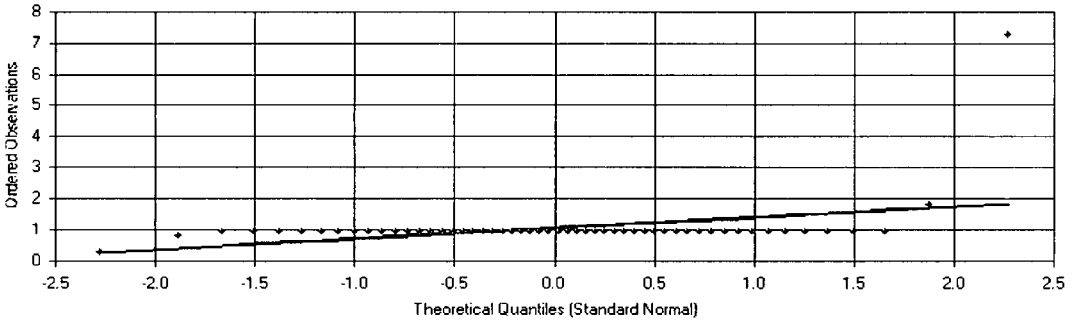
Summary Statistics for	ln(Cresol-o)
Minimum	0.336472
Maximum	6.194405
Mean	1.006045
Standard Deviation	0.724005
Variance	0.524183
Lilliefors Test Statisitic	0.512293
Lilliefors 5% Critical Value	0.120569
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	3.554222
MLE Standard Deviation	2.950386
MLE Coefficient of Variation	0.830107
MLE Skewness	3.062331
MLE Median	2.734763
MLE 80% Quantile	5.042131
MLE 90% Quantile	6.933682
MLE 95% Quantile	8.998273
MLE 99% Quantile	14.73285
MVU Estimate of Median	2.721521
MVU Estimate of Mean	3.532811
MVU Estimate of Std. Dev.	2.865701
MVU Estimate of SE of Mean	0.383533
UCL Assuming Lognormal Distribution	
95% H-UCL	4.353167
95% Chebyshev (MVUE) UCL	5.204591
99% Chebyshev (MVUE) UCL	7.348912

Normal Q-Q Plot for Cresol-p



N = 54, Mean = 28.4148, Stdv = 190.1714
Slope = 62.2646, Intercept = 28.4148, Correlation, R = 0.32169936
Lilliefors Statistic = 0.529, Critical Value(0.05) = 0.121, Data not Normal

Lognormal Q-Q Plot for Cresol-p



N = 54, Mean = 1.0349, Stdv = 0.8738
Slope = 0.3464, Intercept = 1.0349, Correlation, R = 0.38952448
Lilliefors Statistic = 0.517, Critical Value(0.05) = 0.121, Data not Lognormal

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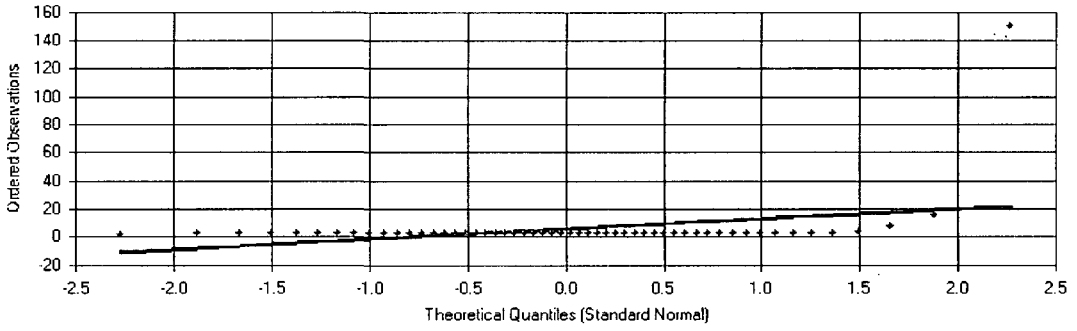
Summary Statistics for	Cresol-p
Number of Samples	54
Minimum	1.3
Maximum	1400
Mean	28.41481
Median	2.5
Standard Deviation	190.1714
Variance	36165.17
Coefficient of Variation	6.692686
Skewness	7.348392
95 % UCL (Assuming Normal Data)	
Student's-t	71.73935
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	98.63392
Modified-t	76.05248
95 % Non-parametric UCL	
CLT	70.98207
Jackknife	71.73935
Standard Bootstrap	69.84487
Bootstrap-t	62224.66
Chebyshev (Mean, Std)	141.219

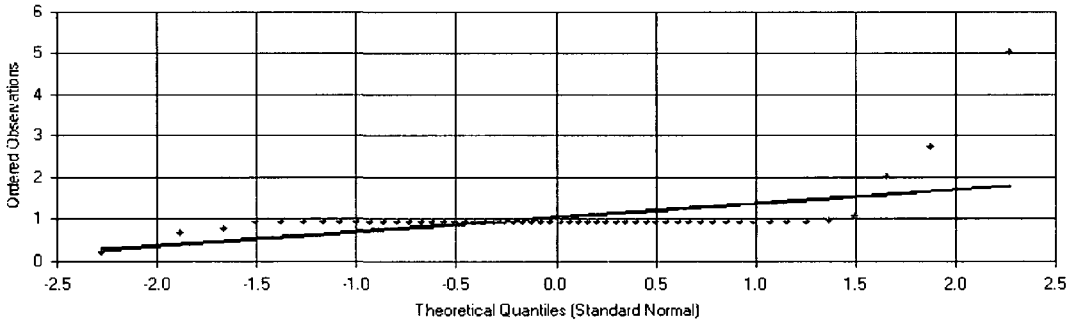
Summary Statistics for	ln(Cresol-p)
Minimum	0.262364
Maximum	7.244228
Mean	1.034899
Standard Deviation	0.873773
Variance	0.763479
Lilliefors Test Statisitic	0.516951
Lilliefors 5% Critical Value	0.120569
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	4.123236
MLE Standard Deviation	4.413457
MLE Coefficient of Variation	1.070387
MLE Skewness	4.437532
MLE Median	2.814822
MLE 80% Quantile	5.889887
MLE 90% Quantile	8.65119
MLE 95% Quantile	11.84914
MLE 99% Quantile	21.4837
MVU Estimate of Median	2.79499
MVU Estimate of Mean	4.083933
MVU Estimate of Std. Dev.	4.214501
MVU Estimate of SE of Mean	0.554777
UCL Assuming Lognormal Distribution	
95% H-UCL	5.351602
95% Chebyshev (MVUE) UCL	6.502152
99% Chebyshev (MVUE) UCL	9.603899

Normal Q-Q Plot for Ether, bis(2-chloroethyl)



N = 54, Mean = 5.5148, Stdv = 20.1157
Slope = 7.2682, Intercept = 5.5148, Correlation, R = 0.35501488
Lilliefors Statistic = 0.498, Critical Value(0.05) = 0.121, Data not Normal

Lognormal Q-Q Plot for Ether, bis(2-chloroethyl)



N = 54, Mean = 1.0258, Stdv = 0.6310
Slope = 0.3348, Intercept = 1.0258, Correlation, R = 0.52132179
Lilliefors Statistic = 0.476, Critical Value(0.05) = 0.121, Data not Lognormal

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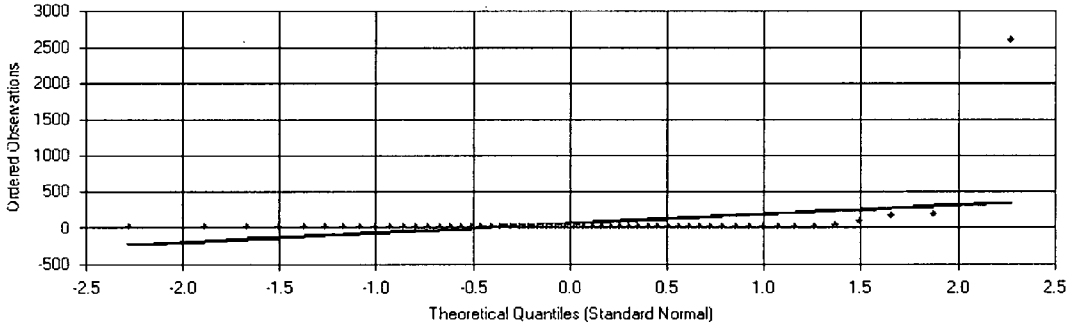
Summary Statistics for	Ether, bis(2
Number of Samples	54
Minimum	1.2
Maximum	150
Mean	5.514815
Median	2.5
Standard Deviation	20.11574
Variance	404.6432
Coefficient of Variation	3.647583
Skewness	7.259182
95 % UCL (Assuming Normal Data)	
Student's-t	10.09755
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	12.90687
Modified-t	10.54824
95 % Non-parametric UCL	
CLT	10.01745
Jackknife	10.09755
Standard Bootstrap	10.05691
Bootstrap-t	96.80051
Chebyshev (Mean, Std)	17.44689

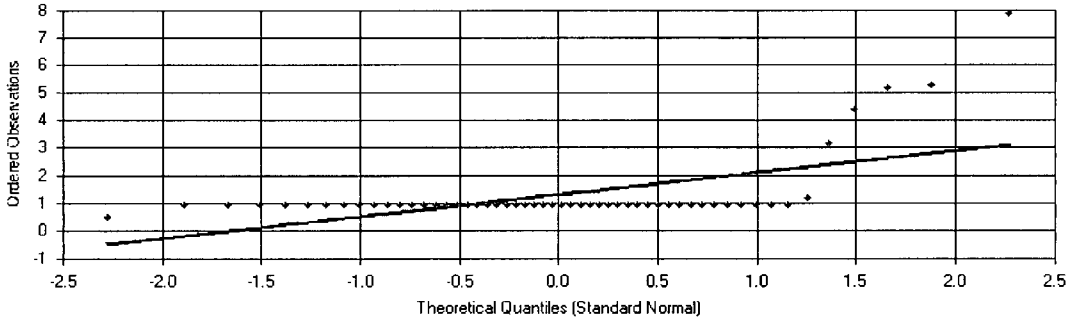
Summary Statistics for	ln(Ether, bis(2-chloroethyl))
Minimum	0.182322
Maximum	5.010635
Mean	1.025803
Standard Deviation	0.631024
Variance	0.398192
Lilliefors Test Statisitic	0.476297
Lilliefors 5% Critical Value	0.120569
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	3.403823
MLE Standard Deviation	2.380559
MLE Coefficient of Variation	0.699378
MLE Skewness	2.44022
MLE Median	2.789336
MLE 80% Quantile	4.754155
MLE 90% Quantile	6.275604
MLE 95% Quantile	7.876144
MLE 99% Quantile	12.10436
MVU Estimate of Median	2.77907
MVU Estimate of Mean	3.388964
MVU Estimate of Std. Dev.	2.330826
MVU Estimate of SE of Mean	0.314047
UCL Assuming Lognormal Distribution	
95% H-UCL	4.035587
95% Chebyshev (MVUE) UCL	4.757865
99% Chebyshev (MVUE) UCL	6.513695

Normal Q-Q Plot for Naphthalene



N = 54, Mean = 58.9648, Stdv = 354.0685
Slope = 130.5525, Intercept = 58.9648, Correlation, R = 0.36228658
Lilliefors Statistic = 0.470, Critical Value(0.05) = 0.121, Data not Normal

Lognormal Q-Q Plot for Naphthalene



N = 54, Mean = 1.3045, Stdv = 1.3300
Slope = 0.7911, Intercept = 1.3045, Correlation, R = 0.58444041
Lilliefors Statistic = 0.504, Critical Value(0.05) = 0.121, Data not Lognormal

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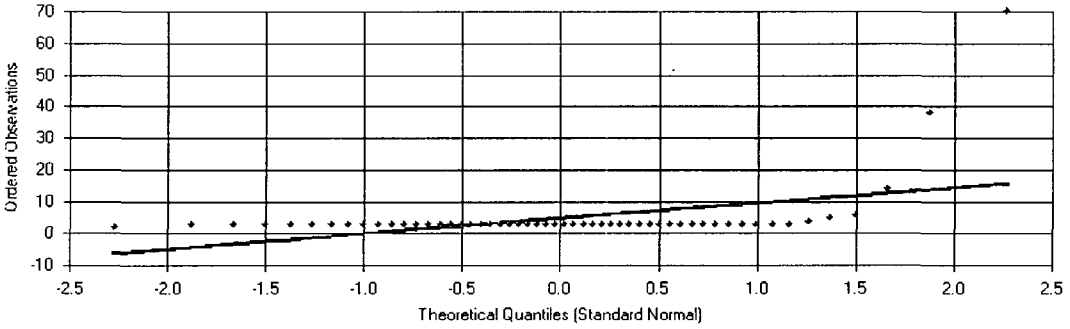
Summary Statistics for	Naphthaler
Number of Samples	54
Minimum	1.6
Maximum	2600
Mean	58.96481
Median	2.5
Standard Deviation	354.0685
Variance	125364.5
Coefficient of Variation	6.004741
Skewness	7.240124
95 % UCL (Assuming Normal Data)	
Student's-t	139.6281
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	188.9429
Modified-t	147.5401
95 % Non-parametric UCL	
CLT	138.2182
Jackknife	139.6281
Standard Bootstrap	138.1163
Bootstrap-t	887.917
Chebyshev (Mean, Std)	268.988
97.5 % Non-parametric UCL	
CLT	153.401
Jackknife	155.6069
Standard Bootstrap	151.1598
Bootstrap-t	1864.172
Chebyshev (Mean, Std)	359.8652

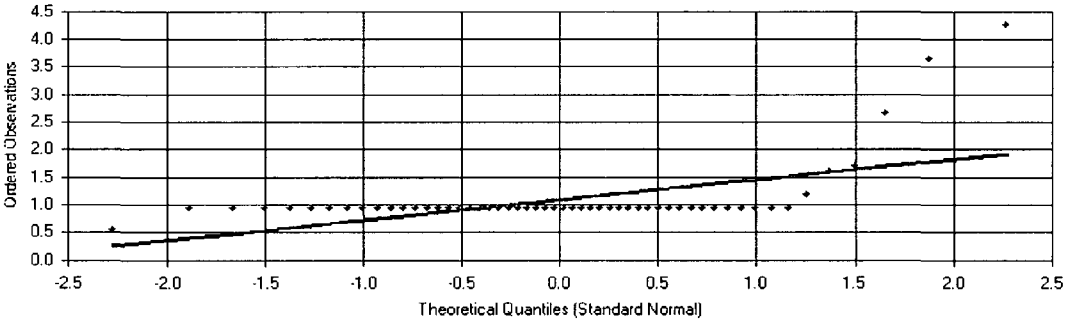
Summary Statistics for	ln(Naphthalene)
Minimum	0.470004
Maximum	7.863267
Mean	1.304465
Standard Deviation	1.330015
Variance	1.768941
Lilliefors Test Statisitic	0.503691
Lilliefors 5% Critical Value	0.120569
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	8.925707
MLE Standard Deviation	19.68647
MLE Coefficient of Variation	2.205593
MLE Skewness	17.34619
MLE Median	3.685717
MLE 80% Quantile	11.33991
MLE 90% Quantile	20.35924
MLE 95% Quantile	32.86277
MLE 99% Quantile	81.29471
MVU Estimate of Median	3.625822
MVU Estimate of Mean	8.665784
MVU Estimate of Std. Dev.	17.05436
MVU Estimate of SE of Mean	2.01123
UCL Assuming Lognormal Distribution	
95% H-UCL	14.50982
95% Chebyshev (MVUE) UCL	17.43253
99% Chebyshev (MVUE) UCL	28.67727

Normal Q-Q Plot for Nitrosodiphenylamine-n



N = 54, Mean = 4.7176, Stdv = 10.3692
Slope = 4.8802, Intercept = 4.7176, Correlation, R = 0.46243399
Lilliefors Statistic = 0.474, Critical Value(0.05) = 0.121, Data not Normal

Lognormal Q-Q Plot for Nitrosodiphenylamine-n



N = 54, Mean = 1.0847, Stdv = 0.6326
Slope = 0.3682, Intercept = 1.0847, Correlation, R = 0.57189079
Lilliefors Statistic = 0.494, Critical Value(0.05) = 0.121, Data not Lognormal

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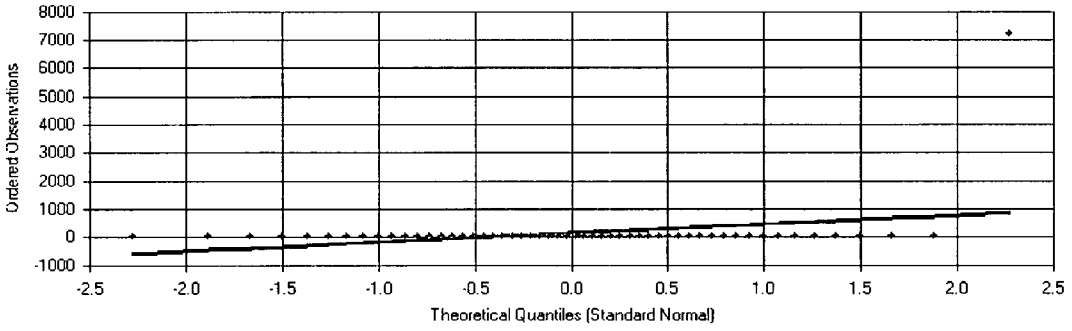
Summary Statistics for	Nitrosodipl
Number of Samples	54
Minimum	1.7
Maximum	70
Mean	4.717593
Median	2.5
Standard Deviation	10.36919
Variance	107.5201
Coefficient of Variation	2.197983
Skewness	5.541985
95 % UCL (Assuming Normal Data)	
Student's-t	7.079884
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	8.175688
Modified-t	7.257248
95 % Non-parametric UCL	
CLT	7.038593
Jackknife	7.079884
Standard Bootstrap	6.927833
Bootstrap-t	17.47526
Chebyshev (Mean, Std)	10.8683

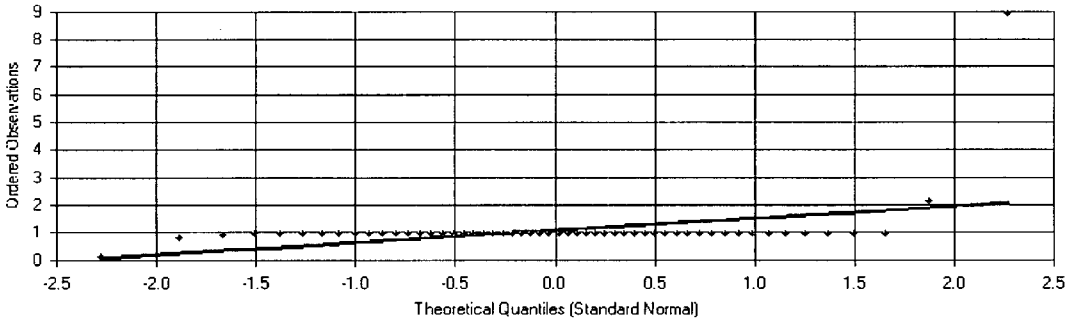
Summary Statistics for	ln(Nitrosodiphenylamine-n)
Minimum	0.530628
Maximum	4.248495
Mean	1.084736
Standard Deviation	0.632579
Variance	0.400156
Lilliefors Test Statisitic	0.493878
Lilliefors 5% Critical Value	0.120569
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	3.613994
MLE Standard Deviation	2.535102
MLE Coefficient of Variation	0.701468
MLE Skewness	2.449567
MLE Median	2.958657
MLE 80% Quantile	5.049377
MLE 90% Quantile	6.669864
MLE 95% Quantile	8.375644
MLE 99% Quantile	12.88565
MVU Estimate of Median	2.947715
MVU Estimate of Mean	3.598128
MVU Estimate of Std. Dev.	2.481843
MVU Estimate of SE of Mean	0.334364
UCL Assuming Lognormal Distribution	
95% H-UCL	4.287008
95% Chebyshev (MVUE) UCL	5.055586
99% Chebyshev (MVUE) UCL	6.925005

Normal Q-Q Plot for Phenol



N = 54, Mean = 135.8556, Stdv = 979.4465
Slope = 319.9866, Intercept = 135.8556, Correlation, R = 0.32100016
Lilliefors Statistic = 0.533, Critical Value(0.05) = 0.121, Data not Normal

Lognormal Q-Q Plot for Phenol



N = 54, Mean = 1.0667, Stdv = 1.1014
Slope = 0.4402, Intercept = 1.0667, Correlation, R = 0.39265856
Lilliefors Statistic = 0.517, Critical Value(0.05) = 0.121, Data not Lognormal

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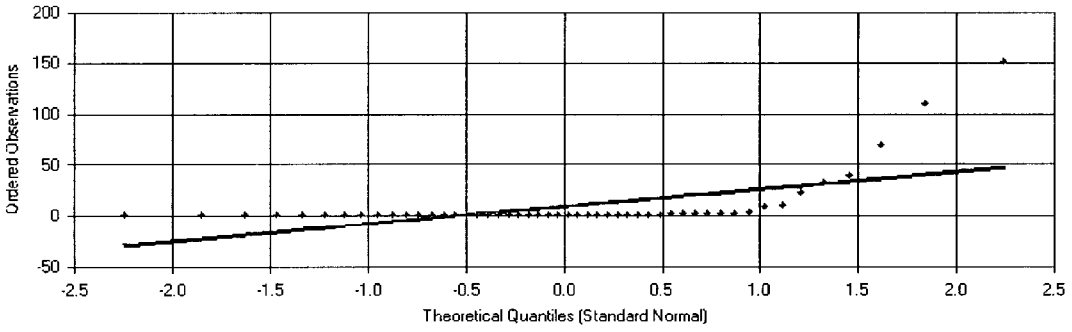
Summary Statistics for	Phenol
Number of Samples	54
Minimum	1.1
Maximum	7200
Mean	135.8556
Median	2.5
Standard Deviation	979.4465
Variance	959315.5
Coefficient of Variation	7.20947
Skewness	7.348462
95 % UCL (Assuming Normal Data)	
Student's-t	358.9914
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	497.5088
Modified-t	381.2057
95 % Non-parametric UCL	
CLT	355.0912
Jackknife	358.9914
Standard Bootstrap	357.0623
Bootstrap-t	685853.1
Chebyshev (Mean, Std)	716.8348
97.5 % Non-parametric UCL	
CLT	397.0909
Jackknife	403.1929
Standard Bootstrap	386.1634
Bootstrap-t	2650364
Chebyshev (Mean, Std)	968.225

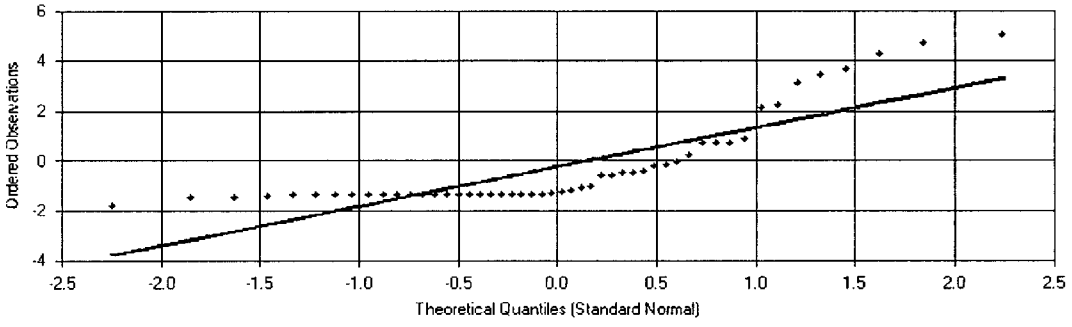
Summary Statistics for	ln(Phenol)
Minimum	0.09531
Maximum	8.881836
Mean	1.066704
Standard Deviation	1.101406
Variance	1.213096
Lilliefors Test Statisitic	0.517275
Lilliefors 5% Critical Value	0.120569
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	5.32947
MLE Standard Deviation	8.19402
MLE Coefficient of Variation	1.537493
MLE Skewness	8.246931
MLE Median	2.905785
MLE 80% Quantile	7.369812
MLE 90% Quantile	11.9653
MLE 95% Quantile	17.78788
MLE 99% Quantile	37.65912
MVU Estimate of Median	2.873323
MVU Estimate of Mean	5.236999
MVU Estimate of Std. Dev.	7.53016
MVU Estimate of SE of Mean	0.950163
UCL Assuming Lognormal Distribution	
95% H-UCL	7.665526
95% Chebyshev (MVUE) UCL	9.378661
99% Chebyshev (MVUE) UCL	14.691

Normal Q-Q Plot for Benzene



N = 50, Mean = 9.1954, Stdv = 27.9213
Slope = 16.9433, Intercept = 9.1954, Correlation, R = 0.59558958
Shapiro-Wilk Statistic = 0.382, Critical Value(0.05) = 0.947, Data not Normal

Lognormal Q-Q Plot for Benzene



N = 50, Mean = -0.2370, Stdv = 1.8408
Slope = 1.5845, Intercept = -0.2370, Correlation, R = 0.84484569
Lilliefors Statistic = 0.251, Critical Value(0.05) = 0.125, Data not Lognormal

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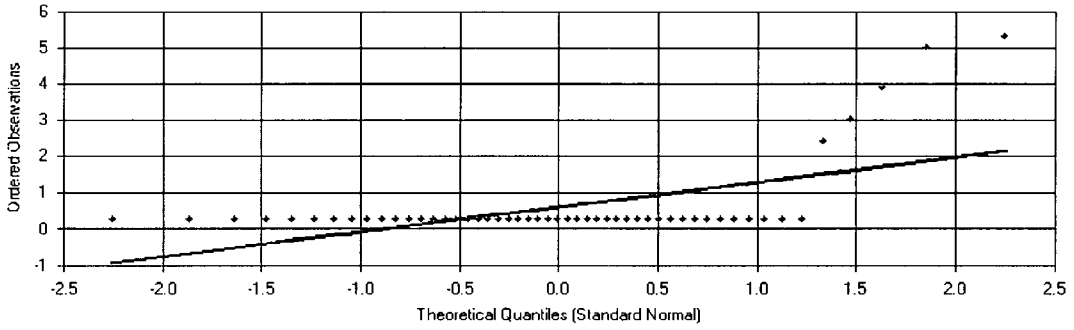
Summary Statistics for	Benzene
Number of Samples	50
Minimum	0.16
Maximum	150
Mean	9.1954
Median	0.27
Standard Deviation	27.92133
Variance	779.6004
Coefficient of Variation	3.036445
Skewness	3.944102
95 % UCL (Assuming Normal Data)	
Student's-t	15.81555
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	18.04378
Modified-t	16.18263
95 % Non-parametric UCL	
CLT	15.69039
Jackknife	15.81555
Standard Bootstrap	15.51635
Bootstrap-t	23.99434
Chebyshev (Mean, Std)	26.40726
97.5 % Non-parametric UCL	
CLT	16.93465
Jackknife	17.13055
Standard Bootstrap	16.83012
Bootstrap-t	33.36619
Chebyshev (Mean, Std)	33.85485

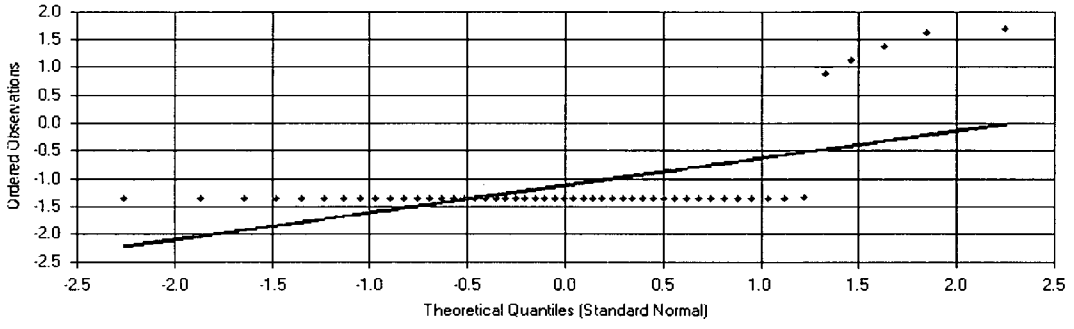
Summary Statistics for	ln(Benzene)
Minimum	-1.83258
Maximum	5.010635
Mean	-0.237
Standard Deviation	1.840808
Variance	3.388575
Shapiro-Wilk Test Statisitic	0.70715
Shapiro-Wilk 5% Critical Value	0.947
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	4.294296
MLE Standard Deviation	22.97496
MLE Coefficient of Variation	5.350112
MLE Skewness	169.1903
MLE Median	0.788992
MLE 80% Quantile	3.737748
MLE 90% Quantile	8.401739
MLE 95% Quantile	16.29942
MLE 99% Quantile	57.0952
MVU Estimate of Median	0.762687
MVU Estimate of Mean	3.948774
MVU Estimate of Std. Dev.	15.24331
MVU Estimate of SE of Mean	1.461657
UCL Assuming Lognormal Distribution	
95% H-UCL	10.31395
95% Chebyshev (MVUE) UCL	10.31999
99% Chebyshev (MVUE) UCL	18.49208

Normal Q-Q Plot for Chloroethane



N = 51, Mean = 0.6100, Stdv = 1.1573
Slope = 0.6864, Intercept = 0.6100, Correlation, R = 0.58232145
Lilliefors Statistic = 0.521, Critical Value(0.05) = 0.124, Data not Normal

Lognormal Q-Q Plot for Chloroethane



N = 51, Mean = -1.1200, Stdv = 0.8188
Slope = 0.4908, Intercept = -1.1200, Correlation, R = 0.58846124
Lilliefors Statistic = 0.511, Critical Value(0.05) = 0.124, Data not Lognormal

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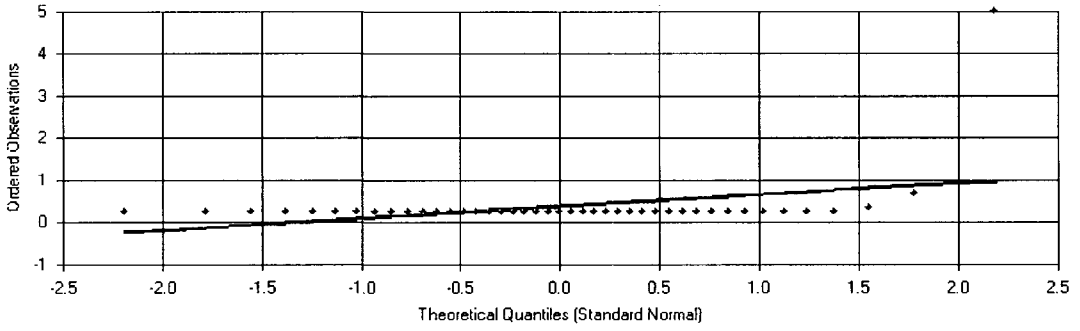
Summary Statistics for	Chloroetha
Number of Samples	51
Minimum	0.25
Maximum	5.3
Mean	0.61
Median	0.25
Standard Deviation	1.157264
Variance	1.33926
Coefficient of Variation	1.897154
Skewness	3.231787
95 % UCL (Assuming Normal Data)	
Student's-t	0.881579
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.954906
Modified-t	0.893802
95 % Non-parametric UCL	
CLT	0.876548
Jackknife	0.881579
Standard Bootstrap	0.872768
Bootstrap-t	1.065703
Chebyshev (Mean, Std)	1.316357

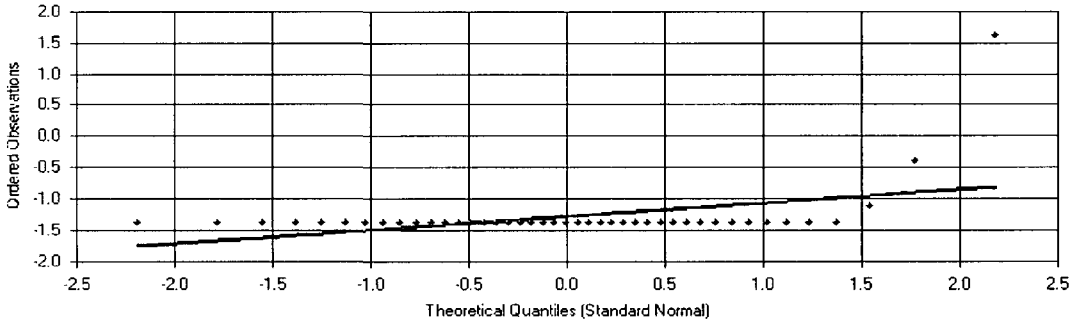
Summary Statistics for	ln(Chloroethane)
Minimum	-1.38629
Maximum	1.667707
Mean	-1.11996
Standard Deviation	0.818818
Variance	0.670463
Lilliefors Test Statisitic	0.51121
Lilliefors 5% Critical Value	0.124065
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.456242
MLE Standard Deviation	0.445892
MLE Coefficient of Variation	0.977314
MLE Skewness	3.865416
MLE Median	0.326292
MLE 80% Quantile	0.651771
MLE 90% Quantile	0.934464
MLE 95% Quantile	1.254821
MLE 99% Quantile	2.191547
MVU Estimate of Median	0.324154
MVU Estimate of Mean	0.452327
MVU Estimate of Std. Dev.	0.427815
MVU Estimate of SE of Mean	0.058373
UCL Assuming Lognormal Distribution	
95% H-UCL	0.58381
95% Chebyshev (MVUE) UCL	0.706771
99% Chebyshev (MVUE) UCL	1.033134

Normal Q-Q Plot for Dichlorobenzene-1,3



N = 43, Mean = 0.3716, Stdv = 0.7254
Slope = 0.2785, Intercept = 0.3716, Correlation, R = 0.37595485
Shapiro-Wilk Statistic = 0.177, Critical Value(0.05) = 0.943, Data not Normal

Lognormal Q-Q Plot for Dichlorobenzene-1,3



N = 43, Mean = -1.2883, Stdv = 0.4772
Slope = 0.2149, Intercept = -1.2883, Correlation, R = 0.44098201
Shapiro-Wilk Statistic = 0.230, Critical Value(0.05) = 0.943, Data not Lognormal

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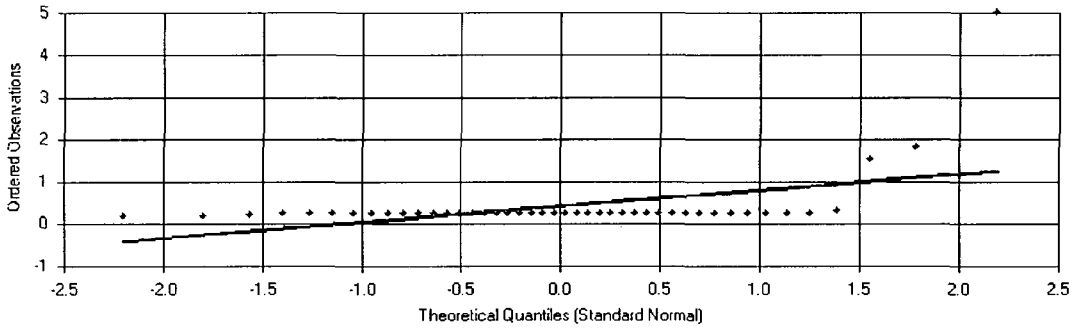
Summary Statistics for	Dichlorobe
Number of Samples	43
Minimum	0.25
Maximum	5
Mean	0.371628
Median	0.25
Standard Deviation	0.72538
Variance	0.526176
Coefficient of Variation	1.951898
Skewness	6.48355
95 % UCL (Assuming Normal Data)	
Student's-t	0.557684
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.670447
Modified-t	0.575913
95 % Non-parametric UCL	
CLT	0.553581
Jackknife	0.557684
Standard Bootstrap	0.55306
Bootstrap-t	8.525857
Chebyshev (Mean, Std)	0.853807

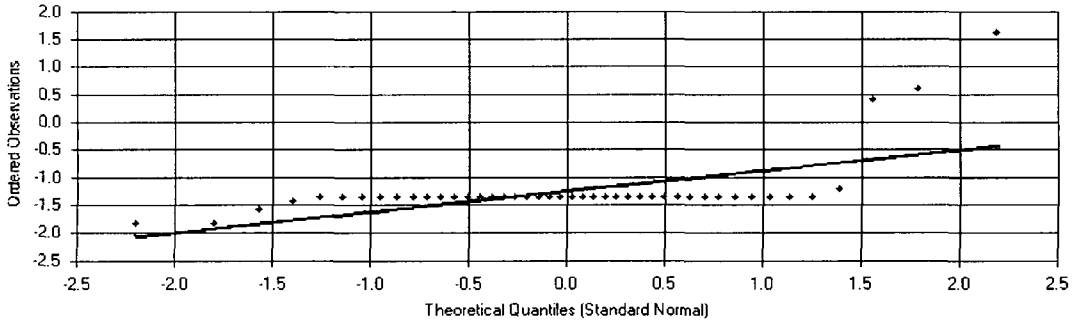
Summary Statistics for	ln(Dichlorobenzene-1,3)
Minimum	-1.38629
Maximum	1.609438
Mean	-1.28831
Standard Deviation	0.477217
Variance	0.227736
Shapiro-Wilk Test Statisitic	0.230464
Shapiro-Wilk 5% Critical Value	0.943
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.308992
MLE Standard Deviation	0.156264
MLE Coefficient of Variation	0.505721
MLE Skewness	1.646503
MLE Median	0.275737
MLE 80% Quantile	0.412689
MLE 90% Quantile	0.509113
MLE 95% Quantile	0.60454
MLE 99% Quantile	0.83669
MVU Estimate of Median	0.275007
MVU Estimate of Mean	0.308088
MVU Estimate of Std. Dev.	0.154084
MVU Estimate of SE of Mean	0.023421
UCL Assuming Lognormal Distribution	
95% H-UCL	0.354889
95% Chebyshev (MVUE) UCL	0.410178
99% Chebyshev (MVUE) UCL	0.541125

Normal Q-Q Plot for Dichlorobenzene-1,4



N = 44, Mean = 0.4169, Stdv = 0.7674
Slope = 0.3795, Intercept = 0.4169, Correlation, R = 0.48443410
Shapiro-Wilk Statistic = 0.272, Critical Value(0.05) = 0.944, Data not Normal

Lognormal Q-Q Plot for Dichlorobenzene-1,4



N = 44, Mean = -1.2560, Stdv = 0.6063
Slope = 0.3713, Intercept = -1.2560, Correlation, R = 0.59985778
Shapiro-Wilk Statistic = 0.392, Critical Value(0.05) = 0.944, Data not Lognormal

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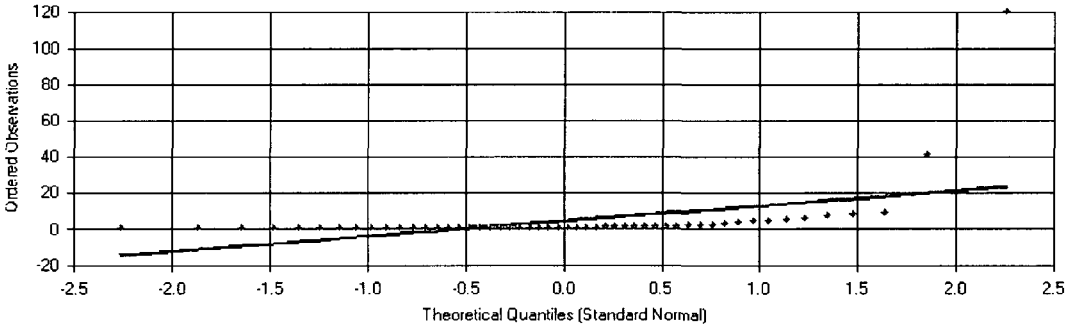
Summary Statistics for	Dichlorobe
Number of Samples	44
Minimum	0.16
Maximum	5
Mean	0.416932
Median	0.25
Standard Deviation	0.767386
Variance	0.588882
Coefficient of Variation	1.840556
Skewness	5.389221
95 % UCL (Assuming Normal Data)	
Student's-t	0.611411
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.707652
Modified-t	*0.627076*
95 % Non-parametric UCL	
CLT	0.607221
Jackknife	0.611411
Standard Bootstrap	0.607708
Bootstrap-t	1.006097
Chebyshev (Mean, Std)	0.921203

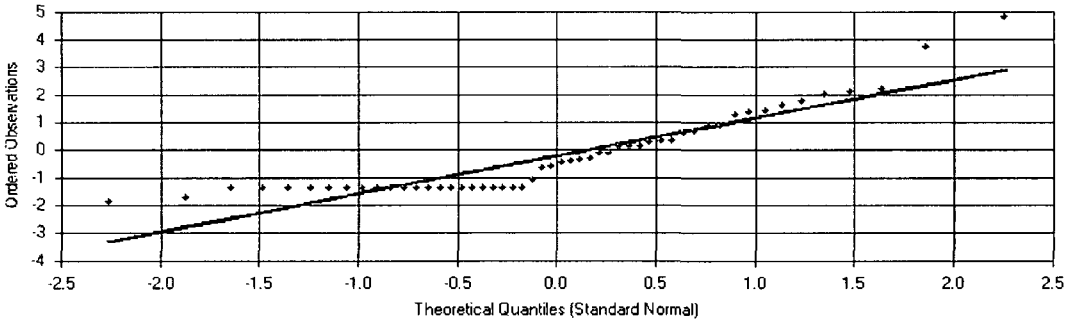
Summary Statistics for	ln(Dichlorobenzene-1,4)
Minimum	-1.83258
Maximum	1.609438
Mean	-1.25601
Standard Deviation	0.606342
Variance	0.367651
Shapiro-Wilk Test Statisitic	0.392156
Shapiro-Wilk 5% Critical Value	0.944
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.342259
MLE Standard Deviation	0.228145
MLE Coefficient of Variation	0.666586
MLE Skewness	2.295948
MLE Median	0.284787
MLE 80% Quantile	0.475374
MLE 90% Quantile	0.620728
MLE 95% Quantile	0.772147
MLE 99% Quantile	1.166886
MVU Estimate of Median	0.2836
MVU Estimate of Mean	0.34059
MVU Estimate of Std. Dev.	0.22287
MVU Estimate of SE of Mean	*0.033325*
UCL Assuming Lognormal Distribution	
95% H-UCL	0.410774
95% Chebyshev (MVUE) UCL	0.485849
99% Chebyshev (MVUE) UCL	0.672167

Normal Q-Q Plot for Dichloroethane-1,1



N = 52, Mean = 4.5116, Stdv = 17.3516
Slope = 8.4065, Intercept = 4.5116, Correlation, R = 0.47577638
Lilliefors Statistic = 0.401, Critical Value(0.05) = 0.123, Data not Normal

Lognormal Q-Q Plot for Dichloroethane-1,1



N = 52, Mean = -0.2067, Stdv = 1.4747
Slope = 1.3754, Intercept = -0.2067, Correlation, R = 0.91591821
Lilliefors Statistic = 0.230, Critical Value(0.05) = 0.123, Data not Lognormal

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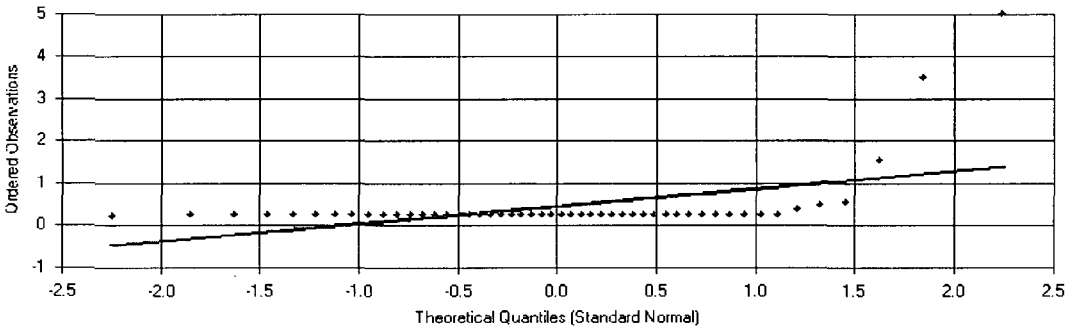
Summary Statistics for	Dichloroeth
Number of Samples	52
Minimum	0.15
Maximum	120
Mean	4.511635
Median	0.5775
Standard Deviation	17.3516
Variance	301.0781
Coefficient of Variation	3.845968
Skewness	6.192731
95 % UCL (Assuming Normal Data)	
Student's-t	8.542762
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	10.67754
Modified-t	8.887165
95 % Non-parametric UCL	
CLT	8.469538
Jackknife	8.542762
Standard Bootstrap	8.419646
Bootstrap-t	32.40481
Chebyshev (Mean, Std)	15.00017
97.5 % Non-parametric UCL	
CLT	9.227767
Jackknife	9.34235
Standard Bootstrap	9.172602
Bootstrap-t	36.63964
Chebyshev (Mean, Std)	19.53856

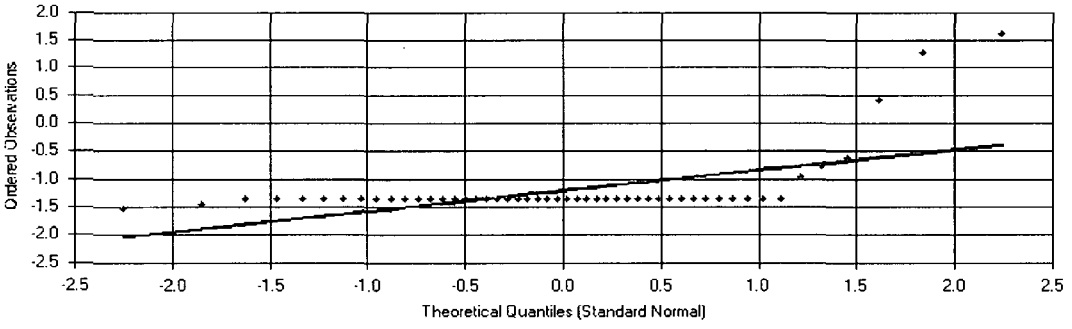
Summary Statistics for	ln(Dichloroethane-1,1)
Minimum	-1.89712
Maximum	4.787492
Mean	-0.20674
Standard Deviation	1.474666
Variance	2.174639
Lilliefors Test Statisitic	0.230417
Lilliefors 5% Critical Value	0.122866
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	2.412298
MLE Standard Deviation	6.736752
MLE Coefficient of Variation	2.79267
MLE Skewness	30.15806
MLE Median	0.813231
MLE 80% Quantile	2.827387
MLE 90% Quantile	5.409765
MLE 95% Quantile	9.198913
MLE 99% Quantile	25.11167
MVU Estimate of Median	0.796397
MVU Estimate of Mean	2.314629
MVU Estimate of Std. Dev.	5.510229
MVU Estimate of SE of Mean	0.626607
UCL Assuming Lognormal Distribution	
95% H-UCL	4.339813
95% Chebyshev (MVUE) UCL	5.045945
99% Chebyshev (MVUE) UCL	8.549288

Normal Q-Q Plot for Dichloroethane-1,2



N = 50, Mean = 0.4460, Stdv = 0.8195
Slope = 0.4163, Intercept = 0.4460, Correlation, R = 0.49858946
Lilliefors Statistic = 0.475, Critical Value(0.05) = 0.125, Data not Normal

Lognormal Q-Q Plot for Dichloroethane-1,2



N = 50, Mean = -1.2079, Stdv = 0.6175
Slope = 0.3693, Intercept = -1.2079, Correlation, R = 0.58704343
Lilliefors Statistic = 0.494, Critical Value(0.05) = 0.125, Data not Lognormal

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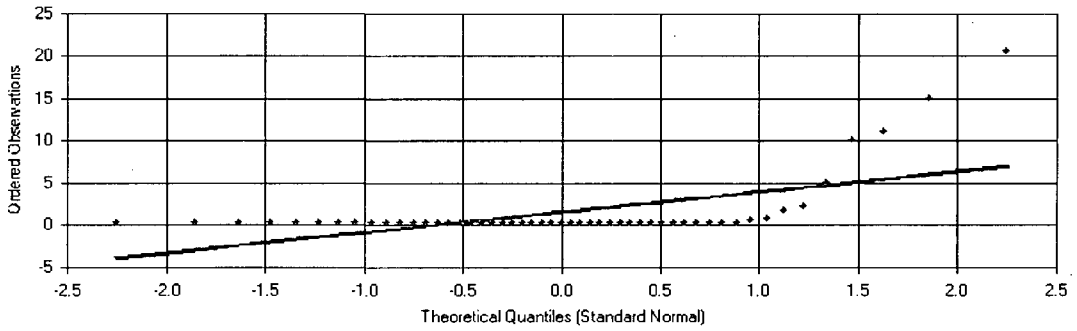
Summary Statistics for	Dichloroeth
Number of Samples	50
Minimum	0.21
Maximum	5
Mean	0.446
Median	0.25
Standard Deviation	0.819477
Variance	0.671543
Coefficient of Variation	1.837393
Skewness	4.78086
95 % UCL (Assuming Normal Data)	
Student's-t	0.640298
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.720349
Modified-t	0.653357
95 % Non-parametric UCL	
CLT	0.636625
Jackknife	0.640298
Standard Bootstrap	0.637214
Bootstrap-t	1.246195
Chebyshev (Mean, Std)	0.95116

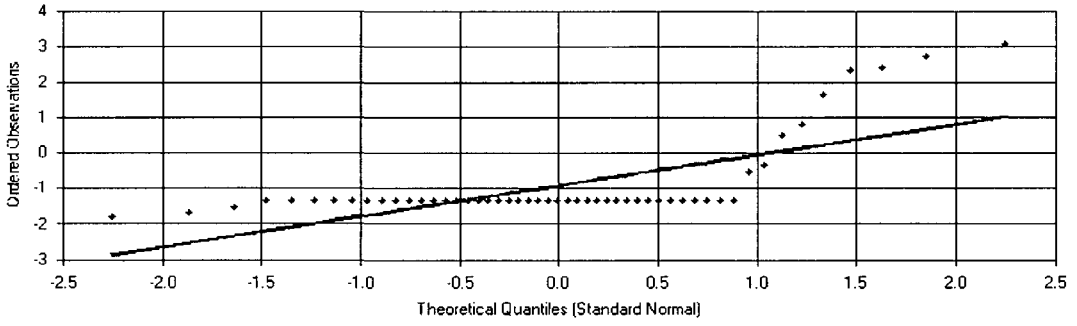
Summary Statistics for	ln(Dichloroethane-1,2)
Minimum	-1.56065
Maximum	1.609438
Mean	-1.20785
Standard Deviation	0.617514
Variance	0.381324
Shapiro-Wilk Test Statisitic	0.369174
Shapiro-Wilk 5% Critical Value	0.947
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.361609
MLE Standard Deviation	0.246378
MLE Coefficient of Variation	0.681338
MLE Skewness	2.360307
MLE Median	0.298838
MLE 80% Quantile	0.503559
MLE 90% Quantile	0.660771
MLE 95% Quantile	0.825272
MLE 99% Quantile	1.256694
MVU Estimate of Median	0.297701
MVU Estimate of Mean	0.359989
MVU Estimate of Std. Dev.	0.24111
MVU Estimate of SE of Mean	0.033792
UCL Assuming Lognormal Distribution	
95% H-UCL	0.429958
95% Chebyshev (MVUE) UCL	0.507284
99% Chebyshev (MVUE) UCL	0.696213

Normal Q-Q Plot for Dichloroethene-1,2 trans



N = 51, Mean = 1.5073, Stdv = 3.9652
Slope = 2.4134, Intercept = 1.5073, Correlation, R = 0.59754208
Lilliefors Statistic = 0.448, Critical Value(0.05) = 0.124, Data not Normal

Lognormal Q-Q Plot for Dichloroethene-1,2 trans



N = 51, Mean = -0.9176, Stdv = 1.2011
Slope = 0.8646, Intercept = -0.9176, Correlation, R = 0.70669548
Lilliefors Statistic = 0.475, Critical Value(0.05) = 0.124, Data not Lognormal

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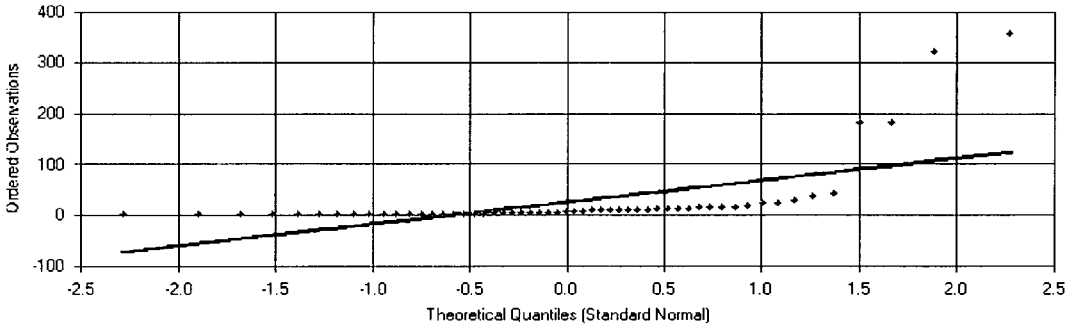
Summary Statistics for	Dichloroeth
Number of Samples	51
Minimum	0.16
Maximum	20.5
Mean	1.507255
Median	0.25
Standard Deviation	3.965203
Variance	15.72284
Coefficient of Variation	2.630745
Skewness	3.583558
95 % UCL (Assuming Normal Data)	
Student's-t	2.437783
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	2.71825
Modified-t	2.48422
95 % Non-parametric UCL	
CLT	2.420543
Jackknife	2.437783
Standard Bootstrap	2.44555
Bootstrap-t	3.188178
Chebyshev (Mean, Std)	3.927488
97.5 % Non-parametric UCL	
CLT	2.595504
Jackknife	2.622486
Standard Bootstrap	2.579041
Bootstrap-t	3.94465
Chebyshev (Mean, Std)	4.974725

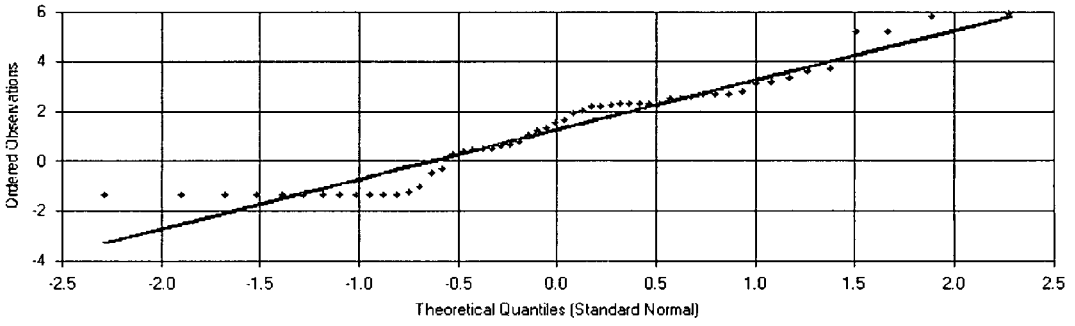
Summary Statistics for	ln(Dichloroethene-1,2 trans)
Minimum	-1.83258
Maximum	3.020425
Mean	-0.91756
Standard Deviation	1.2011
Variance	1.44264
Lilliefors Test Statisitic	0.475356
Lilliefors 5% Critical Value	0.124065
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.821817
MLE Standard Deviation	1.47741
MLE Coefficient of Variation	1.797736
MLE Skewness	11.20323
MLE Median	0.399493
MLE 80% Quantile	1.10227
MLE 90% Quantile	1.869844
MLE 95% Quantile	2.881327
MLE 99% Quantile	6.528648
MVU Estimate of Median	0.393882
MVU Estimate of Mean	0.802777
MVU Estimate of Std. Dev.	1.319681
MVU Estimate of SE of Mean	0.167156
UCL Assuming Lognormal Distribution	
95% H-UCL	1.261677
95% Chebyshev (MVUE) UCL	1.531392
99% Chebyshev (MVUE) UCL	2.465954

Normal Q-Q Plot for Dichloroethylene-1,2 cis



N = 55, Mean = 25.5507, Stdv = 69.9519
Slope = 43.2850, Intercept = 25.5507, Correlation, R = 0.60813446
Lilliefors Statistic = 0.391, Critical Value(0.05) = 0.119, Data not Normal

Lognormal Q-Q Plot for Dichloroethylene-1,2 cis



N = 55, Mean = 1.2644, Stdv = 2.0319
Slope = 1.9959, Intercept = 1.2644, Correlation, R = 0.96537256
Lilliefors Statistic = 0.130, Critical Value(0.05) = 0.119, Data not Lognormal

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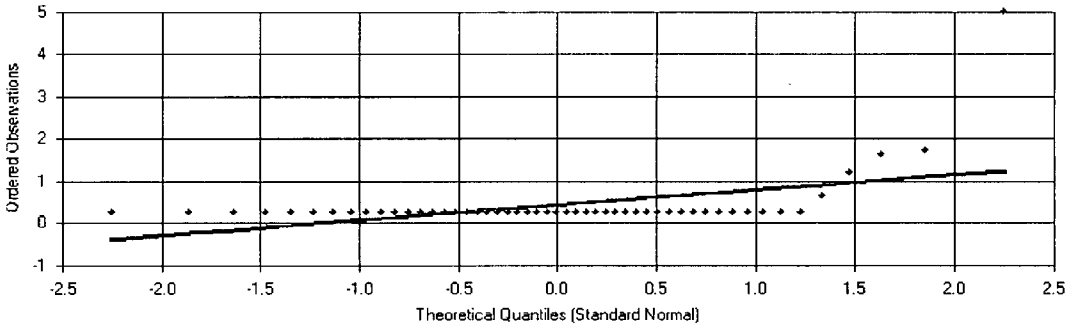
Summary Statistics for	Dichloroeth
Number of Samples	55
Minimum	0.25
Maximum	355
Mean	25.55073
Median	4.4
Standard Deviation	69.95192
Variance	4893.271
Coefficient of Variation	2.737766
Skewness	3.827929
95 % UCL (Assuming Normal Data)	
Student's-t	41.33632
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	46.26763
Modified-t	42.14774
95 % Non-parametric UCL	
CLT	41.0655
Jackknife	41.33632
Standard Bootstrap	40.72582
Bootstrap-t	62.69444
Chebyshev (Mean, Std)	66.66524
99 % Non-parametric UCL	
CLT	47.49357
Jackknife	48.16385
Standard Bootstrap	47.39233
Bootstrap-t	158.6308
Chebyshev (Mean, Std)	119.4011

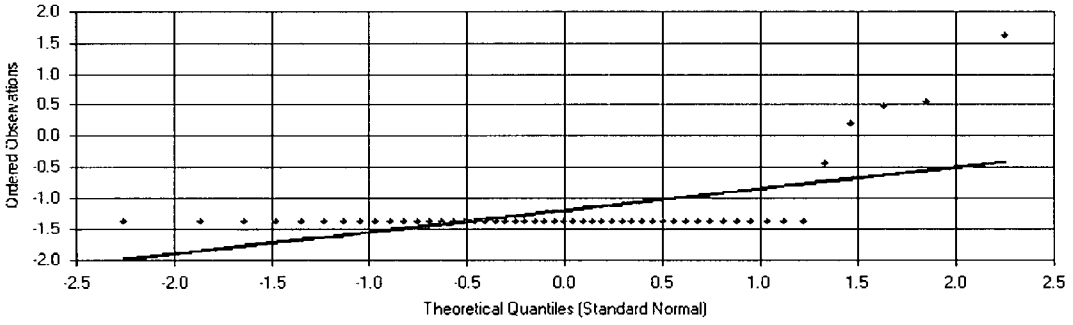
Summary Statistics for	ln(Dichloroethylene-1,2 cis)
Minimum	-1.38629
Maximum	5.872118
Mean	1.264362
Standard Deviation	2.031873
Variance	4.128506
Lilliefors Test Statisitic	0.130488
Lilliefors 5% Critical Value	0.119468
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	27.89969
MLE Standard Deviation	218.0555
MLE Coefficient of Variation	7.815697
MLE Skewness	500.8698
MLE Median	3.540834
MLE 80% Quantile	19.71332
MLE 90% Quantile	48.19805
MLE 95% Quantile	100.1624
MLE 99% Quantile	399.6136
MVU Estimate of Median	3.410317
MVU Estimate of Mean	25.12362
MVU Estimate of Std. Dev.	129.4542
MVU Estimate of SE of Mean	10.23599
UCL Assuming Lognormal Distribution	
95% H-UCL	74.34728
95% Chebyshev (MVUE) UCL	69.74127
99% Chebyshev (MVUE) UCL	126.9704

Normal Q-Q Plot for Dichloropropane-1,2



N = 51, Mean = 0.4243, Stdv = 0.7210
Slope = 0.3633, Intercept = 0.4243, Correlation, R = 0.49465730
Lilliefors Statistic = 0.497, Critical Value(0.05) = 0.124, Data not Normal

Lognormal Q-Q Plot for Dichloropropane-1,2



N = 51, Mean = -1.2044, Stdv = 0.5958
Slope = 0.3506, Intercept = -1.2044, Correlation, R = 0.57774781
Lilliefors Statistic = 0.522, Critical Value(0.05) = 0.124, Data not Lognormal

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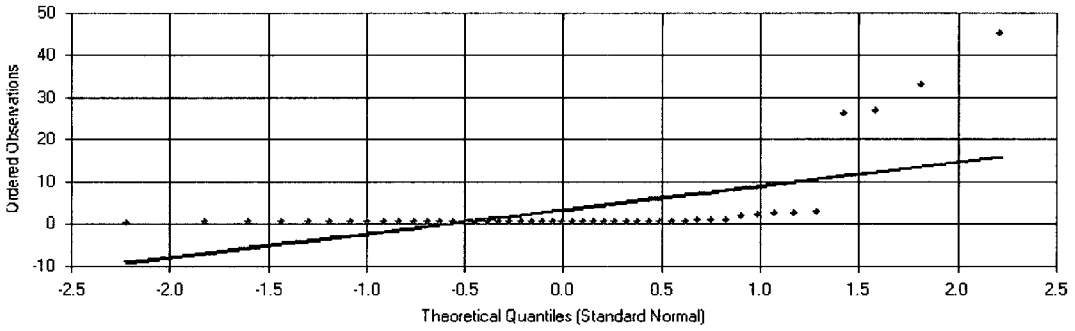
Summary Statistics for	Dichloroprc
Number of Samples	51
Minimum	0.25
Maximum	5
Mean	0.424314
Median	0.25
Standard Deviation	0.721006
Variance	0.519849
Coefficient of Variation	1.699228
Skewness	5.539053
95 % UCL (Assuming Normal Data)	
Student's-t	0.593515
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.674053
Modified-t	0.606566
95 % Non-parametric UCL	
CLT	0.59038
Jackknife	0.593515
Standard Bootstrap	0.590375
Bootstrap-t	0.908832
Chebyshev (Mean, Std)	0.864392

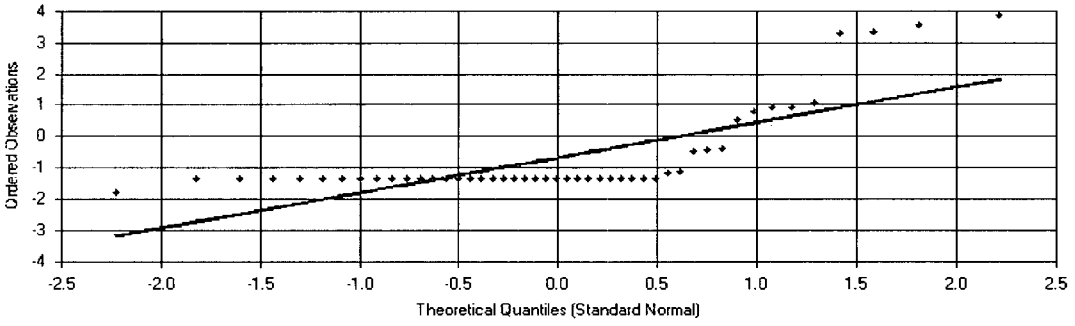
Summary Statistics for	ln(Dichloropropane-1,2)
Minimum	-1.38629
Maximum	1.609438
Mean	-1.20438
Standard Deviation	0.595841
Variance	0.355026
Lilliefors Test Statisitic	0.521894
Lilliefors 5% Critical Value	0.124065
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.358127
MLE Standard Deviation	0.233804
MLE Coefficient of Variation	0.652854
MLE Skewness	2.236819
MLE Median	0.299878
MLE 80% Quantile	0.496141
MLE 90% Quantile	0.644858
MLE 95% Quantile	0.799137
MLE 99% Quantile	1.199067
MVU Estimate of Median	0.298836
MVU Estimate of Mean	0.356676
MVU Estimate of Std. Dev.	0.229277
MVU Estimate of SE of Mean	0.031852
UCL Assuming Lognormal Distribution	
95% H-UCL	0.421833
95% Chebyshev (MVUE) UCL	0.495517
99% Chebyshev (MVUE) UCL	0.673602

Normal Q-Q Plot for Ethylbenzene



N = 47, Mean = 3.2435, Stdv = 9.3571
Slope = 5.6482, Intercept = 3.2435, Correlation, R = 0.59191313
Shapiro-Wilk Statistic = 0.372, Critical Value(0.05) = 0.946, Data not Normal

Lognormal Q-Q Plot for Ethylbenzene



N = 47, Mean = -0.6840, Stdv = 1.4580
Slope = 1.1260, Intercept = -0.6840, Correlation, R = 0.75726934
Shapiro-Wilk Statistic = 0.576, Critical Value(0.05) = 0.946, Data not Lognormal

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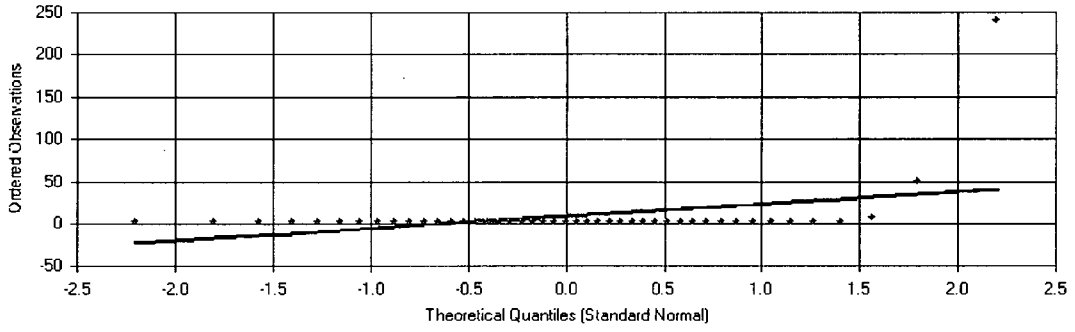
Summary Statistics for	Ethylbenze
Number of Samples	47
Minimum	0.16
Maximum	45
Mean	3.243511
Median	0.25
Standard Deviation	9.357057
Variance	87.55452
Coefficient of Variation	2.884855
Skewness	3.395554
95 % UCL (Assuming Normal Data)	
Student's-t	5.534659
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	6.210842
Modified-t	5.647327
95 % Non-parametric UCL	
CLT	5.488517
Jackknife	5.534659
Standard Bootstrap	5.464652
Bootstrap-t	7.406686
Chebyshev (Mean, Std)	9.192828
97.5 % Non-parametric UCL	
CLT	5.918601
Jackknife	5.990845
Standard Bootstrap	5.887168
Bootstrap-t	8.657
Chebyshev (Mean, Std)	11.7671

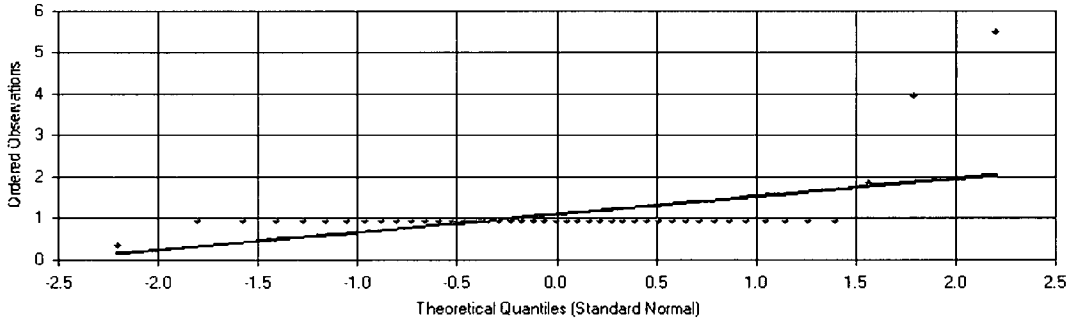
Summary Statistics for	ln(Ethylbenzene)
Minimum	-1.83258
Maximum	3.806662
Mean	-0.68405
Standard Deviation	1.458031
Variance	2.125855
Shapiro-Wilk Test Statisitic	0.57643
Shapiro-Wilk 5% Critical Value	0.946
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.460647
MLE Standard Deviation	3.968034
MLE Coefficient of Variation	2.716627
MLE Skewness	28.19876
MLE Median	0.50457
MLE 80% Quantile	1.72977
MLE 90% Quantile	3.285511
MLE 95% Quantile	5.553417
MLE 99% Quantile	14.98924
MVU Estimate of Median	0.493282
MVU Estimate of Mean	1.397774
MVU Estimate of Std. Dev.	3.21129
MVU Estimate of SE of Mean	0.388943
UCL Assuming Lognormal Distribution	
95% H-UCL	2.705003
95% Chebyshev (MVUE) UCL	3.09314
99% Chebyshev (MVUE) UCL	5.267713

Normal Q-Q Plot for Methyl isobutyl ketone (4-methyl-2-pentanone)



N = 45, Mean = 8.8902, Stdv = 35.9418
Slope = 14.6016, Intercept = 8.8902, Correlation, R = 0.39810549
Shapiro-Wilk Statistic = 0.195, Critical Value(0.05) = 0.945, Data not Normal

Lognormal Q-Q Plot for Methyl isobutyl ketone (4-methyl-2-pentanone)



N = 45, Mean = 1.0909, Stdv = 0.8206
Slope = 0.4311, Intercept = 1.0909, Correlation, R = 0.51478952
Lilliefors Statistic = 0.518, Critical Value(0.05) = 0.132, Data not Lognormal

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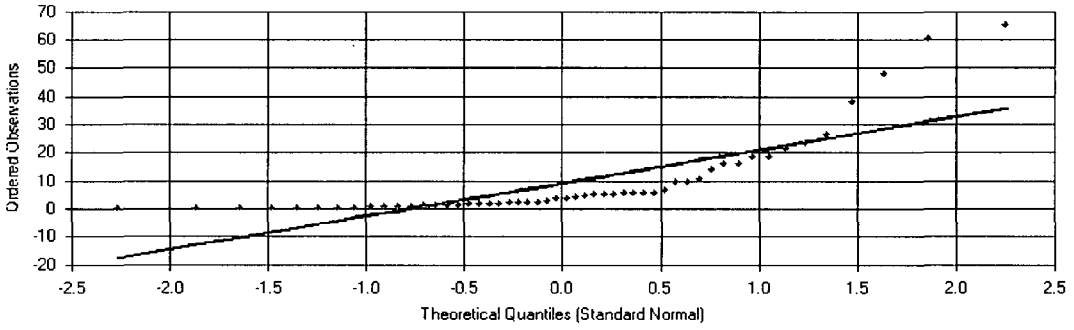
Summary Statistics for	Methyl isot
Number of Samples	45
Minimum	1.36
Maximum	240
Mean	8.890222
Median	2.5
Standard Deviation	35.94185
Variance	1291.816
Coefficient of Variation	4.042851
Skewness	6.353201
95 % UCL (Assuming Normal Data)	
Student's-t	17.89272
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	23.12519
Modified-t	18.73844
95 % Non-parametric UCL	
CLT	17.70317
Jackknife	17.89272
Standard Bootstrap	17.60255
Bootstrap-t	419.9421
Chebyshev (Mean, Std)	32.24474

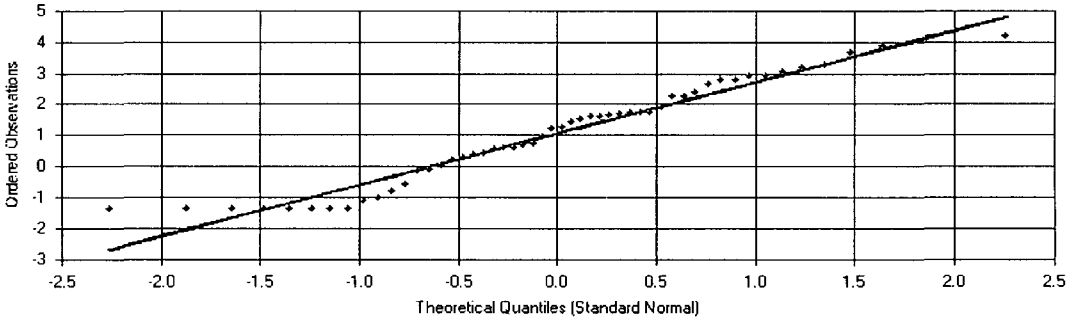
Summary Statistics for	ln(Methyl isobutyl ketone (4-methyl-2-pentanone))
Minimum	0.307485
Maximum	5.480639
Mean	1.090947
Standard Deviation	0.820623
Variance	0.673422
Shapiro-Wilk Test Statisitic	0.302914
Shapiro-Wilk 5% Critical Value	0.945
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	4.168923
MLE Standard Deviation	4.086683
MLE Coefficient of Variation	0.980273
MLE Skewness	3.882798
MLE Median	2.977092
MLE 80% Quantile	5.955845
MLE 90% Quantile	8.545862
MLE 95% Quantile	11.48304
MLE 99% Quantile	20.07982
MVU Estimate of Median	2.954896
MVU Estimate of Mean	4.128281
MVU Estimate of Std. Dev.	3.900111
MVU Estimate of SE of Mean	0.566812
UCL Assuming Lognormal Distribution	
95% H-UCL	5.44508
95% Chebyshev (MVUE) UCL	6.598956
99% Chebyshev (MVUE) UCL	9.767987

Normal Q-Q Plot for Methyl tertiary butyl ether (MTBE)



N = 52, Mean = 9.1140, Stdv = 14.5975
Slope = 11.8018, Intercept = 9.1140, Correlation, R = 0.79395628
Shapiro-Wilk Statistic is Only Available for N <= 50, Use Lilliefors Test

Lognormal Q-Q Plot for Methyl tertiary butyl ether (MTBE)



N = 52, Mean = 1.0553, Stdv = 1.6596
Slope = 1.6566, Intercept = 1.0553, Correlation, R = 0.98023109
Lilliefors Statistic = 0.090, Critical Value(0.05) = 0.123, Data are Lognormal

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Summary Statistics for	Methyl terti
Number of Samples	52
Minimum	0.25
Maximum	65
Mean	9.114038
Median	3.35
Standard Deviation	14.59749
Variance	213.0866
Coefficient of Variation	1.601648
Skewness	2.527621

95 % UCL (Assuming Normal Data)	
Student's-t	12.50533

95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	13.2019
Modified-t	12.62359

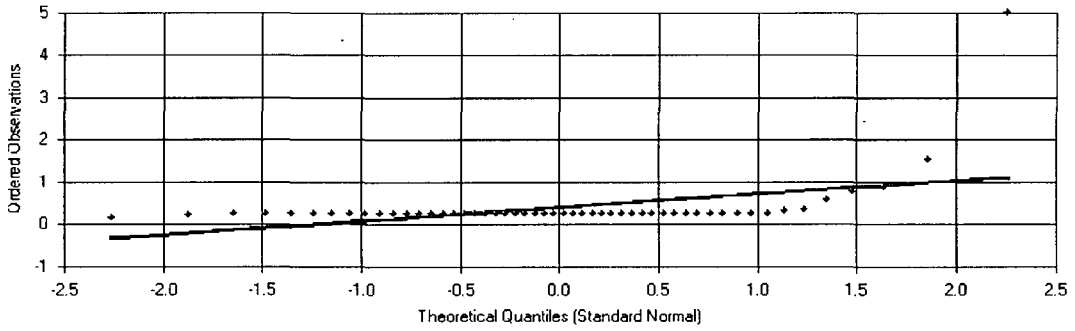
95 % Non-parametric UCL	
CLT	12.44373
Jackknife	12.50533
Standard Bootstrap	12.37934
Bootstrap-t	13.83713
Chebyshev (Mean, Std)	17.93779

Summary Statistics for	ln(Methyl tertiary butyl ether (MTBE))
Minimum	-1.38629
Maximum	4.174387
Mean	1.055253
Standard Deviation	1.659647
Variance	2.75443
Lilliefors Test Statisitic	0.089978
Lilliefors 5% Critical Value	0.122866
Data are Lognormal at 5% Significance Level	

Estimates Assuming Lognormal Distribution	
MLE Mean	11.38695
MLE Standard Deviation	43.67617
MLE Coefficient of Variation	3.835633
MLE Skewness	67.93702
MLE Median	2.872703
MLE 80% Quantile	11.6774
MLE 90% Quantile	24.23748
MLE 95% Quantile	44.05212
MLE 99% Quantile	136.4002
MVU Estimate of Median	2.797581
MVU Estimate of Mean	10.7363
MVU Estimate of Std. Dev.	32.75183
MVU Estimate of SE of Mean	3.40642

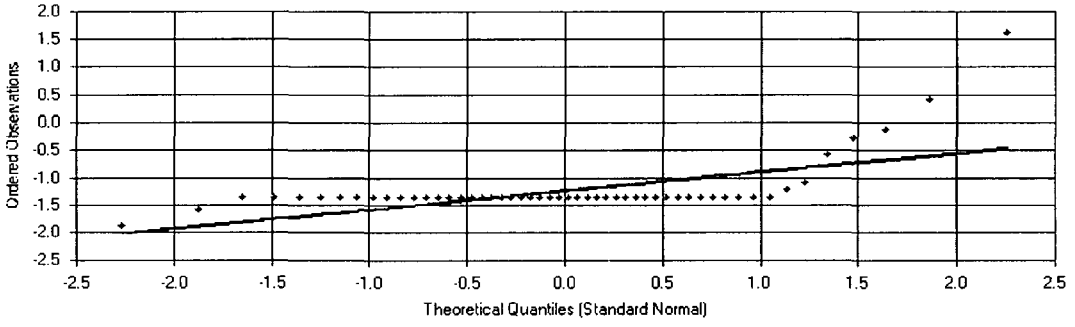
UCL Assuming Lognormal Distribution	
95% H-UCL	23.27642
95% Chebyshev (MVUE) UCL	25.58454
99% Chebyshev (MVUE) UCL	44.62976
Recommended UCL to use:	
H-UCL	

Normal Q-Q Plot for Tetrachloroethylene



N = 52, Mean = 0.3919, Stdv = 0.6833
Slope = 0.3186, Intercept = 0.3919, Correlation, R = 0.45788380
Shapiro-Wilk Statistic is Only Available for N <= 50, Use Lilliefors Test

Lognormal Q-Q Plot for Tetrachloroethylene



N = 52, Mean = -1.2401, Stdv = 0.5394
Slope = 0.3438, Intercept = -1.2401, Correlation, R = 0.62595488
Lilliefors Statistic = 0.472, Critical Value(0.05) = 0.123, Data not Lognormal

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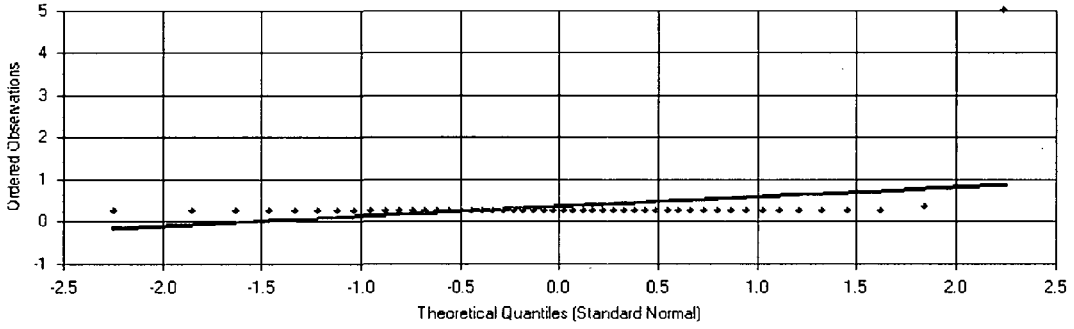
Summary Statistics for	Tetrachlorc
Number of Samples	52
Minimum	0.15
Maximum	5
Mean	0.391923
Median	0.25
Standard Deviation	0.683277
Variance	0.466867
Coefficient of Variation	1.743394
Skewness	6.342498
95 % UCL (Assuming Normal Data)	
Student's-t	0.550662
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.636829
Modified-t	0.564552
95 % Non-parametric UCL	
CLT	0.547779
Jackknife	0.550662
Standard Bootstrap	0.545867
Bootstrap-t	1.147587
Chebyshev (Mean, Std)	0.804944

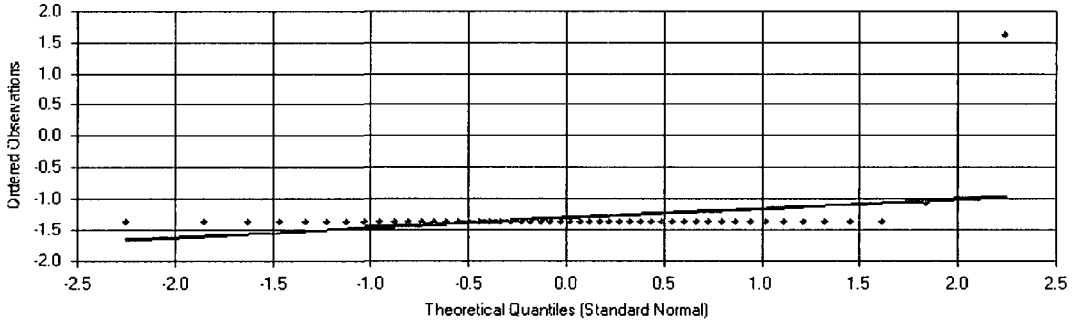
Summary Statistics for	ln(Tetrachloroethylene)
Minimum	-1.89712
Maximum	1.609438
Mean	-1.2401
Standard Deviation	0.539395
Variance	0.290947
Lilliefors Test Statisitic	0.472202
Lilliefors 5% Critical Value	0.122866
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.334665
MLE Standard Deviation	0.194478
MLE Coefficient of Variation	0.581114
MLE Skewness	1.939579
MLE Median	0.289355
MLE 80% Quantile	0.456434
MLE 90% Quantile	0.578696
MLE 95% Quantile	0.702721
MLE 99% Quantile	1.014638
MVU Estimate of Median	0.288547
MVU Estimate of Mean	0.333602
MVU Estimate of Std. Dev.	0.191517
MVU Estimate of SE of Mean	0.026415
UCL Assuming Lognormal Distribution	
95% H-UCL	0.386342
95% Chebyshev (MVUE) UCL	0.448741
99% Chebyshev (MVUE) UCL	0.596425

Normal Q-Q Plot for Trichloroethane-1,1,2



N = 50, Mean = 0.3468, Stdv = 0.6716
Slope = 0.2293, Intercept = 0.3468, Correlation, R = 0.33505116
Lilliefors Statistic = 0.517, Critical Value(0.05) = 0.125, Data not Normal

Lognormal Q-Q Plot for Trichloroethane-1,1,2



N = 50, Mean = -1.3202, Stdv = 0.4250
Slope = 0.1544, Intercept = -1.3202, Correlation, R = 0.35658619
Lilliefors Statistic = 0.522, Critical Value(0.05) = 0.125, Data not Lognormal

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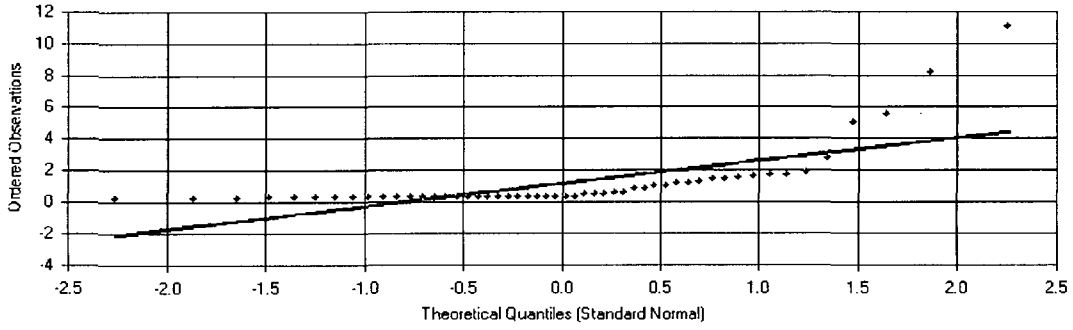
Summary Statistics for	Trichloroetl
Number of Samples	50
Minimum	0.25
Maximum	5
Mean	0.3468
Median	0.25
Standard Deviation	0.671612
Variance	0.451063
Coefficient of Variation	1.936598
Skewness	7.06715
95 % UCL (Assuming Normal Data)	
Student's-t	0.506039
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	0.60446
Modified-t	0.521861
95 % Non-parametric UCL	
CLT	0.503029
Jackknife	0.506039
Standard Bootstrap	0.502675
Bootstrap-t	1.#INF
Chebyshev (Mean, Std)	0.76081

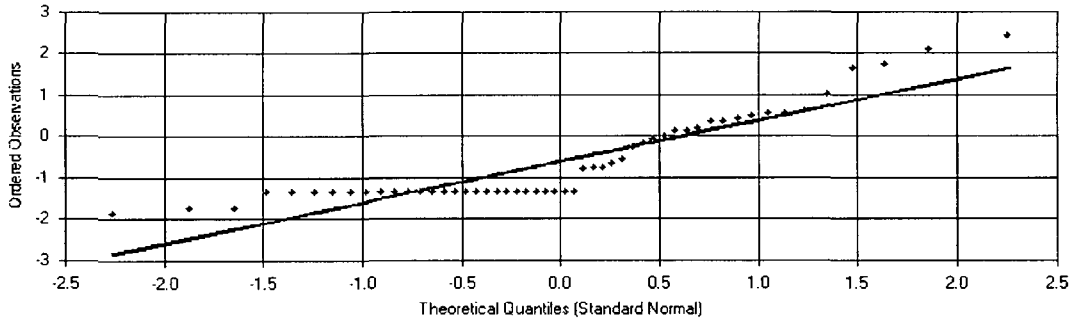
Summary Statistics for	ln(Trichloroethane-1,1,2)
Minimum	-1.38629
Maximum	1.609438
Mean	-1.32023
Standard Deviation	0.425003
Variance	0.180627
Shapiro-Wilk Test Statisitic	0.163471
Shapiro-Wilk 5% Critical Value	0.947
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.292317
MLE Standard Deviation	0.130063
MLE Coefficient of Variation	0.444937
MLE Skewness	1.422893
MLE Median	0.267074
MLE 80% Quantile	0.382471
MLE 90% Quantile	0.461118
MLE 95% Quantile	0.537353
MLE 99% Quantile	0.717721
MVU Estimate of Median	0.266592
MVU Estimate of Mean	0.291745
MVU Estimate of Std. Dev.	0.128837
MVU Estimate of SE of Mean	0.018181
UCL Assuming Lognormal Distribution	
95% H-UCL	0.326669
95% Chebyshev (MVUE) UCL	0.370995
99% Chebyshev (MVUE) UCL	0.472646

Normal Q-Q Plot for Trichloroethylene



N = 52, Mean = 1.1431, Stdv = 2.0228
Slope = 1.4407, Intercept = 1.1431, Correlation, R = 0.69943331
Lilliefors Statistic = 0.312, Critical Value(0.05) = 0.123, Data not Normal

Lognormal Q-Q Plot for Trichloroethylene



N = 52, Mean = -0.6141, Stdv = 1.0779
Slope = 0.9959, Intercept = -0.6141, Correlation, R = 0.90733569
Lilliefors Statistic = 0.302, Critical Value(0.05) = 0.123, Data not Lognormal

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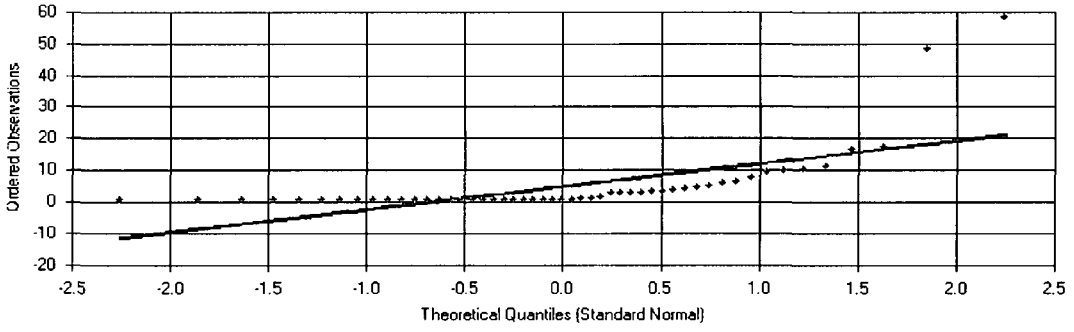
Summary Statistics for	Trichloroetl
Number of Samples	52
Minimum	0.15
Maximum	11
Mean	1.143077
Median	0.25
Standard Deviation	2.02279
Variance	4.091681
Coefficient of Variation	1.769601
Skewness	3.490986
95 % UCL (Assuming Normal Data)	
Student's-t	1.613012
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	1.749579
Modified-t	1.635645
95 % Non-parametric UCL	
CLT	1.604476
Jackknife	1.613012
Standard Bootstrap	1.605649
Bootstrap-t	1.980412
Chebyshev (Mean, Std)	2.365794
97.5 % Non-parametric UCL	
CLT	1.692867
Jackknife	1.706225
Standard Bootstrap	1.672952
Bootstrap-t	2.208173
Chebyshev (Mean, Std)	2.894865

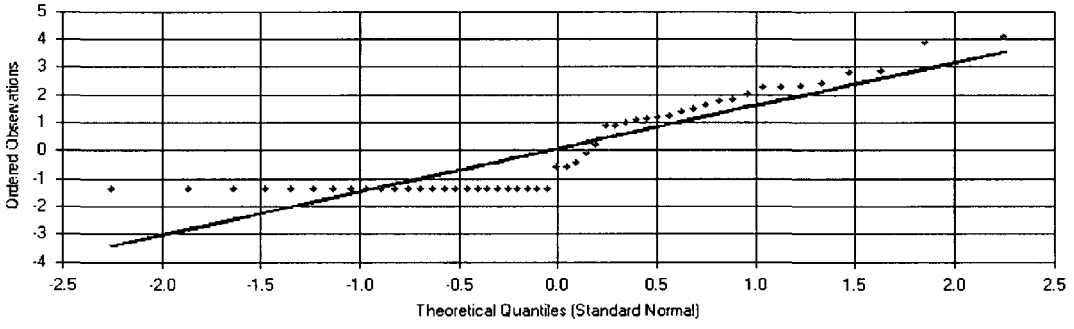
Summary Statistics for	ln(Trichloroethylene)
Minimum	-1.89712
Maximum	2.397895
Mean	-0.61409
Standard Deviation	1.077867
Variance	1.161797
Lilliefors Test Statisitic	0.301596
Lilliefors 5% Critical Value	0.122866
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	0.967354
MLE Standard Deviation	1.433406
MLE Coefficient of Variation	1.48178
MLE Skewness	7.698838
MLE Median	0.541134
MLE 80% Quantile	1.345423
MLE 90% Quantile	2.161862
MLE 95% Quantile	3.186752
MLE 99% Quantile	6.639452
MVU Estimate of Median	0.535121
MVU Estimate of Mean	0.950922
MVU Estimate of Std. Dev.	1.319959
MVU Estimate of SE of Mean	0.170759
UCL Assuming Lognormal Distribution	
95% H-UCL	1.386347
95% Chebyshev (MVUE) UCL	1.695243
99% Chebyshev (MVUE) UCL	2.649952

Normal Q-Q Plot for Vinyl chloride



N = 51, Mean = 4.7158, Stdv = 10.6923
Slope = 7.2214, Intercept = 4.7158, Correlation, R = 0.66306696
Lilliefors Statistic = 0.338, Critical Value(0.05) = 0.124, Data not Normal

Lognormal Q-Q Plot for Vinyl chloride



N = 51, Mean = 0.0689, Stdv = 1.6803
Slope = 1.5464, Intercept = 0.0689, Correlation, R = 0.90353370
Lilliefors Statistic = 0.297, Critical Value(0.05) = 0.124, Data not Lognormal

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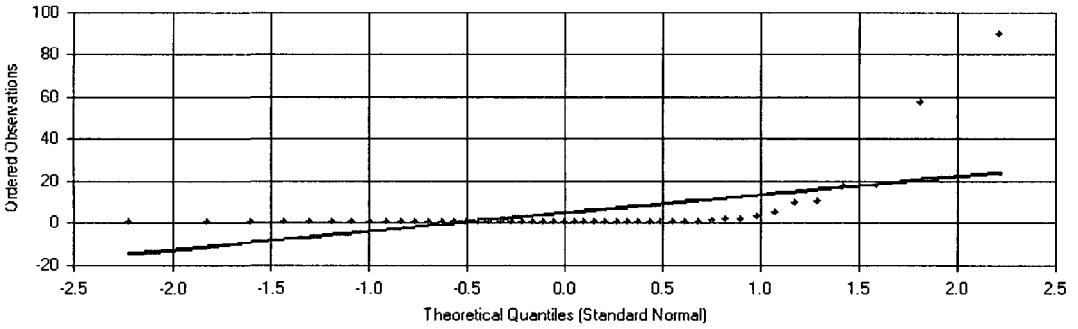
Summary Statistics for	Vinyl chlori
Number of Samples	51
Minimum	0.25
Maximum	58
Mean	4.715784
Median	0.535
Standard Deviation	10.69229
Variance	114.3251
Coefficient of Variation	2.267341
Skewness	3.979656
95 % UCL (Assuming Normal Data)	
Student's-t	7.224983
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	8.070003
Modified-t	7.36404
95 % Non-parametric UCL	
CLT	7.178492
Jackknife	7.224983
Standard Bootstrap	7.205181
Bootstrap-t	11.14482
Chebyshev (Mean, Std)	11.24202
97.5 % Non-parametric UCL	
CLT	7.650282
Jackknife	7.723038
Standard Bootstrap	7.65861
Bootstrap-t	12.40845
Chebyshev (Mean, Std)	14.06592

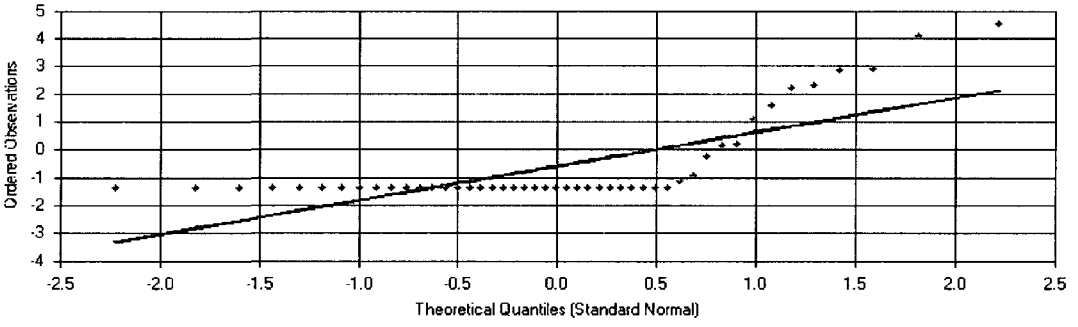
Summary Statistics for	ln(Vinyl chloride)
Minimum	-1.38629
Maximum	4.060443
Mean	0.068871
Standard Deviation	1.680289
Variance	2.823373
Lilliefors Test Statisitic	0.296957
Lilliefors 5% Critical Value	0.124065
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	4.395394
MLE Standard Deviation	17.48987
MLE Coefficient of Variation	3.979137
MLE Skewness	74.9412
MLE Median	1.071298
MLE 80% Quantile	4.431399
MLE 90% Quantile	9.281682
MLE 95% Quantile	16.99547
MLE 99% Quantile	53.36869
MVU Estimate of Median	1.042035
MVU Estimate of Mean	4.130285
MVU Estimate of Std. Dev.	12.90733
MVU Estimate of SE of Mean	1.342851
UCL Assuming Lognormal Distribution	
95% H-UCL	9.201828
95% Chebyshev (MVUE) UCL	9.983639
99% Chebyshev (MVUE) UCL	17.49149

Normal Q-Q Plot for Xylenes, total



N = 47, Mean = 4.6843, Stdv = 15.5036
Slope = 8.7220, Intercept = 4.6843, Correlation, R = 0.55166321
Shapiro-Wilk Statistic = 0.336, Critical Value(0.05) = 0.946, Data not Normal

Lognormal Q-Q Plot for Xylenes, total



N = 47, Mean = -0.5944, Stdv = 1.5988
Slope = 1.2259, Intercept = -0.5944, Correlation, R = 0.75184884
Shapiro-Wilk Statistic = 0.566, Critical Value(0.05) = 0.946, Data not Lognormal

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Summary Statistics for	Xylenes, to
Number of Samples	47
Minimum	0.25
Maximum	89.5
Mean	4.684255
Median	0.25
Standard Deviation	15.50356
Variance	240.3603
Coefficient of Variation	3.309716
Skewness	4.597203
95 % UCL (Assuming Normal Data)	
Student's-t	8.480421
95 % UCL (Adjusted for Skewness)	
Adjusted-CLT	10.02432
Modified-t	8.733162
95 % Non-parametric UCL	
CLT	8.40397
Jackknife	8.480421
Standard Bootstrap	8.359992
Bootstrap-t	18.84943
Chebyshev (Mean, Std)	14.54158
97.5 % Non-parametric UCL	
CLT	9.116569
Jackknife	9.236269
Standard Bootstrap	9.152124
Bootstrap-t	23.21522
Chebyshev (Mean, Std)	18.80686

Summary Statistics for	ln(Xylenes, total)
Minimum	-1.38629
Maximum	4.494239
Mean	-0.59441
Standard Deviation	1.598823
Variance	2.556235
Shapiro-Wilk Test Statisitic	0.565962
Shapiro-Wilk 5% Critical Value	0.946
Data not Lognormal at 5% Significance Level	
Data not Normal: Try Non-parametric UCL	
Estimates Assuming Lognormal Distribution	
MLE Mean	1.981205
MLE Standard Deviation	6.830765
MLE Coefficient of Variation	3.447784
MLE Skewness	51.32788
MLE Median	0.551887
MLE 80% Quantile	2.131003
MLE 90% Quantile	4.306283
MLE 95% Quantile	7.657239
MLE 99% Quantile	22.74738
MVU Estimate of Median	0.537073
MVU Estimate of Mean	1.869941
MVU Estimate of Std. Dev.	5.168254
MVU Estimate of SE of Mean	0.587937
UCL Assuming Lognormal Distribution	
95% H-UCL	4.063585
95% Chebyshev (MVUE) UCL	4.432698
99% Chebyshev (MVUE) UCL	7.719838