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Sauget Area 2 Sites Group
St. Louis, Missouri

Sauget Area 2

ENSR® INTERNATIONAL

Human Health Risk Assessment
Sauget Area 2
Sauget, Illinois

Volume II: Appendices

ENSR Corporation
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Sauget Area 2 Sites Group
St. Louis, Missouri

Sauget Area 2

Human Health Risk Assessment
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APPENDIX

A

APPENDIX A

HUMAN HEALTH RISK ASSESSMENT WORKPLAN –

Section 11 and Appendix 5 of:

RI/FS Support Sampling Plan
Sauget Area 2 Sites
Sauget, Illinois
Volume 1
Support Sampling Plan
May 25, 2001
(including revisions: September 2001, May 2002)

RI/FS Support Sampling Plan

Sauget Area 2 Sites

Sauget, Illinois

Volume 1

Support Sampling Plan

May 25, 2001

Submitted To:

U.S. Environmental Protection Agency

Submitted By:

Sauget Area 2 Sites Group

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LIST OF ACRONYMS

AAF	Absorption Adjustment Factors
AOC	Administrative Order by Consent
ASTM	American Society for Testing and Materials
BAF	Bioaccumulation Factor
bgs	below ground surface
BSAF	Biota-sediment Accumulation Factor
CADD	Chronic Average Daily Dose
CAS	Chemical Abstracts Service
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
COC	Constituent of Concern
COPC	Constituent of Potential Concern
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
DQL	Data Quality Level
EFH	Exposure Factors Handbook
ELCR	Excess Lifetime Cancer Risk
EPC	Exposure Point Concentration
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IEPA	Illinois Environmental Protection Agency
IRIS	Integrated Risk Information System
LADD	Lifetime Average Daily Dose
MCL	Maximum Contaminant Level
MLE	Most Likely Exposure
NCEA	National Center for Environmental Assessment
NCP	National Contingency Plan
NOAA	National Oceanographic and Atmospheric Administration
NWS	National Weather Service
PCB	Polychlorinated Biphenyls
PM10	Particulate Matter of 10 Microns or Less in Diameter
PQL	Practical Quantitation Limit
PPG	Preliminary Remediation Goal

QAPP	Quality Assurance Project Plan
RAGS	Risk Assessment Guidance for Superfund
RBC	Risk-Based Concentration
RfC	Reference Concentration
RfD	Reference Dose
RG	Remedial Goal
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable Maximum Exposure
SOW	Scope of Work
SSL	Soil Screening Level
SSP	Site Sampling Plan
SVOC	Semi-Volatile Organic Compound
TACO	Tiered Approach to Corrective Action Objectives
TCDD	Tetrachlorodibenzo-p-dioxin
TEF	Toxic Equivalency Factor
TEQ	Toxic Equivalence Concentration
UCL	Upper Confidence Limit
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compound
WHO	World Health Organization

11.0 HUMAN HEALTH RISK ASSESSMENT WORK PLAN

This section of the Support Sampling Plan (SSP) presents a work plan for evaluating human health risks using data collected as part of the Remedial Investigation and Feasibility Study (RI/FS) for the Sauget Area 2 Site located in Sauget and Cahokia, IL In addition, this work plan has been developed to satisfy the Scope of Work (SOW) for the RI/FS, provided as an attachment to the Administrative Order by Consent (AOC) entered into by the U S Environmental Protection Agency (USEPA) and the Sauget Area 2 Sites Group, as well as to be compliant with the National Contingency Plan (NCP) (USEPA, 1990) Specifically, the order requires the following

"The risk assessment shall focus on actual and potential risks to persons coming into contact with on-site contaminants as well as risks to the surrounding residential and industrial worker populations from exposure to contaminated soils, sediments, surface water, air, and ingestion of contaminated organisms in surrounding impacted ecosystems Reasonable maximum estimates of exposure shall be defined for both current land use conditions and reasonable future land use conditions It shall use data from the Site to identify the chemicals of concern, provide an estimate of how and to what extent human receptors might be exposed to these chemicals, and provide an assessment of the health effects associated with these chemicals The evaluation shall project the potential risk of health problems occurring if no cleanup action is taken at the Site and establish target action levels for COCs (carcinogenic and non-carcinogenic). The risk evaluation shall be conducted in accordance with U S EPA guidance including, at a minimum Risk Assessment Guidance for Superfund (RAGS) (EPA/540/1-89/002, December 1989) and RAGS Part D (EPA 540/R/97/033, January 1998) The risk assessment shall also include the following elements

- Hazard Identification (sources) The Respondents shall review available information on the hazardous substances present at the Site and identify the major contaminants of concern
- Dose-Response Assessment Contaminants of concern should be selected based on their intrinsic toxicological properties
- Conceptual Exposure/Pathway Analysis
- Characterization of Site and Potential Receptors
- Exposure Assessment Respondents shall develop reasonable maximum estimates of exposure for both current land use conditions and potential land use conditions at the Site
- Risk Characterization
- Identification of Limitations/Uncertainties "

An evaluation of human health risks will be conducted to satisfy the AOC SOW following available guidance from the USEPA

11.1 Risk Assessment Overview

A human health risk assessment (HHRA) will be conducted to address the aforementioned objectives and to comply with USEPA guidance for conducting a risk assessment including, but not limited to, the following

- Risk Assessment Guidance for Superfund (RAGS) Volume 1 - Human Health Evaluation Manual (Part A) (USEPA, 1989a),
- Risk Assessment Guidance for Superfund (RAGS) Volume 1 - Human Health Evaluation Manual (Part D) (USEPA, 1998a),
- Human Health Evaluation Manual Supplemental Guidance, Standard Default Exposure Factors (USEPA, 1991a),
- Guidelines for Exposure Assessment (USEPA, 1992a),
- Land Use in the CERCLA Remedy Selection Process (USEPA, 1995a),
- USEPA Soil Screening Guidance Users Guide and the Technical Background Document (USEPA, 1996a, b), and
- Exposure Factors Handbook (EFH) (USEPA, 1997a)

The HHRA will evaluate potential human health effects using the four step paradigm as identified by the USEPA (USEPA, 1989a) The steps are

- Data Evaluation and Hazard Identification
- Toxicity Assessment
- Exposure Assessment
- Risk Characterization

Work Plan Organization

The HHRA work plan is organized into the following sections

- Site Characterization – Section 11 2 of this work plan discusses the site and its environs, and presents a conceptual site model describing sources, potential migration pathways, and potentially impacted media

- Hazard Identification – Section 11 3 of this work plan presents a discussion of how site data will be summarized, and a description of the process used for the selection of constituents of potential concern (COPCs) to be evaluated quantitatively in the risk assessment

- Dose-Response Assessment – Section 11 4 of this work plan presents a discussion of the dose-response assessment process The dose-response assessment evaluates the relationship between the magnitude of exposure (dose) and the potential for occurrence of specific health effects (response) for each COPC Both potential carcinogenic and noncarcinogenic effects will be considered The most current USEPA-verified dose-response values will be used when available

- Exposure Assessment - Section 11 5 of this work plan presents a discussion of the exposure assessment process The purpose of the exposure assessment is to provide a quantitative estimate of the magnitude and frequency of potential exposure to COPCs by a receptor Potentially exposed individuals, and the pathways through which those individuals may be exposed to COPCs are identified based on the physical characteristics of the site, as well as the current and reasonably foreseeable future uses of the site and surrounding area The extent of a receptor's exposure is estimated by constructing exposure scenarios that describe the potential pathways of exposure to COPCs and the activities and behaviors of individuals that might lead to contact with COPCs in the environment

- Risk Characterization – Section 11 6 of this work plan presents a discussion of the risk characterization process and uncertainties associated with the risk assessment process Risk characterization combines the results of the exposure assessment and the toxicity assessment to derive site-specific estimates of potentially carcinogenic and noncarcinogenic risks resulting from both current and reasonably foreseeable future potential human exposures to COPCs The results of the risk characterization will be used to identify constituents of concern (COCs), which are the subset of those COPCs whose risks result in an exceedance of the target risk range of 10^{-6} to 10^{-4} for potential carcinogens and a target Hazard Index of 1 for noncarcinogens (that act on the same target organ) (USEPA, 1990, 1991b)

  Within any of the steps of the risk assessment process described above, assumptions must be made due to a lack of absolute scientific knowledge Some of the assumptions are supported by considerable scientific evidence, while others have less support The assumptions that introduce the greatest amount of uncertainty in this risk evaluation will be discussed in the Risk Characterization section of the HHRA report

- Summary and Conclusions - Section 11 7 discusses the summary and conclusions section of the final report

- References - Section 11 8 presents the references used in this work plan

11.2 Site Characterization

The Sauget Area 2 Sites as defined in the AOC, encompass Sites O, P, Q, R, and S located within the Villages of Sauget and Cahokia, St Clair County Illinois In addition, a field area immediately south of Site Q will be investigated A detailed description is presented in Section 2 of this RI/FS SSP This work plan addresses the following media

- Groundwater and leachate as identified in the SSP,
- Surface and subsurface soil as identified in the SSP,
- Surface water and sediment collected from the Mississippi River and Site Q, if present as identified in the SSP, and
- Game fish collected from the Mississippi River and Site Q, if present, as identified in the SSP

To guide identification of appropriate exposure pathways for evaluation in the risk assessment, a conceptual site model (CSM) for human health has been developed The purpose of the CSM is to identify sources, potential migration pathways of constituents from sources to media where exposure can occur, and to identify potential human receptors Potential exposure pathways and potential receptors are discussed in Section 11 5

Conceptual Site Model

For the purposes of this CSM, the sources of constituents in environmental media are assumed to be the Sauget Area 2 Sites O, P, Q, R, and S

Constituents in the Sites may have discharged to soils and from there leached to underlying groundwater Volatile organic compounds (VOCs) in groundwater and/or leachate may volatilize into outdoor air and may infiltrate into indoor air in overlying buildings Constituents in groundwater may discharge to the Mississippi River and to the Site Q ponds Game fish in these water bodies may have accumulated constituents present in surface water and/or sediments Figure 11-1 presents a CSM for Sauget Area 2 The CSM identifies potential sources, potential environmental release mechanisms, potential exposure pathways, potential exposure routes, and potential human receptors Those potentially complete exposure pathways to be considered for further evaluation in the risk assessment are identified Receptors and pathways are discussed in more detail in Section 11 5

USEPA states that, "Sites that are surrounded by operating industrial facilities can be assumed to remain as industrial areas unless there is an indication that this is not appropriate" (USEPA, 1991b)

This is consistent with the statement in the NCP that " the assumption of future residential land use may not be justifiable if the probability that the site will support residential use in the future is small" (USEPA, 1990)

The Sites covered by the AOC have been used for industrial purposes for many years and use of these areas is expected to remain industrial Therefore, receptors have been identified in the CSM based on an industrial land use scenario

The CSM is meant to be a "living" model that can be updated and modified as additional data become available The exposure scenarios proposed for quantitative evaluation in the risk assessment (see Section 11 5) have been identified based on this current CSM However, the CSM will be reviewed and modified as necessary once the analytical data from the SSP program have become available Any substantial changes in the CSM and, subsequently, the pathways for quantitative evaluation, will be discussed with USEPA prior to conduct of the risk assessment

11.3 Hazard Identification

The purpose of the hazard identification process is two-fold 1) to evaluate the nature and extent of release of constituents present at the site, and 2) to select a subset of constituents identified as COPCs for quantitative evaluation in the risk assessment This step of the risk assessment will involve compiling and summarizing the RI/FS SSP data for the risk assessment and selecting COPCs based on a series of screening steps

11.3.1 Data Compilation

The RI/FS SSP has been developed to address the potential media and migration pathways identified in Section 11 2 Sampling to be conducted in support of the HHRA include the following

- Shallow groundwater (the uppermost interval sampled from each groundwater sampling location),
- Leachate,
- Surface soil (0 - 0 5 feet below ground surface – bgs),
- Subsurface soil (unsaturated soil 0 5 feet bgs to 6 feet bgs),
- Surface water,
- Sediment,
- Game fish fillet tissue, and
- 24-hour air samples

Analytical data for use in the HHRA from background or reference locations will be available for the following media

- Surface soil,
- Subsurface soil,
- Upgradient groundwater
- Upstream surface water,
- Upstream sediment,
- Fish tissue, and
- Upwind 24-hour air samples

The RI/FS SSP identifies the suites of analytes for each medium Groundwater, leachate, surface water, sediment, soil and air samples will be analyzed for VOCs semi-volatile organic compounds (SVOCs), pesticides, herbicides, polychlorinated biphenyls (PCBs) metals, and dioxins Game fish filet tissue will be analyzed for SVOCs, pesticides, herbicides, PCBs, metals, and dioxins The sampling program is discussed in detail in Sections 6 0, 7 0, 8 0, and 9 0 of this RI/FS SSP

Because the air samples are 24-hour samples collected at a single time point, they will not be used in the calculation of risks in the HHRA However, the data will be compared to USEPA Region 9 Preliminary Remediation Goals (PRGs) for air (USEPA, 2000a)

All analytical data collected in support of the SSP will be compiled and tabulated in a database for statistical analysis Summary statistics tables will be developed for each medium in each area, and will present for each constituent the minimum and maximum detected values, the arithmetic mean, the 95th percentile upper confidence limit (95% UCL) on the arithmetic mean (USEPA, 1992b), and the frequency of detection

The following guidance documents will be used to calculate summary statistics and select exposure point concentrations (EPCs) for the COPCs

- Risk Assessment Guidance for Superfund Volume I - Human Health Evaluation Manual, Part A (USEPA, 1989a),
- Supplemental Guidance to RAGS Calculating the Concentration Term (USEPA, 1992b)

The EPC is defined as the 95% UCL or the maximum concentration, whichever is lower (USEPA, 1992b), or the arithmetic mean concentration, depending on the exposure scenario (see Section 11 3 1 2) Several statistics for the data must be calculated before the EPC can be determined

Section 3 1 1 describes how these summary statistics are calculated Section 11 3 1 2 describes how this information is used to select EPCs for the risk assessment

11.3.1.1 Summary Statistics

Summary statistics will be calculated based on the following Constituents analyzed but never detected in a particular medium will not be included in the summary statistics for that medium For constituents detected at least once in a particular medium, samples reported as "non-detect" by the laboratory will be assigned a value of one-half the sample quantitation limit in calculating summary statistics (USEPA, 1989a) Duplicate sample results will be averaged and treated as a single sample result when compiling summary statistics (USEPA, 1989b)

The calculation of the 95% UCL for a dataset appropriate for a risk assessment is dependent on the distribution of the data (USEPA, 1992b) If the data are normally distributed, the 95% UCL is calculated using the t-statistic (USEPA, 1992b) as follows

$$95\%\text{UCL} = \bar{x} + t\frac{SD}{\sqrt{n}}$$

where

x = arithmetic mean of the untransformed data

t = the student-t statistic for n-1 degrees of freedom

n = the number of samples in the population

SD = the standard deviation of the untransformed data

However, if the data are lognormally distributed, the 95% UCL is calculated using the transformed data set and the H-statistic (USEPA, 1992b) The data are "transformed" by using the natural logarithmic function, i e , by calculating ln(x) for each x value in the data set

$$95\%\text{UCL} = e^{(\bar{x}+0\,5SD^2+SD(H)/(\sqrt{n}-1)}$$

where

e = base of the natural log, equal to 2 718

x = mean of the transformed data

SD = standard deviation of the transformed data

H = H-statistic

n = the number of samples in the population

The t-statistic and H-statistic values will be obtained from Gilbert (1987) There is currently a debate within USEPA on whether the H-statistic is an appropriate metric to be used to describe the upperbound of a non-normally distributed sample population for environmental programs (USEPA, 1998b) USEPA Regions 4 and 6 have recently accepted alternative methods for defining the upperbound concentration, these and the most current guidance available at the time of the conduct of the risk evaluation will be considered in the development of summary statistics for use in the HHRA

The W-statistic test (Gilbert, 1987) is one test that can be used to determine whether a dataset is either more normally or lognormally distributed (USEPA, 1992b) The W-statistic will be calculated for each COPC in each medium for both the transformed and untransformed datasets This information will be used as described below

11.3.1.2 Selection of Exposure Point Concentrations

Because in many instances the W-statistic can not definitively describe the distribution as either normal or lognormal, and because there is no guidance as to how to choose an EPC when the dataset is neither normal nor lognormal, EPCs for upperbound or reasonable maximum exposure (RME) scenarios will be chosen using the following steps for each COPC in each medium if the t-statistic and H-statistic approach is used

- The maximum value the 95% UCL (untransformed) and the 95% UCL (transformed) will be calculated,
- The W-test will be performed on the untransformed and the transformed data,
- The W-test values will be compared,
- If the untransformed data have the higher W-statistic, the lower of the 95% UCL (untransformed) and the maximum value will be chosen as the EPC, and,
- If the transformed data have the higher W-statistic, the lower of the 95% UCL (transformed) and the maximum value will be chosen as the EPC

Arithmetic mean concentrations will be used as EPCs for COPCs for the most likely exposure (MLE) scenarios Tables presenting the EPC selection data for each medium will be presented in the report

11.3.2 Selection of Constituents of Potential Concern

COPCs are a subset of the complete list of constituents detected in site media that are carried through the quantitative risk assessment process Selection of COPCs focuses the analysis on the most likely risk "drivers " As stated in USEPA guidance (USEPA, 1993)

> "Most risk assessments are dominated by a few compounds and a few routes of exposure Inclusion of all detected compounds at a site in the risk assessment has minimal influence on the total risk Moreover, quantitative risk calculations using data from environmental media that may contain compounds present at concentrations too low to adversely affect public health have no effect on the overall risk estimate for the site The use of a toxicity screen allows the risk assessment to focus on the compounds and media that may make significant contributions to overall risk "

Therefore COPCs will be identified by comparing constituent-specific analytical data for environmental media to appropriate screening criteria and conducting a quantitative risk assessment for those constituents detected in an environmental medium in excess of the screening criteria

Several factors are typically considered in selecting COPCs for a site, including background, frequency of detection, and toxicity, including essential nutrient status Risk calculations will be conducted using the COPCs identified in this step

COCs will then be identified in the risk characterization of the HHRA as those constituents whose risks result in an exceedance of the target risk range of 10^{-6} to 10^{-4} for potential carcinogens and a target Hazard Index of 1 for noncarcinogens (that act on the same target organ), (USEPA, 1990, 1991b) Remedial goals will be developed for COCs based on the exposure pathways evaluated in the risk assessment

The steps to be used to identify COPCs are presented below

11.3.2.1 Evaluation of Frequency of Detection and Essential Nutrient Status

A frequency of detection screen will be conducted on each medium (e g , surface soil, subsurface soil, etc) Constituents that are detected in fewer than 5% of samples, provided 20 samples are available, will not be included as COPCs However, some of these constituents may be retained as COPCs based on professional judgment, considering factors such as the presence of a hotspot In addition to the frequency of detection screen, essential nutrients (i e , calcium, iron, magnesium, sodium and potassium) will not be included as COPCs (USEPA, 1989a)

11.3.2.2 Comparison to Background

Background and upgradient samples to be collected in the vicinity of the Sites present information on levels of constituents typical for the local area The purpose of comparing site conditions to local background is to determine if site concentrations of constituents are representative of background concentrations, which, therefore, should not be included in risk calculations Background comparisons will be conducted for each medium using site-specific background data These background data will be evaluated in the context of the background concentrations for rural and urban areas of Illinois published by the Illinois Environmental Protection Agency (IEPA, 1994, 1998)

The procedure for determining whether a constituent concentration is consistent with background will follow that developed by USEPA Region 4 (USEPA, 2000b) Maximum detected concentrations of constituents in environmental media at the site will be compared against two times the arithmetic mean site-specific background concentration USEPA Region 4 states that although RAGS (USEPA, 1989a) allows the use of statistics in data evaluation statistics may not be sufficiently conservative at this stage of the risk evaluation, and in most cases, there are not a sufficient number of samples for conducting a statistical analysis Therefore, if maximum concentrations of constituents in an area are found to be less than two times the average background concentrations, then those constituents can be eliminated from quantitative evaluation in the risk assessment Constituents whose concentrations are found to be above typical local background levels will be retained for evaluation in the next step of the hazard identification process (Toxicity Screen)

11.3.2.3 Toxicity Screen

A toxicity screen will be performed in accordance with USEPA Region 5 guidance (USEPA, 1998c) USEPA Region 5 guidance identifies the following three sources as appropriate screening levels for soil, in order of preference

1) Most recent generic soil screening levels (SSLs) developed and presented in Appendix A of the Soil Screening Guidance (USEPA, 1996b) The SSLs are based on ingestion and inhalation (direct contact) and soil-to-groundwater exposure pathways for a residential scenario
2) Site-specific SSLs derived using the methodology outlined in the above reference
3) Most recent USEPA Region 9 PRGs (USEPA, 2000a)

The USEPA Region 9 PRGs are more comprehensive because values are provided for a longer list of constituents, and PRGs are available for both residential and industrial scenarios Therefore, USEPA Region 9 PRGs for industrial soils and ambient air will be used to identify COPCs in soil and sediment, and to evaluate the 24-hour air data, respectively

Groundwater in Sauget Area 2 is classified as Class I by IEPA Groundwater in Sauget Area 2 is not used as a source of drinking water and there are ordinances in effect in the Villages of Sauget and Cahokia (see information provided in Appendix 2-1) that prohibit the use of groundwater as drinking water Therefore, groundwater will not be evaluated as a source of residential or industrial drinking water in the risk assessment The risk assessment will evaluate potential incidental exposure to constituents in groundwater and/or leachate via volatilization of constituents to indoor and outdoor air, and via direct contact with groundwater and/or leachate during excavation activities To provide a Class I evaluation of groundwater in Sauget Area 2, and for the identification of COPCs to be evaluated quantitatively for the groundwater and surface water scenarios addressed in the risk assessment, constituent concentrations in groundwater will be compared to IEPA Class I standards (35 Ill Adm Code 620 410)

For the Class I groundwater comparison, where Class I standards are not available, federal maximum contaminant levels (MCLs) (USEPA, 2000c) will be used, where MCLs are not available, the IEPA remediation objectives for Class I groundwater will be used (IEPA, 1998), where these are not available, the most current USEPA PRGs (USEPA 2000a) for tap water will be used

Fish tissue data will be compared to the USEPA Region 3 Risk-Based Concentrations (RBCs) for fish (USEPA, 2000d)

The PRGs and RBCs are periodically updated by USEPA The most current criteria available will be used in the selection of COPCs Constituents with maximum concentrations less than or equal to the screening criteria will not be included as COPCs If no COPCs are identified for a medium, that medium will not be evaluated quantitatively in the HHRA

Tables presenting the results of each screening step will be presented in the risk assessment report The final list of COPCs for inclusion in the risk assessment will also be presented in the risk assessment and included in all subsequent risk calculations

11.3.2.4 Data Quality Levels

The criteria identified in Section 11 3 2 3 have been used to develop the data quality levels (DQLs) to be used to identify appropriate practical quantitation limits (PQLs) for laboratory methods for the analytical program The DQLs and PQLs are discussed in greater detail in the Quality Assurance Project Plan (QAPP) for the site (see Volume 5 of the RI/FS SSP) The DQLs for the HHRA are presented in Appendix 11-1 The DQLs for soil and sediment are based on USEPA Region 9 PRGs (USEPA, 2000a) for residential soil, the DQLs for surface water and groundwater are based on the Class I groundwater standards (35 Ill Adm Code 620 410) and the hierarchy identified in the previous section The DQLs for fish tissue are based on the USEPA Region 3 RBCs (USEPA, 2000d) for fish, and the DQLs for air are based on the USEPA Region 9 PRGs (USEPA, 2000a) for ambient air

11.4 Dose-Response Assessment

The purpose of the dose-response assessment is to identify the types of adverse health effects a constituent may potentially cause and to define the relationship between the dose of a constituent and the likelihood or magnitude of an adverse effect (response)

Adverse effects are defined by USEPA as potentially carcinogenic or noncarcinogenic (i e , potential effects other than cancer) Dose-response relationships are defined by USEPA The dose-response values for potentially carcinogenic effects are termed Cancer Slope Factors (CSFs) or Unit Risk Factors, and dose-response values for noncarcinogenic effects are termed Reference Doses (RfDs) or Reference Concentrations (RfCs) These values are available from USEPA sources, such as USEPA's Integrated Risk Information System (IRIS), an on-line computer database (USEPA, 2000e), and the Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997b) Both sets of potential health effects will be evaluated in the risk assessment The USEPA National Center for Environmental Assessment (NCEA) will be consulted if a constituent does not have a dose-response value in either IRIS or HEAST Appropriate criteria may also be derived by qualified toxicologists using current USEPA-approved methodologies

Dose-response values used in the risk assessment will be presented in tabular format For each constituent the table will present the Chemical Abstracts Service (CAS) registry number, dose-response value, source, study animal, study method, and where appropriate, target organ, critical effect, uncertainty factors, and confidence level

Dose-response values are available for inhalation and oral exposures Oral dose-response values will be used to evaluate dermal exposures provided appropriate dermal absorption values are available COPCs will be evaluated quantitatively for the dermal exposure pathway For inhalation pathways reference concentrations (in units of mg/m^3) will be converted to reference doses (in units of mg/kg-day) for calculating risk for systemic toxicants For direct acting toxicants, the oral, dermal, and inhalation pathways will be evaluated separately

11.4.1 PCB Dose-Response

Risks from potential exposures to PCBs will be calculated using the most current guidance available from USEPA Currently, USEPA-approved guidance is provided in IRIS (USEPA, 2000e) Total PCB concentrations will be calculated by summing the separate homolog concentrations The total PCB concentrations will be multiplied by the verified cancer slope factors listed in IRIS (USEPA, 2000e) Guidance provided in IRIS specifies three tiers of human slope factors for environmental PCBs high risk and persistence, low risk and persistence, and lowest risk and persistence The choice of slope factors for use depends on the medium of exposure and PCB chlorine content, as outlined in IRIS

(USEPA, 2000e) Thus, a slightly differing approach to calculating potential cancer risks will be taken for different media

Non-cancer risks from potential exposures to PCBs will be calculated using the most conservative RfD for a PCB mixture In addition, uncertainty surrounding the use of USEPA-verified toxicity criteria will be discussed

11.4.2 Dioxin Dose-Response

The potential carcinogenic effects associated with exposure to dioxin and furan congeners in environmental media will be assessed in accordance with the approach developed by USEPA (1989c) or final guidance available at the time the risk assessment is conducted Risks will be calculated for 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) and the dioxin and furan congeners using the cancer slope factor for 2,3,7,8-TCDD listed in HEAST (USEPA, 1997b) and using toxic equivalency factors (TEFs) TEFs are fractions that equate the potential toxicity of each congener to that of 2,3,7,8-TCDD The World Health Organization (WHO) (Van den Berg et al , 1998) has assigned a TEF to each of the dioxin and furan congeners The TEFs are listed in Table 11-1 The exposure point concentration for each dioxin and furan congener will be multiplied by its TEF, resulting in a TCDD toxic equivalence concentration (TCDD-TEQ) The TCDD-TEQ values for each of the congeners will then be added together The cancer slope factor for 2,3,7,8-TCDD will then be used to calculate potential carcinogenic risks resulting from potential exposure to 2,3,7,8-TCDD, and the dioxin and furan congeners

11.5 Exposure Assessment

The purpose of the exposure assessment is to predict the magnitude and frequency of potential human exposure to each of the COPCs retained for quantitative evaluation in the HHRA The first step in the exposure assessment process is the characterization of the setting of the site and surrounding area Current and potential future site uses and potential receptors (i e , people who may contact the impacted environmental media of interest) are then identified Potential exposure scenarios appropriate to current and potential future site uses and receptors are then developed Those potential exposure pathways for which COPCs are identified and are judged to be complete will be evaluated quantitatively in the risk assessment Reasonable maximum exposure (RME) assumptions, and most likely exposure (MLE) assumptions based on appropriate USEPA guidance, will be employed in the quantitative risk assessment

11.5.1 Identification of Potential Exposure Scenarios

Exposure scenarios are developed on the basis of the CSM for a site. The CSM for this study was presented in Section 11.2 (Figure 11-1). The CSM was used to develop the potential exposure scenarios identified below. The receptor scenarios are summarized on Table 11-2.

Sauget Area 2, as identified by the AOC, has been used for industrial purposes for many years and use of these areas is expected to remain industrial. Therefore, industrial/commercial receptors will be evaluated for each site. Access to Sites O, P, Q, and part of S is unrestricted. Site R is fenced and monitored by a 24-hour security camera. The southern portion of Site S is fenced. Although access is restricted in some areas, a trespasser receptor will be evaluated for each site as well as for the Mississippi River. Recreational use of the Mississippi River and the Site Q ponds for fishing will also be evaluated. If COPCs are identified for soils in the field area located just south of Site Q, the industrial/commercial receptors and the trespasser receptor will be evaluated for this area.

An on-site outdoor industrial worker will be evaluated at each Site for potential exposure to COPCs where identified in surface soil, and to COPCs that may volatilize into outdoor air from subsurface soil and underlying groundwater. Therefore, a total of 6 outdoor industrial worker receptors will be evaluated in the risk assessment.

A construction/utility worker will be evaluated for potential exposure at each Site to constituents in surface and subsurface soils. Construction/utility work is assumed to occur to a depth of 12 to 15 feet bgs. This depth is based on the depth of utilities in the area. This depth will be adjusted if necessary based on results of the RI. Where the water table surface lies within this interval, the construction worker will be evaluated for potential contact with COPCs in groundwater during excavation. The construction worker will also be evaluated for potential contact with COPCs in leachate during excavation. Therefore, a total of 6 construction/utility worker receptors will be evaluated in the risk assessment.

An on-site indoor industrial worker will be evaluated at each Site for potential exposure to COPCs via inhalation of volatile constituents present in indoor air due to vapor intrusion from groundwater and/or leachate. Analytical data for shallow groundwater collected from the RI/FS SSP wells will be used in the risk assessment. Therefore, a total of 6 indoor industrial worker receptors will be evaluated in this risk assessment.

A trespassing teenager will be evaluated at each Site for potential exposure to COPCs where identified in surface soil, and to COPCs that may volatilize into outdoor air from subsurface soil and underlying groundwater. The trespasser receptor for Site Q will also be evaluated for potential exposure to COPCs where identified in surface water and sediment in the Site Q ponds. In addition, a trespasser receptor will be evaluated for potential exposure to COPCs where identified in surface water and

sediment in the Mississippi River Analytical data for the Mississippi River surface water and sediment transect points located closest to the shore will be used in the risk assessment Therefore, a total of 7 trespasser receptors will be evaluated in the risk assessment The trespasser risks will be evaluated separately as well as each in conjunction with the Mississippi River trespasser risks

Incidental ingestion and dermal contact with surface water and sediment and ingestion of game fish will be evaluated for two recreational fisher receptors a Mississippi River fisher and a Site Q ponds fisher The Mississippi River fisher will be evaluated using analytical data for fillets of game fish (catfish) collected in the Mississippi River, and analytical data for surface water and sediments from the transect points located closest to the shoreline The Site Q ponds fisher will be evaluated using analytical data for surface water and sediment collected from the ponds, and for game fish fillets, if appropriate fish are located for collection in the ponds There are historical reports of fishing activity in these ponds, therefore, if fish are not captured, models will be used to predict fish tissue concentration from surface water or sediment data (see Section 11 5 5)

Groundwater is not used as a source of drinking water in the area Surface water serves as the source of the municipal water supply, and groundwater use is prohibited by the Villages of Sauget and Cahokia (see the information provided in Appendix 2-1) Therefore, groundwater will not be evaluated as a source of residential or industrial drinking water in the risk assessment However, as noted in Section 11 3 2 3, groundwater analytical data will be compared to Illinois Class I groundwater standards as part of the risk assessment

Final receptor selection will be made once site analytical data have been evaluated and COPCs identified If no COPCs are identified in a particular medium (e g , fish), and/or the potential exposure pathway, upon further investigation, is judged to be incomplete (e g , recreational fishing), then the exposure scenarios associated with that medium/pathway will not be quantitatively evaluated in the HHRA The potential receptors and their associated exposure scenarios are discussed below and summarized in Table 11-2

11.5.2 Receptor Identification

The following subsections discuss the parameters that will be used to evaluate each of the potential receptors in the HHRA Both RME and MLE scenarios will be evaluated for each receptor As noted in Table 11-2, a total of 27 receptors will each be evaluated for RME and MLE scenarios Exposure factors common to several of the receptors are discussed in Section 11 5 3

11.5.2.1 Indoor Industrial Worker

Exposure assumptions for the indoor industrial worker under the RME and MLE scenarios are shown in Table 11-3 Where depth to groundwater is shallow (less than 25 to 30 feet bgs), it is possible an

indoor industrial worker may be exposed indirectly to shallow groundwater/leachate via inhalation of volatile COPCs migrating from groundwater and the subsurface to indoor air of an industrial/commercial building.

11.5.2.2 Outdoor Industrial Worker

Exposure assumptions for the outdoor industrial worker under the RME and MLE scenarios are shown in Table 11-4. The outdoor industrial worker may contact COPCs in surface soil via incidental ingestion and dermal contact, and may inhale COPCs via volatilization from the surface and subsurface, and via particulate emissions from the surface. In addition, where depth to groundwater is shallow (less than 25 to 30 feet bgs), it is possible an outdoor industrial worker may be exposed indirectly to shallow groundwater/leachate via inhalation of volatile COPCs migrating from groundwater and the subsurface to outdoor air.

11.5.2.3 Construction/Utility Worker

Exposure assumptions for the construction/utility worker under the RME and MLE scenarios are shown in Table 11-5. Exposure media of interest in the evaluation of potential risk to a future construction/utility worker will potentially include surface soil, subsurface soil, leachate, and groundwater. Construction/utility work is assumed to occur to a depth of 12 to 15 feet bgs. Where the water table surface lies within this interval, the construction worker will be evaluated for potential contact with COPCs in groundwater during excavation. Data for shallow groundwater and leachate will be combined and evaluated as one medium. Exposure could occur via incidental ingestion of and dermal contact with soil and shallow groundwater and/or leachate and via inhalation of fugitive dust and/or vapors from soil and groundwater and/or leachate. The soil ingestion rate listed in Table 11-5 for the construction worker under the MLE scenario is discussed in Section 11.5.3.

11.5.2.4 Trespassing Teenager

Exposure assumptions for the trespassing teenager under the RME and MLE scenarios are shown in Table 11-6. It is assumed that this receptor can be exposed to COPCs in surface soil via incidental ingestion, dermal contact, and inhalation of volatiles and particulates, and can be exposed indirectly to subsurface soil and/or groundwater via inhalation of volatile COPCs. Due to the remoteness of the sites, it is assumed that this receptor may be on the site for two hours per event; however, the receptor's entire daily exposure to soil via ingestion and dermal contact is assumed to come from the Sites. In addition, this receptor may be exposed to COPCs in sediment and surface water in the Mississippi River or the Site Q ponds. It is assumed that contact with surface water and sediment occurs continuously for 1 hour per event.

11.5.2.5 Recreational Fisher

Recreational fishing takes place in the Mississippi River and there are reports of fishing occurring in the Site Q ponds. As constituents in groundwater may discharge to these water bodies, COPCs may be present in surface water, sediment, and fish tissue. Therefore, a recreational fisher has the potential to be exposed to site-related COPCs through ingestion of fish and incidental ingestion and dermal contact with surface water and sediment. Recreational fishing will be evaluated separately for the Mississippi River and the Site Q ponds. The exposure assumptions for the fisher for the RME and MLE receptors are summarized in Table 11-7.

11.5.3 Exposure Parameters

11.5.3.1 Soil Ingestion Rate – Adult Construction Worker

Incidental soil ingestion occurs at all ages as a result of hand-to-mouth activities. Currently, there are little or no reliable quantitative data available for estimating adult soil ingestion rates. USEPA risk assessment guidance suggests a soil ingestion rate of 50 mg/day for adults in an industrial scenario (USEPA, 1991a).

USEPA presented an estimate of a soil ingestion rate for adults doing yard work of 480 mg/day in their supporting evidence for the commercial/industrial soil ingestion rate of 50 mg/day in the "Standard Default Exposure Factors" Directive (USEPA, 1991a); the 480 mg/day value was not presented in the table of default exposure factors. The Agency states: "For certain outdoor activities in the commercial/industrial setting (e.g., construction or landscaping), a soil ingestion rate of 480 mg/day may be used; however, this type of work is usually short-term and is often dictated by the weather. Thus, exposure duration would generally be less than one year and exposure frequency would vary according to site-specific construction/maintenance plans." However, some regions and state agencies have stipulated the use of this value to evaluate a construction worker exposure scenario. The Hawley (1985) study, which is the basis for the soil ingestion rate of 480 mg/day, was recently reviewed by the USEPA (USEPA, 1997a), which stated that, "Given the lack of supporting measurements, these estimates must be considered conjectural."

In the Hawley (1985) study, the author assumed that soil adheres to the surface area of the hands at a loading of 3.5 mg/cm^2. This value was based on a layer of soil on skin assumed to be 0.005 cm deep, a soil density of 1.5 g/cm^2, and 50% void space. Using the author's derived soil-to-skin adherence loading of 3.5 mg/cm^2 and assuming that the amount of soil covering a fraction of the hands (approximately 70 cm^2) is ingested twice a day, Hawley calculated a soil ingestion rate of 480 mg/day.

Hawley's 1985 analysis was one of the first published health risk assessments and was performed before any of the quantitative fecal tracer soil ingestion studies for either children or adults were conducted (Calabrese et al., 1989; Davis et al., 1990; Clausing et al., 1987; Calabrese et al., 1990).

Thus, the estimate of 480 mg/day predates all of our current knowledge about soil ingestion among both children and adults, as well as recent published data on soil-to-skin adherence rates

In 1993, USEPA sponsored a workshop to evaluate soil-to-skin adherence data As a result, a study to determine a more accurate characterization of soil-to-skin adherence was sponsored by the USEPA and conducted by John C Kissel and associates at the University of Washington (Kissel et al , 1996, Holmes et al , 1998) The intent of this study was to resolve uncertainties and develop more accurate measures of soil-to-skin loading rates for individuals involved in various occupational and recreational activities As reported in the Exposure Factors Handbook (EFH) (USEPA ,1997a), soil loading on skin surfaces as a result of various occupational and recreational activities was directly measured This study indicates that soil loadings vary with the type of activity and the body parts contacted As one would expect, adherence appears to be greatest during outdoor activities such as farming and gardening, and more soil/dust tends to adhere to the hands and knees than to other areas of the body

Average hand soil loading factors are as presented in the EFH (USEPA, 1997a) for the adult outdoor workers evaluated by Kissel and Holmes In every case, soil adherence during occupational exposure was measured to be considerably lower than Hawley's estimate of 3 5 mg/cm^2 The range of soil adherence loadings measured by Kissel and Holmes falls within the USEPA range of 0 2 to 1 0 mg/cm^2 (USEPA, 1992c)

For this evaluation, the construction worker receptor is assumed to be exposed to COPCs in surface and subsurface soils during excavation activity Based on this exposure scenario, the "farmer" receptor provided in the EFH is considered to provide an upper-bound estimate of soil adherence A soil ingestion rate can be calculated by substituting the soil adherence value for the receptor for the estimated value derived by Hawley (1985), as follows

$$\frac{480\ \text{mg/day}}{3\ 5\,\text{mg/cm}^2} = \frac{\text{ingestion rate (mg/day)}}{\text{soil adherence (mg/cm}^2)}$$

The soil to hand adherence value for the "farmer" is 0 47 mg/cm^2 The calculated soil ingestion value is 64 mg/day, therefore, a soil ingestion rate of 64 mg/day is used for the MLE construction worker receptor in this risk evaluation

Additional support for this value comes from a new paper by Kissel and coworkers (Kissel et al , 1998) that presents the results of a study of the transfer of soil from hand to mouth by intentional licking Soil was loaded onto the skin by pressing the hand onto soil, and the amount transferred to the mouth was measured The thumb sucking, finger mouthing, and palm licking activities resulted in geometric mean soil mass transfers of 7 4 to 16 mg per event The author concludes that "transfer of 10 mg or more of soil from a hand to the oral cavity in one event is possible, but requires moderate soil loading and more than incidental hand-to-mouth contact " However, "the fraction of soil transferred from hand to mouth

that is subsequently swallowed is unknown but may be less than 100 percent " In addition, "the adult volunteers in this study reported that the presence of roughly 10 mg of soil in the mouth is readily detected (and unpleasant) Repeated unintentional ingestion of that mass of soil by adults therefore seems unlikely In light of this observation, the 480 mg per day estimate [of Hawley, 1985] would require hundreds or perhaps thousands of hand-to-mouth contacts that resulted in soil transfer per day "

Therefore, for the MLE scenario, a soil ingestion rate of 64 mg/day is used for the construction worker For the RME scenario, a soil ingestion rate of 100 mg/day is assumed for the construction worker This is the adult soil ingestion rate provided by USEPA (1991a)

11.5.3.2 Frequency of Exposure to COPCs in Soil

A meteorological factor is generally used to account for the fraction of the year during which exposure to constituents in soils may occur (Sheehan et al , 1991, USEPA, 1989a) It is reasonable to assume that direct contact with soil or intrusive activities will not occur for residential receptors during inclement weather, i e , when it is raining or snowing, when the ground is wet or frozen, or when snow or ice (32 degrees F) are covering the ground Thus the frequency of contact with potentially impacted soil is adjusted for these site-specific meteorological conditions (USEPA, 1989a)

There are only a few metrics that can be used to describe the fraction of the year when meteorological conditions are likely to limit exposure These include temperature and the amount of precipitation per day and per year, which includes rain, snow and ice While measures are collected hourly, the National Weather Service (NWS) reports the number of days when precipitation is greater than 0 01 inches (one one-hundredth), greater than 0 1 inches (one tenth), and greater than 1 inch in their annual summary data The number of days with precipitation greater than 0 1 inches is selected as the best representation of when exposure is likely to be limited by snow, rain, or ice The National Oceanographic and Atmospheric Administration (NOAA) provides daily temperature data It is assumed that exposure to soils is limited by temperatures less than 32 degrees F Therefore, limiting the assumption of exposure to soils to those days with less than 0 1 inch of precipitation and temperatures above 32 degrees F is reasonable

Based on ten years of meteorological data (1986-1995) for St Louis provided by NOAA (1996) and the NWS (1986-1995), a meteorological factor is derived for use in the exposure equations On the average, 66 days/year in this area receive 0 1 or greater inches of precipitation, and there are typically 27 days/year with a mean temperature of 32 degrees F or below Accounting for days when both events occur (assumed to be 10% of the rain days or 6 days/year), the number of inclement days, 87, can be calculated (27 + 66 – 6 = 87) It is assumed that these days are evenly spaced throughout the course of the year The meteorological factor is then calculated (87/365 = 24%) Thus it is assumed

that exposure to soils will not occur for the "receptor" 24% of the assumed days of exposure (exposure frequency) due to weather restrictions

The choice of a precipitation target of 0 1 inches is in keeping with guidance provided in the Compilation of Air Pollution Emission Factors, which assumes that soil suspension will not occur on days with more than 0 01 inches of precipitation (USEPA, 1995b) It is probable, however, that this metric both over- and under-estimates the potential exposure in some conditions For, example, it is possible that some exposure to soils may occur on days when it rains just over 0 1 inches in the early morning and then the ground dries during the course of the day Alternatively, significant rainfall, such as greater than 1 inch, is likely to saturate the soil for consecutive days, and several inches of snow (which may fall all on one day with one storm) may cover the ground and inhibit direct contact for several days With both of these considerations in mind, it is likely that a meteorological factor based on inclement days defined as precipitation greater than 0 1 inches and average temperatures less than 32 degrees F is reasonable

11.5.4 Quantification of Potential Exposures

To estimate the potential risk to human health that may be posed by the presence of COPCs at Sauget Area 2, it is first necessary to estimate the potential exposure dose of each COPC The exposure dose is estimated for each constituent via each exposure pathway by which the receptor is assumed to be exposed Exposure dose equations combine the estimates of constituent concentration in the environmental medium of interest with assumptions regarding the type and magnitude of each receptor's potential exposure to provide a numerical estimate of the exposure dose The exposure dose is defined as the amount of COPC taken into the receptor and is expressed in units of milligrams of COPC per kilogram of body weight per day (mg/kg-day)

Exposure doses are defined differently for potential carcinogenic and noncarcinogenic effects The Chronic Average Daily Dose (CADD) is used to estimate a receptor's potential intake from exposure to a COPC with noncarcinogenic effects According to USEPA (1989a), the CADD should be calculated by averaging the dose over the period of time for which the receptor is assumed to be exposed Therefore, the averaging period is the same as the exposure duration For COPC with potential carcinogenic effects, however the Lifetime Average Daily Dose (LADD) is employed to estimate potential exposures In accordance with USEPA (1989a) guidance, the LADD is calculated by averaging exposure over the receptor's assumed lifetime (70 years) Therefore, the averaging period is the same as the receptor's assumed lifetime The standardized equations for estimating a receptor s average daily dose (both lifetime and chronic) are presented below, followed by descriptions of receptor-specific exposure parameters and constituent-specific parameters

11.5.4.1 Estimating Potential Exposure to COPCs in Soil

Both incidental ingestion of, and dermal contact with, COPCs in soil are assumed to occur for many of the receptors The following equations are used to calculate the estimated exposure

Average Daily Dose (Lifetime and Chronic) Following Incidental Ingestion of Soil (mg/kg-day)

$$ADD = \frac{CS \times SIR \times EF \times ED \times AAF_d \times CF}{BW \times AT}$$

where

ADD	=	Average Daily Dose (mg/kg-day)
CS	=	Soil Concentration (mg/kg soil)
SIR	=	Soil Ingestion Rate (mg soil/day)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (year)
AAF_o	=	Oral-Soil Absorption Adjustment Factor (AAF) (chemical-specific) (unitless)
CF	=	Unit Conversion Factor (kg soil/10^6 mg soil)
BW	=	Body Weight (kg)
AT	=	Averaging Time (days)

Average Daily Dose (Lifetime and Chronic) Following Dermal Contact with Soil (mg/kg-day)

$$ADD = \frac{CS \times SA \times AF \times EF \times ED \times AAF_d \times CF}{BW \times AT}$$

where

ADD	=	Average Daily Dose (mg/kg-day)
CS	=	Soil Concentration (mg/kg soil)
SA	=	Exposed Skin Surface Area (cm^2/day)
AF	=	Soil to Skin Adherence Factor (mg soil/cm^2)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (year)
AAF_d	=	Dermal-Soil AAF (chemical-specific) (unitless)
CF	=	Unit Conversion Factor (kg soil/10^6 mg soil)
BW	=	Body Weight (kg)

AT = Averaging Time (days)

11.5.4.2 Estimating Potential Exposure via Inhalation

Exposure to COPCs migrating from soil or groundwater to air is assumed to occur for many of the potential receptors The equation used to estimate exposure to COPCs via inhalation is as follows

Average Daily Dose (Lifetime and Chronic) Following Inhalation of COPC (mg/kg-day)

$$ADD = \frac{CA \times IR \times AAF_i \times ET \times EF \times ED}{BW \times AT}$$

where

ADD	=	Average Daily Dose (mg/kg-day)
CA	=	Air Concentration (mg/m^3)
IR	=	Inhalation Rate (m^3 /hr)
AAF_i	=	Inhalation AAF (chemical-specific) (unitless)
ET	=	Exposure Time (hours/day)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (year)
BW	=	Body Weight (kg)
AT	=	Averaging Time (days)

11.5.4.3 Estimating Potential Exposure to COPCs from Groundwater

Incidental contact with groundwater or surface water is assumed for several receptors The equation used to estimate a receptor's potential exposure via incidental ingestion of groundwater is

Average Daily Dose (Lifetime and Chronic) Following Ingestion of Water (mg/kg-day)

$$ADD = \frac{CW \times IR \times EF \times ED \times AAF_o}{BW \times AT}$$

where

ADD	=	Average Daily Dose (mg/kg-day)
CW	=	Water Concentration (mg/L)
IR	=	Water Ingestion Rate (L/day)

EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (year)
AAF_o	=	Oral-Water AAF (chemical-specific) (unitless)
BW	=	Body Weight (kg)
AT	=	Averaging Time (days)

The equation used to estimate a receptor's potential exposure via dermal contact with groundwater is as follows

Average Daily Dose (Lifetime and Chronic) Following Dermal Contact with Water (mg/kg-day)

$$ADD = \frac{CW \times SA \times PC \times ET \times EF \times ED \times AAF_d \times CF}{BW \times AT}$$

where

ADD	=	Average Daily Dose (mg/kg-day)
CW	=	Water Concentration (mg/L)
SA	=	Exposed Skin Surface Area (cm^2)
PC	=	Dermal Permeability Constant (cm/hr) (chemical-specific)
ET	=	Exposure Time (hours/day)
EF	=	Exposure Frequency (days/year)
ED	=	Years Exposed (year)
AAF_d	=	Dermal-Water AAF (chemical-specific) (unitless)
CF	=	Unit Conversion Factor ($L/10^3cm^3$)
BW	=	Body Weight (kg)
AT	=	Averaging Time (days)

11.5.4.4 Estimating Potential Exposure From Food Consumption

A recreational fisher may be exposed to COPCs through ingestion of fish obtained from the Mississippi River or the Site Q ponds The equation used to estimate a receptor's potential exposure via food consumption is

Average Daily Dose (Lifetime and Chronic) Following Food Consumption (mg/kg-day)

$$ADD = \frac{CF \times IR \times AAF \times EF \times ED}{AT \times BW}$$

where

ADD	=	Average Daily Dose (mg/kg-day)
CF	=	Concentration in Food (mg/kg)
IR	=	Ingestion Rate (kg/day)
AAF	=	Oral-diet AAF (chemical-specific) (unitless)
EF	=	Exposure Frequency (days/year)
ED	=	Exposure Duration (years)
AT	=	Averaging Time (days)
BW	=	Body Weight (kg)

11.5.4.5 Absorption Adjustment Factors

Absorption adjustment factors (AAFs) are used in risk assessment to account for absorption differences between humans exposed to substances in environmental situations and experimental animals in the studies used to derive dose-response values

To estimate the potential risk to human health that may be posed by the presence of substances in various environmental media (such as soil or groundwater) it is first necessary to estimate the human exposure dose, of each compound The exposure dose is then combined with an estimate of the toxicity of the substance to produce an estimate of risk posed to human health

The estimate of toxicity of a substance termed the dose-response value, can be derived from human epidemiological data, but it is most often derived from experiments with laboratory animals The dose-response value can be calculated based on the administered dose of the substance (similar to the human exposure dose) or, when data are available, based on the absorbed dose, or internal dose, of the substance

In animals, as in humans, the administered dose of a substance is not necessarily completely absorbed Moreover, differences in absorption exist between laboratory animals and humans, as well as between different media and routes of exposure Therefore, it is not always appropriate to directly apply a dose-response value to the human exposure dose In many cases, a correction factor in the calculation of risk is needed to account for differences between absorption in the dose-response study and absorption likely to occur upon human exposure to a substance Without such a correction, the estimate of human health risk could be over- or under-estimated

This correction factor is termed the absorption adjustment factor, or AAF The AAF is used to adjust the human exposure dose so that it is expressed in the same terms as the doses used to generate the dose-response curve in the dose-response study The AAF is the ratio between the estimated human

absorption factor for the specific medium and route of exposure, and the known or estimated absorption factor for the laboratory study from which the dose-response value was derived

$$AAF = \frac{\text{(fraction absorbed in humans for the environmental exposure)}}{\text{(fraction absorbed in the dose - response study)}}$$

The use of an AAF allows the risk assessor to make appropriate adjustments if the efficiency of absorption between environmental exposure and experimental exposure is known or expected to differ because of physiological effects and/or matrix or vehicle effects

AAFs can have numerical values less than one or greater than one, depending on the particular circumstances at hand When the dose-response curve is based on administered dose data, and if it is estimated that the fraction absorbed from the site-specific exposure is the same as the fraction absorbed in the laboratory study, then the AAF is 1 In the absence of detailed toxicological information on every compound of interest it has been common practice for risk assessors to use a default AAF value of 1 This approach is not necessarily protective of public health, in some cases, because there are situations in which it is expected that the fraction absorbed from a site-related exposure would be higher than that in the laboratory study There are also situations where the reverse could occur Thus, use of AAFs in standard risk assessment calculations can provide more accurate and more realistic estimates of potential human health risk The derivation of each AAF used in the risk assessment will be provided in an appendix to the risk assessment report

11.5.5 Calculation of Exposure Point Concentrations

Exposure points are located where potential receptors may contact COPCs at or from the site The concentration of COPCs in the environmental medium that receptors may contact must be estimated in order to determine the magnitude of potential exposure

Measured data will be available for surface soil, subsurface soil, groundwater, leachate, and fish tissue (for the Mississippi River, fish tissue data may not be available for the Site Q ponds) Groundwater will be evaluated on a plume or well-by-well basis as appropriate The exposure point concentration is defined as the lower of the maximum or 95th percentile UCL on the arithmetic mean concentrations (USEPA, 1992a) or other appropriate metric for the RME scenario and the arithmetic mean concentration for the MLE scenario

Other pathways will require modeling to derive exposure point concentrations These pathways include volatile chemicals in groundwater/leachate and the subsurface migrating upwards and infiltrating into indoor and outdoor air, generation of fugitive dust and volatiles from undisturbed soils as well as during construction activities and potentially calculation of game fish fillet constituent concentrations in the Site Q ponds

The model to be used to predict indoor air concentrations of VOCs will be the model of Johnson and Ettinger recommended by the USEPA (1996a and 1997c) to predict concentrations of COPCs migrating from groundwater or soil to indoor air of an overlying building Concentrations of volatile COPCs in outdoor air due to migration from subsurface soil and/or groundwater will be estimated using the methodology recommended by the American Society for Testing and Materials (ASTM, 1998)

The calculation of concentrations of non-VOC COPCs bound to soil in fugitive dust involves multiplying the soil exposure point concentrations by the concentration of dust in air as follows

1) Ambient Air

   COPC concentration in ambient air (mg/m^3) = Exposure point concentration in soil (mg/kg soil) x Dust concentration (kg soil/m^3)

   The dust concentration in air to be used in the evaluation of ambient outdoor air pathways in this risk evaluation is the inverse of the particulate emission factor derived in accordance with USEPA guidance (USEPA, 1996a)

2) Excavation Air (i e , during construction activities)

   COPC concentration in excavation air (mg/m^3) = Exposure point concentration in soil (mg/kg soil) x Dust concentration (mg soil/m^3) x Unit correction factor (1 kg/10^6 mg)

   The dust concentration in air to be used in the evaluation of excavation air pathways in this risk evaluation is 60 ug/m^3 This value is the recommended concentration of respirable particulate with a mean diameter of 10 microns or less (PM10) for excavation activities (MADEP, 1995)

The concentrations of constituents in Site Q ponds game fish fillet tissue may be calculated using bioaccumulation factors Bioaccumulation factors will be obtained from USEPA sources current at the time the risk assessment is conducted, or from scientific literature sources The following equations will be used to predict fish fillet tissue concentrations

1) Calculation of fish tissue concentration based on sediment concentrations

$$C_F = C_{SED} \times BSAF \times [f_{LIPID}/f_{oc}]$$

where

C_F = constituent concentration in fish tissue, wet weight (mg/kg)

C_{SED} = constituent concentration in sediment, dry weight (mg/kg)

BSAF = biota-sediment accumulation factor (kg organic carbon in sediment/kg lipid in fish)

f_{LIPID} = fraction of lipid in fish (kg lipid/kg wet weight fish)

f_{oc} = fraction of organic carbon in sediment (kg organic carbon/kg dry weight sediment)

2) Calculation of fish tissue concentration based on surface water concentration

$$C_F = C_{W\,D} \times BAF$$

where

C_F = constituent concentration in fish tissue, wet weight (mg/kg)

$C_{W\,D}$ = constituent concentration in surface water, dissolved (mg/L)

BAF = bioaccumulation factor (L/kg)

11.6 Risk Characterization

The purpose of the risk characterization is to provide estimates of the potential risk to human health from exposure to COPCs at or from a site by receptors at or near a site To accomplish this objective, this section will include quantitative estimates of potential carcinogenic and noncarcinogenic risk

The results of the exposure assessment are combined with the results of the dose-response assessment to derive quantitative estimates of risk, or the probability of adverse health effects following assumed potential exposure to the COPCs Using the exposure point concentrations derived in the exposure assessment, each exposure pathway for each receptor will be evaluated for both potential carcinogenic and noncarcinogenic effects

11.6.1 Carcinogenic Risk Characterization

The purpose of carcinogenic risk characterization is to estimate the upper-bound likelihood, over and above the background cancer rate, that a receptor will develop cancer in his or her lifetime as a result of exposure to a constituent in environmental media at the site This likelihood is a function of the dose of a constituent (described in the Exposure Assessment) and the Cancer Slope Factor (CSF) (described in the Toxicity Assessment) for that constituent The Excess Lifetime Cancer Risk (ELCR) is the likelihood over and above the background cancer rate, which currently in the U S is between 1 in 3 and 1 in 4 (Landis et al , 1998), that an individual will contract cancer in his or her lifetime The risk value is expressed as a probability (e g , 10^{-6}, or one in one million) The relationship between the ELCR and the estimated Lifetime Average Daily Dose (LADD) of a chemical may be expressed as

$$ELCR = 1-e^{-(CSF \times LADD)}$$

When the product of the CSF and the LADD is much greater than 1 the ELCR approaches 1 (i e , 100 percent probability) When the product is less than 0 01 (one chance in 100), the equation can be closely approximated by

$$ELCR = LADD\ (mg/kg\text{-}day) \times CSF\ (mg/kg\text{-}day)^{-1}$$

The product of the CSF and the LADD is unitless, and provides an upper-bound estimate of the potential carcinogenic risk associated with a receptor s exposure to that constituent via that pathway

The potential carcinogenic risk for each exposure pathway will be calculated for each receptor In current regulatory risk assessment, it is assumed that cancer risks are additive or cumulative Pathway and area-specific risks will be summed to estimate the total site potential cancer risk for each receptor A summary of the total cancer risks for each receptor group for each site will be presented in this section

The results will be compared to the USEPA's target risk range of 10^{-4} to 10^{-6} USEPA has established target risk ranges under the National Contingency Plan (NCP) or Superfund program (USEPA, 1990) Target risk levels refer to levels of cancer risk or hazard indices that are deemed acceptable by the USEPA or other regulatory agencies These are levels below which the potential for adverse effects to humans are assumed to be negligible or inconsequential The NCP establishes a target cancer risk range of 10^{-4} to 10^{-6} and a target hazard index of less than or equal to one (USEPA, 1990) The USEPA subsequently clarified that, "Where the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure for both current and future land use is less than 10^{-4}, and the non-carcinogenic hazard quotient is less than 1, action generally is not warranted, unless there are adverse environmental impacts" (USEPA, 1991b)

Therefore, the screening criteria used to identify COPC are based on a 10^{-6} risk level, and a cumulative target risk level of 10^{-4} will be used to evaluate the risk assessment results Any COPC that causes an exceedance of the 10^{-4} risk level for a particular receptor will be designated a COC Both RME and MLE results will be considered in the identification of COCs Remedial goals (RGs) will be calculated for each COC, based on the scenarios used in the risk assessment

11.6.2 Noncarcinogenic Risk Characterization

The potential for exposure to a constituent to result in adverse noncarcinogenic health effects is estimated for each receptor by comparing the Chronic Average Daily Dose (CADD) for each COPC with the RfD for that COPC The resulting ratio which is unitless, is known as the Hazard Quotient (HQ) for that chemical The HQ is calculated using the following equation

$$HQ = \frac{CADD\ (mg/kg\text{ - }day)}{RfD\ (mg/kg - day)}$$

The target HQ is defined as an HQ of less than or equal to one (USEPA, 1989) When the HQ is less than or equal to one, the RfD has not been exceeded, and no adverse noncarcinogenic effects are expected If the HQ is greater than one, there may be a potential for adverse noncarcinogenic health effects to occur, however, the magnitude of the HQ cannot be directly equated to a probability or effect level

The total Hazard Index (HI) is calculated for each exposure pathway by summing the HQs for each individual chemical The total site HI will be calculated for each potential receptor by summing the HIs for each pathway associated with the receptor If the total site HI is greater than one for any receptor, a more detailed evaluation of potential noncarcinogenic effects based on specific health endpoints will be performed (USEPA, 1989a)

A summary of all HI for each receptor group for each site will be presented and compared to the USEPA's target hazard index of one Any COPC that causes an exceedance of the Hazard Index of 1 for a particular receptor and target endpoint will be designated a COC Both RME and MLE results will be considered in the identification of COCs Remedial goals will be calculated for each COC based on the scenarios used in the risk assessment

11.6.3 Risk Assessment Refinement

The HHRA, as described, utilizes conservative exposure and toxicity parameters The results of the HHRA will be reviewed and the risk drivers identified The Sauget Area 2 Sites Group may choose to refine the risk estimates by using, for example, the following site-specific exposure data (e g , creel census), site-specific bioavailability factors, or probabilistic (or Monte Carlo) analysis Use of such refinements, such as a probabilistic risk assessment, will allow the public to put the risks in perspective and provide information that the risk manager needs to more accurately characterize risks on a site-specific basis and to communicate the nature of the risks to the public

11.6.4 Cumulative Risk

The risk assessment will be conducted for all media, and total site risks will be calculated for each receptor for each site COCs for potentially carcinogenic and noncarcinogenic effects will be identified, and pathways that contribute significantly to target risk exceedances will be identified RGs will be calculated for appropriate COCs in the appropriate medium

11.6.5 Uncertainty Analysis

Uncertainty is introduced into the risk assessment in several places throughout the process Every time an assumption is made, some level of uncertainty is introduced into the risk assessment In accordance with USEPA guidance (USEPA, 1989a), the uncertainty associated with each step of the risk characterization process will be discussed in this section of the report

There are many potential sources of uncertainty in the risk assessment process, some are more important than others The major areas of uncertainty include the adequacy of the sampling plan, the quality of the analytical data, assumptions about the frequency, duration, and magnitude of exposure, the receptors identified, assumptions made in the modeling performed to predict concentrations at locations where measurement data are lacking and the availability and accuracy of dose-response data The uncertainties will be discussed qualitatively in the report, including steps taken to compensate for uncertainty, and the impact on the risk assessment results

11.7 Summary and Conclusions

A summary and conclusions section will contain discussions of the results of the risk assessment The selection of final COC and the remedial goals for each COC will be presented

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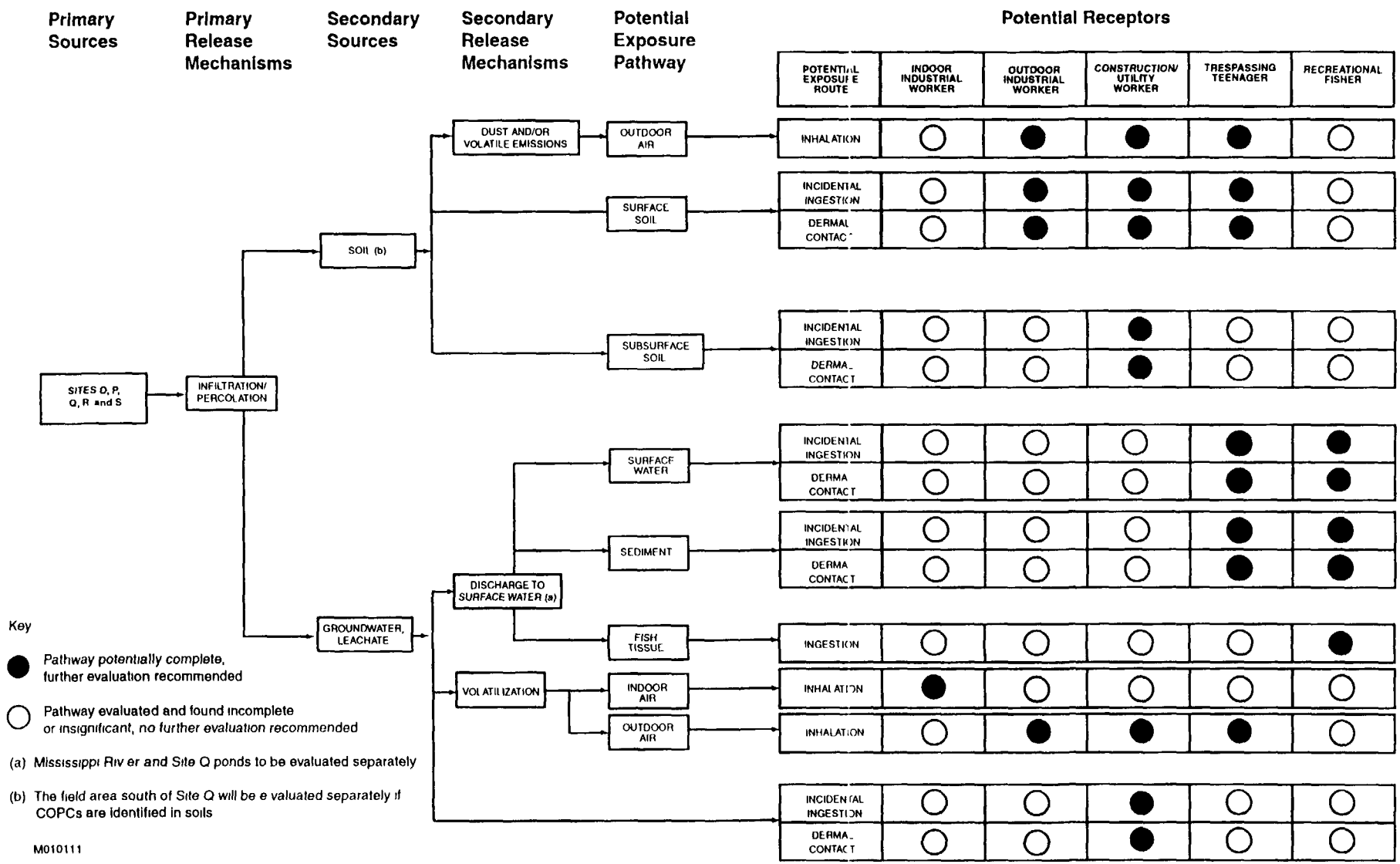

FIGURE 11-1
Conceptual Site Model for Human Health Risk Assessment
Sauget Area 2 RI/FS SSP
Sauget Area 2 Sites Group

TABLE 11-1
TEFs FOR DIOXIN AND FURAN CONGENERS
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITES GROUP

CONSTITUENT	CAS NUMBER	TEF (a)
Dioxins		
2,3,7,8-TCDD	1746-01-6	1.0
1,2,3,7,8-PentaCDD	40321-76-4	1.0
1,2,3,4,7,8-HexaCDD	39227-28-6	0.1
1,2,3,6,7,8-HexaCDD	57653-85-7	0.1
1,2,3,7,8,9-HexaCDD	19408-74-3	0.1
1,2,3,4,6,7,8-HeptaCDD	35822-39-4	0.01
OctaCDD	3268-87-9	0.0001
Furans		
2,3,7,8-TetraCDF	51207-31-9	0.1
1,2,3,7,8-PentaCDF	57117-41-6	0.05
2,3,4,7,8-PentaCDF	57117-31-4	0.5
1,2,3,4,7,8-HexaCDF	70648-26-9	0.1
1,2,3,6,7,8-HexaCDF	57117-44-9	0.1
1,2,3,7,8,9-HexaCDF	72918-21-9	0.1
2,3,4,6,7,8-HexaCDF	60851-34-5	0.1
1,2,3,4,6,7,8-HeptaCDF	67562-39-4	0.01
1,2,3,4,7,8,9-HeptaCDF	55673-89-7	0.01
OctaCDF	39001-02-0	0.0001

Notes:
CAS- Chemical Abstracts Service.
CDD - Chlorodibenzodioxin.
CDF - Chlorodibenzofuran.
TEF - Toxicity Equivalency Factor.
(a) - Toxic Equivalency Factors for PCBs, PCDDs, PCDFs for Humans and Wildlife. Van den Berg, et al. December, 1998.

TABLE 11-2
POTENTIAL RECEPTORS, EXPOSURE MEDIA AND EXPOSURE PATHWAYS
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

Receptor	Site	Medium	Pathway
On-Site Outdoor Industrial Worker			
	O,P,Q,R,S, South of Site Q	Surface Soil	Incidental Ingestion Inhalation of Particulates/Volatiles Dermal Contact
6 Receptors		Groundwater	Inhalation of Volatiles in Outdoor Air
On-Site Indoor Industrial Worker			
6 Receptors	O,P,Q,R,S, South of Site Q	Groundwater	Inhalation of Volatiles in Indoor Air
Construction/Utility Worker			
	O,P,Q,R,S, South of Site Q	Surface Soil	Incidental Ingestion Inhalation of Particulates/Volatiles Dermal Contact
		Subsurface Soil	Incidental Ingestion Inhalation of Particulates/Volatiles Dermal Contact
6 Receptors		Groundwater/ Leachate	Incidental Ingestion Dermal Contact Inhalation of Volatiles in Outdoor Air
Trespassing Teenager			
	O,P,Q,R,S, South of Site Q	Surface Soil	Incidental Ingestion Inhalation of Particulates/Volatiles Dermal Contact
		Groundwater	Inhalation of Volatiles in Outdoor Air
	Q, Mississippi River	Surface Water	Incidental Ingestion Dermal Contact
7 Receptors		Sediment	Incidental Ingestion Dermal Contact
Recreational Fisher			
	Mississippi River, Site Q Ponds	Fish Fillets	Ingestion
		Surface Water	Incidental Ingestion Dermal Contact
2 Receptors		Sediment	Incidental Ingestion Dermal Contact

Total number of receptors = 27, each evaluated for Reasonable Maximum Exposure (RME) and Most Likely Exposure (MLE) scenarios

TABLE 11-3
SUMMARY OF POTENTIAL EXPOSURE ASSUMPTIONS - INDOOR INDUSTRIAL WORKER
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

Parameter	RME On-Site Indoor Worker		MLE On-Site Indoor Worker	
Parameters Used in the Indoor Air Pathway				
Exposure Time (hr/day)	8	(a)	8	(a)
Exposure Frequency (days/year)	250	(b)	250	(b)
Exposure Duration (yr)	25	(b)	7	(c)
Inhalation Rate (m^3/hour)	1 6	(d)	1 0	(e)
Body Weight (kg)	70	(b)	70	(b)

Notes
MLE - Most Likely Exposure
RME - Reasonable Maximum Exposure
(a) - USEPA, 1997a Exposure Factors Handbook 50th percentile time spent at work
males and females, all ages EFH Table 15-68
(b) - USEPA, 1991a Standard Default Exposure Factors
(c) - USEPA, 1997a Exposure Factors Handbook Recommended value for occupational tenure listed in EFH Table 1-2
(d) - USEPA, 1997a Exposure Factors Handbook Inhalation rate for moderate activity listed in EFH Table 5-23
(e) - USEPA 1997a Exposure Factors Handbook Inhalation rate for light activity listed in EFH Table 5-23

TABLE 11-4
SUMMARY OF POTENTIAL EXPOSURE ASSUMPTIONS - OUTDOOR INDUSTRIAL WORKER
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

Parameter	RME Future Outdoor Industrial Worker		MLE Future Outdoor Industrial Worker	
Parameters Used in the Outdoor Air Pathways				
Exposure Time (hr/day)	8	(a)	8	(a)
Exposure Frequency (days/year)	190	(i)	190	(i)
Exposure Duration (yr)	25	(b)	7	(c)
Inhalation Rate (m^3/hour)	1 6	(d)	1	(e)
Body Weight (kg)	70	(b)	70	(b)
Parameters Used in the Surface Soil Pathway				
Exposure Frequency (days/year)	190	(i)	190	(i)
Exposure Duration (yr)	25	(b)	7	(c)
Soil Ingestion Rate (mg/day)	50	(f)	30	(j)
Skin Contacting Medium (cm^2)	3339	(g)	3339	(g)
Soil on Skin (mg/cm^2)	0 02	(h)	0 02	(h)
Body Weight (kg)	70	(b)	70	(b)

Notes
MLE - Most Likely Exposure
RME - Reasonable Maximum Exposure
(a) - USEPA, 1997a Exposure Factors Handbook 50th percentile time spent at work males and females, all ages EFH Table 15-68
(b) - USEPA, 1991a Standard Default Exposure Factors
(c) - USEPA, 1997a Exposure Factors Handbook Recommended value for occupational tenure listed in EFH Table 1-2
(d) - USEPA, 1997a Exposure Factors Handbook Inhalation rate for moderate activity listed in EFH Table 5-23
(e) - USEPA, 1997a Exposure Factors Handbook Inhalation rate for light activity listed in EFH Table 5-23
(f) - USEPA, 1997a Exposure Factors Handbook Average soil ingestion rates listed in EFH Table 1-2
(g) - USEPA, 1997a Exposure Factors Handbook Represents 50th percentile values for males and females based on hands, forearms and face listed in EFH Tables 6-2 and 6-3
(h) - USEPA, 1997a Exposure Factors Handbook See Table 11-8 of this workplan for calculation
(i) - Exposure frequency of 250 days (USEPA, 1991a) adjusted for percentage of days with inclement weather (24%), [250-(250*0 24) = 190] see text
(j) - Calabrese, E J , et al 1990 Preliminary adult soil ingestion estimates, results of a pilot study Regul Toxicol Pharmacol 12 88-95 As cited in USEPA, 1997a Exposure Factors Handbook Low end of range

TABLE 11-5
SUMMARY OF POTENTIAL EXPOSURE ASSUMPTIONS - CONSTRUCTION WORKER
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

Parameter	RME Future Construction/Utility Worker		MLE Future Construction/Utility Worker	
Parameters Used in the Surface Soil, Subsurface Soil and Groundwater/Leachate Inhalation Pathway				
Exposure Time (hr/day)	8	(a)	8	(a)
Exposure Frequency (days/year)	40	(b)	20	(c)
Exposure Duration (yr)	1	(d)	1	(d)
Inhalation Rate (m^3/hour)	2 5	(e)	1 5	(f)
Body Weight (kg)	70	(g)	70	(g)
Parameters Used in the Surface and Subsurface Soil Pathway				
Exposure Frequency (days/year)	40	(b)	20	(c)
Exposure Duration (yr)	1	(d)	1	(d)
Soil Ingestion Rate (mg/day)	100	(g)	64	(h)
Skin Contacting Medium (cm^2)	3339	(i)	3339	(i)
Soil on Skin (mg/cm^2)	0 19	(j)	0 19	(j)
Body Weight (kg)	70	(g)	70	(g)
Parameters Used in the Groundwater/Leachate Pathway				
Exposure Time (hr/event)	1	(k)	1	(k)
Exposure Frequency (days/year)	10	(k)	5	(k)
Exposure Duration (yr)	1	(d)	1	(d)
Water Ingestion Rate (l/event)	0 005	(l)	0 005	(l)
Skin Contacting Medium (cm^2)	3339	(i)	3339	(i)
Body Weight (kg)	70	(g)	70	(g)

Notes
MLE - Most Likely Exposure
RME - Reasonable Maximum Exposure
(a) - USEPA, 1997a Exposure Factors Handbook 50th percentile time spent at work males and females, all ages EFH Table 15-68
(b) - Exposure frequency is equivalent to 5 days per week for 2 months
(c) - Exposure frequency is equivalent to 5 days per week for 1 month
(d) - Construction activities are assumed to occur within a 1 year period
(e) - USEPA, 1997a Exposure Factors Handbook Inhalation rate is the value for heavy activity for an outdoor worker listed in EFH Table 5-23
(f) - USEPA, 1997a Exposure Factors Handbook Inhalation rate is the value for moderate activity for an outdoor worker listed in EFH Table 5-23
(g) - USEPA, 1991a Standard Default Exposure Factors
(h) - ENSR-derived value, see text
(i) - USEPA, 1997a Exposure Factors Handbook Represents 50th percentile values for males and females based on hands, forearms, and face listed listed in EFH Tables 6-2 and 6-3
(j) - USEPA, 1997a Exposure Factors Handbook See Table 11-9 of this workplan for calculation
(k) - Assumes that contact with water occurs only for a fraction of the total exposure duration and time
(l) - USEPA, 1989a Risk Assessment Guidance for Superfund, Volume I Value is one-tenth of that assumed to occur during a swimming event

TABLE 11-6
SUMMARY OF POTENTIAL EXPOSURE ASSUMPTIONS - TRESPASSING TEENAGER
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

Parameter	RME Trespassing Teenager (7 to 18 yrs)		MLE Trespassing Teenager (7 to 18 yrs)	
Parameters Used in the Surface Soil Pathway				
Exposure Frequency (days/year)	26	(a)	13	(b)
Exposure Duration (yr)	11	(c)	11	(c)
Soil Ingestion Rate (mg/day)	100	(d)	50	(e)
Skin Contacting Medium (cm^2)	4672	(f)	4672	(f)
Soil on Skin (mg/cm^2)	0 04	(g)	0 04	(g)
Body Weight (kg)	47	(h)	47	(h)
Parameters Used in the Outdoor Air Pathway				
Exposure Time (hr/day)	2	(i)	2	(i)
Exposure Frequency (days/year)	26	(a)	13	(b)
Exposure Duration (yr)	11	(c)	11	(c)
Inhalation Rate (m^3/hour)	1 2	(j)	1	(k)
Body Weight (kg)	47	(h)	47	(h)
Parameters Used in the Sediment Pathway (l)				
Exposure Frequency (days/year)	13	(b)	7	(m)
Exposure Duration (yr)	11	(c)	11	(c)
Soil Ingestion Rate (mg/day)	100	(d)	50	(e)
Skin Contacting Medium (cm^2)	6026	(f)	6026	(f)
Sediment on Skin (mg/cm^2)	1	(n)	1	(n)
Body Weight (kg)	47	(h)	47	(h)
Parameters Used in the Surface Water (l)				
Exposure Time (hr/event)	1	(o)	1	(o)
Exposure Frequency (days/year)	13	(b)	7	(m)
Exposure Duration (yr)	11	(c)	11	(c)
Water Ingestion Rate (l/event)	0 005	(p)	0 005	(p)
Skin Contacting Medium (cm^2)	6026	(f)	6026	(f)
Body Weight (kg)	47	(h)	47	(h)

Notes
MLE - Most Likely Exposure
RME - Reasonable Maximum Exposure
(a) - 1 day per week for 26 weeks (6 months) of the year
(b) - 1 day per 2 weeks for 26 weeks (6 months) of the year
(c) - Trespassing teenager is assumed to range in age from 7 to 18 Therefore, total exposure duration is 11 years
(d) - USEPA, 1991a Standard Default Exposure Factors
(e) - USEPA, 1997a Exposure Factors Handbook Average soil ingestion rate for an adult listed in EFH Table 1-2
(f) - USEPA, 1997a Exposure Factors Handbook Average surface are of head feet, hands, forearms and lower legs of males and females aged 7 to 18 listed in EFH Tables 6-6 to 6-8
(g) - USEPA, 1997a Exposure Factors Handbook See Table 11-10 of this workplan for calculation Data for feet are not available, therefore this value is based on hands, forearms, lower legs, and head
(h) - USEPA, 1997a Exposure Factors Handbook Body weight is the average of males and females aged 7 to 18 listed in EFH Table 7-3
(i) - The trespassing teen is assumed to be on-site for two hours
(j) - USEPA, 1997a Exposure Factors Handbook Inhalation rates is the value for moderate activity (children) listed in EFH Table 5-23
(k) - USEPA, 1997a Exposure Factors Handbook Inhalation rates is the value for light activity (children) listed in EFH Table 5-23
(l) - Sediment and surface water exposures for the Mississippi River will be evaluated separately sediment and surface water exposures for the Site Q Ponds will be evaluated in conjunction with the Site Q soil and air pathways
(m) - One day per 4 weeks for approximately six months of the year
(n) - USEPA, 1992c Dermal Exposure Assessment Principles and Applications
(o) - Assumed duration of wading event
(p) - USEPA, 1989a Risk Assessment Guidance for Superfund, Volume I Value is one-tenth of that assumed to occur during a swimming event

TABLE 11-7
SUMMARY OF POTENTIAL EXPOSURE ASSUMPTIONS - RECREATIONAL FISHER
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

Parameter	RME Adult Recreational Fisher		MLE Adult Recreational Fisher	
Parameters Used in the Fish Ingestion Pathway				
Exposure Frequency (days/year)	365	(a)	365	(a)
Exposure Duration (yr)	30	(b)	9	(c)
Fish Ingestion Rate (g/day)	8	(d)	1	(e)
Body Weight (kg)	70	(b)	70	(b)
Parameters Used in the Surface Water Pathway - Wading				
Exposure Time (hr/event)	1	(k)	1	(k)
Exposure Frequency (days/year)	22	(h)	3	(i)
Exposure Duration (yr)	30	(b)	9	(c)
Surface Water Ingestion Rate (l/event)	0 01	(f)	0 005	(j)
Skin Contacting Medium (cm^2)	6934	(g)	6934	(g)
Body Weight (kg)	70	(b)	70	(b)
Parameters Used in the Sediment Pathway - Wading				
Exposure Frequency (days/year)	22	(h)	3	(i)
Exposure Duration (yr)	30	(b)	9	(c)
Sediment Ingestion Rate (mg/day)	100	(b)	50	(m)
Skin Contacting Medium (cm^2)	6934	(g)	6934	(g)
Sediment on Skin (mg/cm^2)	1	(l)	1	(l)
Body Weight (kg)	70	(b)	70	(b)

Notes
MLE - Most Likely Exposure
RME - Reasonable Maximum Exposure
(a) - Fish ingestion rates are based on 365 days per year
(b) - USEPA, 1991a Standard Default Exposure Factors
(c) - USEPA, 1997a Exposure Factors Handbook Recommended average for time residing in a household EFH Table 1-2
(d) - USEPA, 1997a Exposure Factors Handbook 8 g/day is equivalent to approximately 22 fish meals of 129 g per year
(e) - 1 g/day is equivalent to approximately three 129 g fish meals per year (equivalent to one fish meal per month in the three summer months)
(f) - USEPA, 1989a Risk Assessment Guidance for Superfund, Volume I Value is one-fifth of that assumed to occur during a swimming event
(g) - USEPA, 1997a Exposure Factors Handbook Represents 50th percentile values for adult males and females based on hands, lower arms, lower legs, feet and head
(h) - One day per week for 5 months
(i) - One day per month during the three summer months
(j) - USEPA, 1989a Risk Assessment Guidance for Superfund, Volume I Value is one-tenth of that assumed to occur during a swimming event
(k) - Assumed duration of wading event
(l) - USEPA, 1992c Dermal Exposure Assessment Principles and Applications
(m) - USEPA, 1997a Exposure Factors Handbook Average soil ingestion rate for an adult listed in EFH Table 1-2

TABLE 11-8
SOIL ADHERENCE FACTORS- OUTDOOR INDUSTRIAL WORKER
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

	Outdoor Industrial Worker Scenario		
Body Part	**Surface Area 50th percentile (cm^2) (a)**	**Soil Loading Groundskeeper (mg/cm^2) (b)**	**Total Soil Mass (mg)**
Head	1,205	0.005	5.543
Hands	904	0.071	64.1485
Forearms	1,230	0.009	11.1438
Total	3,339		80 8
Area-Weighted Soil Adherence factor (mg/cm2) = Soil mass/Surface area =			0.02

Notes:
(a) - Data from USEPA (1997a), Tables 6-2, 6-3. Average of 50th percentile values for men and women (1/2 arm used as proxy for female forearm).
(b) Data from USEPA (1997a), Table 6 12. Average of Groundskeeper Nos. 1,2,3,4, and 5.

TABLE 11-9
SOIL ADHERENCE FACTORS- CONSTRUCTION WORKER
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

	Construction Worker Scenario		
Body Part	**Surface Area 50th percentile (cm^2) (a)**	**Soil Loading Farmer (mg/cm^2) (a)**	**Total Soil Mass (mg)**
Head	1,205	0.041	49.405
Hands	904	0.47	424 645
Forearms	1,230	0.13	159.9
Total	3,339		634 0
Area-Weighted Soil Adherence factor (mg/cm2) = Soil mass/Surface area =			0.19

Notes·
(a) - Data from USEPA (1997a), Tables 6-2, 6-3. Average of 50th percentile values for men and women (1/2 arm used as proxy for female forearm).
(b) - Data from USEPA (1997a), Table 6-12. Average of Farmer Nos. 1 and 2.

TABLE 11-10
SOIL ADHERENCE FACTORS- TRESPASSING TEENAGER (7 TO 18 YEARS)
SAUGET AREA 2 RI/FS SSP
SAUGET AND CAHOKIA, IL
SAUGET AREA 2 SITES GROUP

	Trespassing Teenager (7 to 18 years)		
Body Part	**Surface Area 50th percentile (a) (cm^2)**	**Soil Loading Soccer No. 1 (mg/cm^2) (b)**	**Total Soil Mass (mg)**
Hands	715	0 1100	78.65
Forearms	894	0.0110	9.83
Lower legs	2,068	0.0310	64 11
Head	995	0.0120	11.94
Total	4,672	--	164.53
Area-Weighted Soil Adherence factor (mg/cm2) = Soil mass/Surface area =			0.04

Notes:
(a) - Data from USEPA (1997a). Based on average of boys (EFH Table 6-6) and girls (EFH Table 6-7) total body surface area , and mean percentages of total surface area for individual body parts EFH Table 6-8).
(b) - Data from USEPA (1997a) Table 6-12. Soccer No. 1 (measurements of boys aged 13-15). Measurements were not collected from feet; therefore, adherence factor is based on hands, forearms, lower legs, and head This factor will be applied to the total body surface area of 6,026 cm^2 calculated in Table 11-6, which includes feet

Appendix 5

Human Health Risk Assessment DQL Tables

TABLE 1
DATA QUALITY LEVELS (DQLs) FOR SOIL AND SEDIMENT
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	REGION 9 SOIL PRGS (mg/kg) (c)		DQL BASIS
TCL Volatiles				
1,1,1-Trichloroethane	71-55-6	6.35E+02		PRG
1,1,2,2-Tetrachloroethane	79-34-5	3.84E-01		PRG
1,1,2-Trichloroethane	79-00-5	8.43E-01		PRG
1,1-Dichloroethane	75-34-3	5.89E+02		PRG
1,1-Dichloroethylene	75-35-4	5.36E-02		PRG
1,2-Dichloroethane	107-06-2	3.46E-01		PRG
1,2-Dichloroethylene (total)	540-59-0	4.30E+01	(p)	PRG
1,2-Dichloropropane	78-87-5	3.51E-01		PRG
2-Butanone	78-93-3	7.33E+03		PRG
2-Hexanone	591-78-6	7.87E+02	(m)	PRG
4-Methyl-2-pentanone	108-10-1	7.87E+02		PRG
Acetone	67-64-1	1.57E+03		PRG
Benzene	71-43-2	6.54E-01		PRG
Bromodichloromethane	75-27-4	1.02E+00		PRG
Bromoform	75-25-2	6.16E+01		PRG
Bromomethane	74-83-9	3.90E+00		PRG
Carbon Disulfide	75-15-0	3.55E+02		PRG
Carbon tetrachloride	56-23-5	2.39E-01		PRG
Chlorobenzene	108-90-7	1.52E+02		PRG
Chloroethane	75-00-3	3.03E+00		PRG
Chloroform	67-66-3	2.44E-01		PRG
Chloromethane	74-87-3	1.23E+00		PRG
cis-1,3-Dichloropropene	10061-01-5	7.00E-01	(g)	PRG
Dibromochloromethane	124-48-1	1.11E+00		PRG
Ethyl Benzene	100-41-4	1.50E+03		PRG
Methylene chloride	75-09-2	8.88E+00		PRG
Styrene	100-42-5	4.60E+03		PRG
Tetrachloroethene	127-18-4	5.69E+00		PRG
Toluene	108-88-3	5.90E+02		PRG
Total Xylenes	1330-20-7	1.40E+03		PRG
trans-1,3-Dichloropropene	10061-02-6	7.00E-01	(g)	PRG
Trichloroethene	79-01-6	2.77E+00		PRG
Vinyl chloride	75-01-4	1.47E-01		PRG
TCL Semi-Volatiles				
1,2,4-Trichlorobenzene	120-82-1	6.46E+02		PRG
1,2-Dichlorobenzene	95-50-1	9.00E+02		PRG
1,3-Dichlorobenzene	541-73-1	1.32E+01		PRG

TABLE 1
DATA QUALITY LEVELS (DQLs) FOR SOIL AND SEDIMENT
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	REGION 9 SOIL PRGS (mg/kg) (c)		DQL BASIS
1,4-Dichlorobenzene	106-46-7	3.44E+00		PRG
2,2'-oxybis(1-Chloropropane) (s)	108-60-1	2.88E+00	(s)	PRG
2,4,5-Trichlorophenol	95-95-4	6.11E+03		PRG
2,4,6-Trichlorophenol	88-06-2	4.42E+01		PRG
2,4-Dichlorophenol	120-83-2	1.83E+02		PRG
2,4-Dimethylphenol	105-67-9	1.22E+03		PRG
2,4-Dinitrophenol	51-28-5	1.22E+02		PRG
2,4-Dinitrotoluene	121-14-2	1.22E+02		PRG
2,6-Dinitrotoluene	606-20-2	6.11E+01		PRG
2-Chloronaphthalene	91-58-7	3.85E+03		PRG
2-Chlorophenol	95-57-8	6.34E+01		PRG
2-Methylnaphthalene	91-57-6	5.60E+01	(f)	PRG
2-Methylphenol	95-48-7	3.06E+03		PRG
2-Nitroaniline	88-74-4	3.49E+00		PRG
2-Nitrophenol	88-75-5	4.89E+02	(n)	PRG
3,3'-Dichlorobenzidine	91-94-1	1.08E+00		PRG
3-Nitroaniline	99-09-2	3.49E+00	(o)	PRG
4,6-Dinitro-2-methylphenol	534-52-1	NA		NA
4-Bromophenyl phenyl ether	101-55-3	NA		NA
4-Chloraniline	106-47-8	2.44E+02		PRG
4-Chloro-3-methylphenol	59-50-7	NA		NA
4-Chlorophenol phenyl ether	7005-72-3	NA		NA
4-Methylphenol	106-44-5	3.06E+02		PRG
4-Nitroaniline	100-01-6	3.49E+00	(o)	PRG
4-Nitrophenol	100-02-7	4.89E+02		PRG
Acenaphthene	83-32-9	3.68E+03		PRG
Acenaphthylene	208-96-8	3.68E+03	(h)	PRG
Anthracene	120-12-7	2.19E+04		PRG
Benz[a]anthracene	56-55-3	6.21E-01		PRG
Benzo[a]pyrene	50-32-8	6.21E-02		PRG
Benzo[b]fluoranthene	205-99-2	6.21E-01		PRG
Benzo[g,h,i]perylene	191-24-2	2.30E+03	(a)	PRG
Benzo[k]fluoranthene	207-08-9	6.21E+00		PRG
bis(2-Chloroethoxy)methane	111-91-1	NA		NA
bis(2-Chloroethyl)ether	111-44-4	2.11E-01		PRG
bis(2-Ethylhexyl)phthalate	117-81-7	3.47E+01		PRG
Butyl benzyl phthalate	85-68-7	1.22E+04		PRG
Carbazole	86-74-8	2.43E+01		PRG
Chrysene	218-01-9	6.21E+01		PRG

TABLE 1
DATA QUALITY LEVELS (DQLs) FOR SOIL AND SEDIMENT
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	REGION 9 SOIL PRGS (mg/kg) (c)	DQL BASIS
Dibenz[a,h]anthracene	53-70-3	6 21E-02	PRG
Dibenzofuran	132-64-9	2 91E+02	PRG
Diethylphthalate	84-66-2	4 89E+04	PRG
Dimethyl phthalate	131-11-3	6 10E+05	PRG
Di-n-butyl phthalate	84-74-2	6 11E+03	PRG
Di-n-octyl phthalate	117-84-0	1 22E+03	PRG
Fluoranthene	206-44-0	2 29E+03	PRG
Fluorene	86-73-7	2 64E+03	PRG
Hexachlorobenzene	118-74-1	3 04E-01	PRG
Hexachlorobutadiene	87-68-3	6 24E+00	PRG
Hexachlorocyclopentadiene	77-47-4	4 23E+02	PRG
Hexachloroethane	67-72-1	3 47E+01	PRG
Indeno[1,2,3-cd]pyrene	193-39-5	6 21E-01	PRG
Isophorone	78-59-1	5 12E+02	PRG
Naphthalene	91-20-3	5 59E+01	PRG
Nitrobenzene	98-95-3	1 96E+01	PRG
N-Nitroso-di-n-propylamine	621-64-7	6 95E-02	PRG
N-Nitrosodiphenylamine	86-30-6	9 93E+01	PRG
Pentachlorophenol	87-86-5	2 98E+00	PRG
Phenanthrene	85-01-8	2 20E+04 (b)	PRG
Phenol	108-95-2	3 67E+04	PRG
Pyrene	129-00-0	2.31E+03	PRG
TAL Metals			
Aluminum	7429-90-5	7 61E+04	PRG
Antimony	7440-36-0	3 13E+01	PRG
Arsenic	7440-38-2	3 90E-01	PRG
Barium	7440-39-3	5 37E+03	PRG
Beryllium	7440-41-7	1 54E+02	PRG
Cadmium	7440-43-9	3 70E+01	PRG
Calcium	7440-70-2	NA	NA
Chromium	7440-47-3	2 10E+02 (e)	PRG
Cobalt	7440-48-4	4 69E+03	PRG
Iron	7439-89-6	2 35E+04	PRG
Lead	7439-92-1	4 00E+02	PRG
Magnesium	7439-95-4	NA	NA
Manganese	7439-96-5	1 76E+03	PRG
Nickel	7440-02-0	1 56E+03	PRG
Potassium	7440-09-7	NA	NA

TABLE 1
DATA QUALITY LEVELS (DQLs) FOR SOIL AND SEDIMENT
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	REGION 9 SOIL PRGS (mg/kg) (c)		DQL BASIS
Selenium	7782-49-2	3.91E+02		PRG
Silver	7440-22-4	3.91E+02		PRG
Sodium	7440-23-5	NA		NA
Thallium	7440-28-0	5.20E+00		PRG
Vanadium	7440-62-2	5.47E+02		PRG
Copper	7440-50-8	2.91E+03		PRG
Zinc	7440-66-6	2.35E+04		PRG
Pesticides				
Alpha-BHC	319-84-6	9.02E-02		PRG
Beta-BHC	319-85-7	3.16E-01		PRG
Delta-BHC	319-86-8	4.37E-01	(j)	PRG
Gamma-BHC (Lindane)	58-89-9	4.37E-01		PRG
Aldrin	309-00-2	2.86E-02		PRG
alpha-Chlordane	5103-71-9	1.60E+00	(i)	PRG
gamma-Chlordane	5103-74-2	1.60E+00	(i)	PRG
Chlordane	57-74-9	1.60E+00		PRG
Chlorobenzilate	510-15-6	1.80E+00		PRG
1,2-Dibromo-3-Chloropropane	96-12-8	4.54E-01		PRG
4,4'-DDD	72-54-8	2.44E+00		PRG
4,4'-DDE	72-55-9	1.72E+00		PRG
4,4'-DDT	50-29-3	1.72E+00		PRG
Diallate	2303-16-4	7.97E+00		PRG
Dieldrin	60-57-1	3.04E-02		PRG
Endosulfan I	959-98-8	3.70E+02	(k)	PRG
Endosulfan II	33213-65-9	3.70E+02	(k)	PRG
Endosulfan sulfate	1031-07-8	3.70E+02	(k)	PRG
Endrin	72-20-8	1.83E+01		PRG
Endrin aldehyde	7421-93-4	1.83E+01	(l)	PRG
Endrin Ketone	53494-70-5	1.83E+01	(l)	PRG
Heptachlor	76-44-8	1.08E-01		PRG
Heptachlor epoxide	1024-57-3	5.34E-02		PRG
Hexachlorobenzene	118-74-1	3.04E-01		PRG
Hexachlorocyclopentadiene	77-47-4	4.23E+02		PRG
Isodrin	465-73-6	NA		NA
Methoxychlor	72-43-5	3.06E+02		PRG
Toxaphene	8001-35-2	4.42E-01		PRG

TABLE 1
DATA QUALITY LEVELS (DQLs) FOR SOIL AND SEDIMENT
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	REGION 9 SOIL PRGS (mg/kg) (c)		DQL BASIS
Herbicides				
2,4-D	94-75-7	6.86E+02		PRG
2,4-DB	94-82-6	4.89E+02		PRG
2,4,5-TP	93-72-1	4.89E+02		PRG
2,4,5-T	93-76-5	6.11E+02		PRG
Dalapon	75-99-0	1.83E+03		PRG
Dicamba	1918-00-9	1.83E+03	(d)	PRG
Dichloroprop	120-36-5	NA		NA
Dinoseb	88-85-7	6.11E+01		PRG
MCPA	94-74-6	3.06E+01		PRG
MCPP	93-65-2	6.11E+01		PRG
4-Nitrophenol	100-02-7	4.89E+02		PRG
Pentachlorophenol	87-86-5	2.98E+00		PRG
Dioxins and Furans				
2,3,7,8-TCDD	1746-01-6	1.00E-03	(q)	USEPA, 1998
1,2,3,7,8-PentaCDD	40321-76-4	1.00E-03	(q)	USEPA, 1998
1,2,3,4,7,8-HexaCDD	39227-28-6	1.00E-03	(q)	USEPA, 1998
1,2,3,6,7,8-HexaCDD	57653-85-7	1.00E-03	(q)	USEPA, 1998
1,2,3,7,8,9-HexaCDD	19408-74-3	1.00E-03	(q)	USEPA, 1998
1,2,3,4,6,7,8-HeptaCDD	35822-39-4	1.00E-03	(q)	USEPA, 1998
OctaCDD	3268-87-9	1.00E-03	(q)	USEPA, 1998
2,3,7,8-TetraCDF	51207-31-9	1.00E-03	(q)	USEPA, 1998
1,2,3,7,8-PentaCDF	57117-41-6	1.00E-03	(q)	USEPA, 1998
2,3,4,7,8-PentaCDF	57117-31-4	1.00E-03	(q)	USEPA, 1998
1,2,3,4,7,8-HexaCDF	70648-26-9	1.00E-03	(q)	USEPA, 1998
1,2,3,6,7,8-HexaCDF	57117-44-9	1.00E-03	(q)	USEPA, 1998
1,2,3,7,8,9-HexaCDF	72918-21-9	1.00E-03	(q)	USEPA, 1998
2,3,4,6,7,8-HexaCDF	60851-34-5	1.00E-03	(q)	USEPA, 1998
1,2,3,4,6,7,8-HeptaCDF	67562-39-4	1.00E-03	(q)	USEPA, 1998
1,2,3,4,7,8,9-HeptaCDF	55673-89-7	1.00E-03	(q)	USEPA, 1998
OctaCDF	39001-02-0	1.00E-03	(q)	USEPA, 1998
PCBs				
Total PCBs	NA	1.00E+00	(r)	TSCA

TABLE 1
DATA QUALITY LEVELS (DQLs) FOR SOIL AND SEDIMENT
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	REGION 9 SOIL PRGS (mg/kg) (c)	DQL BASIS

Notes
(a) Due to structural similarities, the value for Pyrene was used
(b) Due to structural similarities, the value for Anthracene was used
(c) USEPA Region 9 Preliminary Remediation Goals Table November 2000
Value for residential soil was used
(d) A PRG for residential soil not provided, because Dicamba and Dalapon have the same toxicity values, the PRG for Dalapon was used here
(e) Value for total Chromium
(f) Due to structural similarities, the value for Naphthalene was used
(g) Value for 1,3-Dichloropropene used
(h) Due to structural similarities, the value for Acenaphthene was used
(i) Due to structural similarities, the value for Chlordane was used
(j) Due to structural similarities, the value for gamma-BHC was used
(k) Due to structural similarities, the value for Endosulfan was used
(l) Due to structural similarities, the value for Endrin was used
(m) Due to structural similarities, the value for 4-Methyl-2-Pentanone was used
(n) Due to structural similarities, the value for 4-Nitrophenol was used
(o) Due to structural similarities, the value for 2-Nitroaniline was used
(p) Value for cis-1,2-Dichloroethylene used
(q) USEPA, 1998 Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites
Value for dioxins [OSWER Directive 9200 4-26]
(r) Disposal of Polychlorinated Biphenyl (PCBs) Final Rule (Mega Rule)
Federal Register 63 (124) 35384-35474 (June 29 1998)
(s) Synonym of bis(2-chloroisopropyl)ether
CAS = Chemical Abstracts Service
CDD = Chlorodibenzodioxin
CDF = Chlorodibenzofuran
DQL = Data Quality Level
NA - Not Available
PCB = Polychlorinated Biphenyl
PRG = USEPA Region 9 Preliminary Remediation Goal (USEPA 2000b)
TAL = Target Analyte List
TCL = Target Compound List
TSCA = Toxic Substances Control Act

TABLE 2
DATA QUALITY LEVELS (DQLs) FOR SURFACE WATER AND GROUNDWATER
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	Selected DQL (a) (mg/L)		DQL Basis
TCL Volatiles				
1,1,1-Trichloroethane	71-55-6	2.0E-01		CLASS I
1,1,2,2-Tetrachloroethane	79-34-5	5.5E-05		PRG
1,1,2-Trichloroethane	79-00-5	5.0E-03		CLASS I
1,1-Dichloroethane	75-34-3	7.0E-01		TACO
1,1-Dichloroethylene	75-35-4	7.0E-03		CLASS I
1,2-Dichloroethane	107-06-2	5.0E-03		CLASS I
1,2-Dichloroethylene (total)	540-59-0	7.0E-02	(c)	CLASS I
1,2-Dichloropropane	78-87-5	5.0E-03		CLASS I
2-Butanone	78-93-3	1.9E+00		PRG
2-Hexanone	591-78-6	1.6E-01	(g)	PRG
4-Methyl-2-pentanone	108-10-1	1.6E-01		PRG
Acetone	67-64-1	7.0E-01		TACO
Benzene	71-43-2	5.0E-03		CLASS I
Bromodichloromethane	75-27-4	8.0E-02		MCL
Bromoform	75-25-2	8.0E-02		MCL
Bromomethane	74-83-9	9.8E-03		TACO
Carbon Disulfide	75-15-0	7.0E-01		TACO
Carbon tetrachloride	56-23-5	5.0E-03		CLASS I
Chlorobenzene	108-90-7	1.0E-01		TACO
Chloroethane	75-00-3	4.6E-03		PRG
Chloroform	67-66-3	8.0E-02		MCL
Chloromethane	74-87-3	1.5E-03		PRG
cis-1,3-Dichloropropene	10061-01-5	1.0E-03		TACO
Dibromochloromethane	124-48-1	8.0E-02		MCL
Ethyl Benzene	100-41-4	7.0E-01		MCL
Methylene chloride	75-09-2	5.0E-03		CLASS I
Styrene	100-42-5	1.0E-01		CLASS I
Tetrachloroethene	127-18-4	5.0E-03		CLASS I
Toluene	108-88-3	1.0E+00		CLASS I
Total Xylenes	1330-20-7	1.0E+01		CLASS I
trans-1,3-Dichloropropene	10061-02-6	1.0E-03		TACO
Trichloroethene	79-01-6	5.0E-03		CLASS I
Vinyl chloride	75-01-4	2.0E-03		CLASS I
TCL Semi-Volatiles				
1,2,4-Trichlorobenzene	120-82-1	7.0E-02		CLASS I
1,2-Dichlorobenzene	95-50-1	6.0E-01		CLASS I
1,3-Dichlorobenzene	541-73-1	6.0E-01	(p)	CLASS I
1,4-Dichlorobenzene	106-46-7	7.5E-02		CLASS I
2,2'-oxybis(1-Chloropropane) (o)	108-60-1	2.7E-04		PRG
2,4,5-Trichlorophenol	95-95-4	7.0E-01		TACO
2,4,6-Trichlorophenol	88-06-2	6.4E-03		TACO
2,4-Dichlorophenol	120-83-2	2.1E-02		TACO
2,4-Dimethylphenol	105-67-9	1.4E-01		TACO

TABLE 2
DATA QUALITY LEVELS (DQLs) FOR SURFACE WATER AND GROUNDWATER
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	Selected DQL (a) (mg/L)		DQL Basis
2,4-Dinitrophenol	51-28-5	1.4E-02		TACO
2,4-Dinitrotoluene	121-14-2	2.0E-05		TACO
2,6-Dinitrotoluene	606-20-2	1.0E-04		TACO
2-Chloronaphthalene	91-58-7	4.9E-01		PRG
2-Chlorophenol	95-57-8	3.5E-02		TACO
2-Methylnaphthalene	91-57-6	2.5E-02	(d)	TACO
2-Methylphenol	95-48-7	3.5E-01		TACO
2-Nitroaniline	88-74-4	2.1E-03		PRG
2-Nitrophenol	88-75-5	2.9E-01	(h)	PRG
3,3'-Dichlorobenzidine	91-94-1	2.0E-02		TACO
3-Nitroaniline	99-09-2	2.1E-03	(i)	PRG
4,6-Dinitro-2-methylphenol	534-52-1	NA		NA
4-Bromophenyl phenyl ether	101-55-3	NA		NA
4-Chloraniline	106-47-8	2.8E-02		TACO
4-Chloro-3-methylphenol	59-50-7	NA		NA
4-Chlorophenol phenyl ether	7005-72-3	NA		NA
4-Methylphenol	106-44-5	3.5E-01	(n)	TACO
4-Nitroaniline	100-01-6	2.1E-03	(i)	PRG
4-Nitrophenol	100-02-7	2.9E-01		PRG
Acenaphthene	83-32-9	4.2E-01		TACO
Acenaphthylene	208-96-8	4.2E-01	(b)	TACO
Anthracene	120-12-7	2.1E+00		TACO
Benz[a]anthracene	56-55-3	1.3E-04		TACO
Benzo[a]pyrene	50-32-8	2.0E-04		CLASS I
Benzo[b]fluoranthene	205-99-2	1.8E-04		TACO
Benzo[g,h,i]perylene	191-24-2	2.1E-01	(e)	TACO
Benzo[k]fluoranthene	207-08-9	1.7E-04		TACO
bis(2-Chloroethoxy)methane	111-91-1	NA		NA
bis(2-Chloroethyl)ether	111-44-4	1.0E-02		TACO
bis(2-Ethylhexyl)phthalate	117-81-7	6.0E-03		CLASS I
Butyl benzyl phthalate	85-68-7	1.4E+00		TACO
Carbazole	86-74-8	3.4E-03		PRG
Chrysene	218-01-9	1.5E-03		TACO
Dibenz[a,h]anthracene	53-70-3	3.0E-04		TACO
Dibenzofuran	132-64-9	2.4E-02		PRG
Diethylphthalate	84-66-2	5.6E+00		TACO
Dimethyl phthalate	131-11-3	3.6E+02		PRG
Di-n-butyl phthalate	84-74-2	7.0E-01		TACO
Di-n-octyl phthalate	117-84-0	1.4E-01		TACO
Fluoranthene	206-44-0	2.8E-01		TACO
Fluorene	86-73-7	2.8E-01		TACO
Hexachlorobenzene	118-74-1	1.0E-03		MCL
Hexachlorobutadiene	87-68-3	8.6E-04		PRG
Hexachlorocyclopentadiene	77-47-4	5.0E-02		CLASS I
Hexachloroethane	67-72-1	7.0E-03		TACO

TABLE 2
DATA QUALITY LEVELS (DQLs) FOR SURFACE WATER AND GROUNDWATER
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	Selected DQL (a) (mg/L)		DQL Basis
Indeno[1,2,3-cd]pyrene	193-39-5	4.3E-04		TACO
Isophorone	78-59-1	1 4E+00		TACO
Naphthalene	91-20-3	2.5E-02		TACO
Nitrobenzene	98-95-3	3.5E-03		TACO
N-Nitroso-di-n-propylamine	621-64-7	1 0E-02		TACO
N-Nitrosodiphenylamine	86-30-6	1 0E-02		TACO
Pentachlorophenol	87-86-5	1.0E-03		CLASS I
Phenanthrene	85-01-8	2.1E+00	(f)	TACO
Phenol	108-95-2	1.0E-01		CLASS I
Pyrene	129-00-0	2.1E-01		TACO
TAL Metals				
Aluminum	7429-90-5	5.0E+01		MCL
Antimony	7440-36-0	6 0E-03		CLASS I
Arsenic	7440-38-2	5.0E-02		CLASS I
Barium	7440-39-3	2 0E+00		CLASS I
Beryllium	7440-41-7	4.0E-03		CLASS I
Cadmium	7440-43-9	5.0E-03		CLASS I
Calcium	7440-70-2	NA		NA
Chromium	7440-47-3	1 0E-01	(r)	CLASS I
Cobalt	7440-48-4	1.0E+00		CLASS I
Iron	7439-89-6	5.0E+00		CLASS I
Lead	7439-92-1	7.5E-03		CLASS I
Magnesium	7439-95-4	NA		NA
Manganese	7439-96-5	1.5E-01		CLASS I
Nickel	7440-02-0	1 0E-01		CLASS I
Potassium	7440-09-7	NA		NA
Selenium	7782-49-2	5.0E-02		CLASS I
Silver	7440-22-4	5.0E-02		CLASS I
Sodium	7440-23-5	NA		NA
Thallium	7440-28-0	2 0E-03		CLASS I
Vanadium	7440-62-2	4.9E-02		TACO
Copper	7440-50-8	6.5E-01		CLASS I
Zinc	7440-66-6	5 0E+00		CLASS I
Pesticides				
Alpha-BHC	319-84-6	3.0E-05		TACO
Beta-BHC	319-85-7	2 0E-04	(m)	CLASS I
Delta-BHC	319-86-8	2.0E-04	(m)	CLASS I
Gamma-BHC (Lindane)	58-89-9	2.0E-04		CLASS I
Aldrin	309-00-2	4.0E-05		TACO
alpha-Chlordane	5103-71-9	2.0E-03	(j)	CLASS I
gamma-Chlordane	5103-74-2	2.0E-03	(j)	CLASS I
Chlordane	57-74-9	2.0E-03		CLASS I
Chlorobenzilate	510-15-6	2.5E-04		PRG

TABLE 2
DATA QUALITY LEVELS (DQLs) FOR SURFACE WATER AND GROUNDWATER
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	Selected DQL (a) (mg/L)		DQL Basis
1,2-Dibromo-3-Chloropropane (DBCP)	96-12-8	2.0E-04		TACO
4,4'-DDD	72-54-8	1.1E-04		TACO
4,4'-DDE	72-55-9	4.0E-05		TACO
4,4'-DDT	50-29-3	1.2E-04		TACO
Diallate	2303-16-4	1.1E-03		PRG
Dieldrin	60-57-1	2.0E-05		TACO
Endosulfan I	959-98-8	4.2E-02	(k)	TACO
Endosulfan II	33213-65-9	4.2E-02	(k)	TACO
Endosulfan sulfate	1031-07-8	4.2E-02	(k)	TACO
Endrin	72-20-8	2.0E-03		CLASS I
Endrin aldehyde	7421-93-4	2.0E-03	(l)	CLASS I
Endrin Ketone	53494-70-5	2.0E-03	(l)	CLASS I
Heptachlor	76-44-8	4.0E-04		CLASS I
Heptachlor epoxide	1024-57-3	2.0E-04		CLASS I
Hexachlorobenzene	118-74-1	1.0E-03		MCL
Hexachlorocyclopentadiene	77-47-4	5.0E-02		CLASS I
Isodrin	465-73-6	NA		NA
Methoxychlor	72-43-5	4.0E-02		CLASS I
Toxaphene	8001-35-2	3.0E-03		CLASS I
Herbicides				
2,4-D	94-75-7	7.0E-02		CLASS I
2,4-DB	94-82-6	2.9E-01		PRG
2,4,5-TP	93-72-1	5.0E-02		CLASS I
2,4,5-T	93-76-5	3.6E-01		PRG
Dalapon	75-99-0	2.0E-01		CLASS I
Dicamba	1918-00-9	1.1E+00		PRG
Dichloroprop	120-36-5	NA		NA
Dinoseb	88-85-7	7.0E-03		CLASS I
MCPA	94-74-6	1.8E-02		PRG
MCPP	93-65-2	3.6E-02		PRG
4-Nitrophenol	100-02-7	2.9E-01		PRG
Pentachlorophenol	87-86-5	1.0E-03		CLASS I
Dioxins and Furans				
2,3,7,8-TCDD	1746-01-6	3.00E-08		MCL
1,2,3,7,8-PentaCDD	40321-76-4	3.00E-08		MCL
1,2,3,4,7,8-HexaCDD	39227-28-6	3.00E-08		MCL
1,2,3,6,7,8-HexaCDD	57653-85-7	3.00E-08		MCL
1,2,3,7,8,9-HexaCDD	19408-74-3	3.00E-08		MCL
1,2,3,4,6,7,8-HeptaCDD	35822-39-4	3.00E-08		MCL
OctaCDD	3268-87-9	3.00E-08		MCL
2,3,7,8-TetraCDF	51207-31-9	3.00E-08		MCL
1,2,3,7,8-PentaCDF	57117-41-6	3.00E-08		MCL
2,3,4,7,8-PentaCDF	57117-31-4	3.00E-08		MCL

TABLE 2
DATA QUALITY LEVELS (DQLs) FOR SURFACE WATER AND GROUNDWATER
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	Selected DQL (a) (mg/L)	DQL Basis
1,2,3,4,7,8-HexaCDF	70648-26-9	3 00E-08	MCL
1,2,3,6,7,8-HexaCDF	57117-44-9	3 00E-08	MCL
1,2,3,7,8,9-HexaCDF	72918-21-9	3 00E-08	MCL
2,3,4,6,7,8-HexaCDF	60851-34-5	3 00E-08	MCL
1,2,3,4,6,7,8-HeptaCDF	67562-39-4	3 00E-08	MCL
1,2,3,4,7,8,9-HeptaCDF	55673-89-7	3 00E-08	MCL
OctaCDF	39001-02-0	3 00E-08	MCL
PCBs			
Total PCBs	NA	5 0E-04	CLASS I

Notes
(a) - The DQL was determined by taking the Illinois Groundwater Quality Standards for Class I Potable Resource Groundwater (35 Ill Adm Code 620 410) Where a Class I value is not available, the MCL value is used (USEPA, 2000a) Where a MCL is not available a TACO Class I value is used (IEPA 1998) Where a TACO Class I value is not available, the USEPA Resion 9 PRG (USEPA, 2000b) for Tapwater is used
Surface water will be evaluated for incidential ingestion of water only - fish tissue will be collected
Therefore, ambient water quality criteria for ingestion of organisms were not used in the developement of DQLs
(b) Due to structural similarities, the value for Acenaphthene was used
(c) Value for cis-1,2-Dichloroethylene
(d) Due to structural similarities, the value for Naphthalene was used
(e) Due to structural similarities, the value for Pyrene was used
(f) Due to structural similarities, the value for Anthracene was used
(g) Due to structural similarities, the value for 4-Methyl-2-Pentanone was used
(h) Due to structural similarities, the value for 4-Nitrophenol was used
(i) Due to structural similarities, the value for 2-Nitroaniline was used
(j) Due to structural similarities, the value for Chlordane was used
(k) Due to structural similarities, the value for Endosulfan was used
(l) Due to structural similarities, the value for Endrin was used
(m) Due to structural similarities, the value for gamma-BHC was used
(n) Due to structural similarities, value for 2-Methylphenol was used
(o) Synonym of Bis(2-chloroisopropyl)ether
(p) Due to structural similarities, value for 1,2-Dichlorobenzene was used
CAS = Chemical Abstracts Service
CDD = Chlorodibenzodioxin
CDF = Chlorodibenzofuran
CLASS I = Groundwater Quality Standards for Class I Potable Resource Groundwater 35 Ill Adm Code 620 410
DQL = Data Quality Level
MCL - Maximum Contaminant Level (USEPA, 2000a)
PCB = Polychlorinated Biphenyl
PRG = USEPA Region 9 Preliminary Remediation Goal (USEPA, 2000b)
TACO - Tiered Approach to Corrective Action Objectives (IEPA, 1998)
TAL = Target Analyte List
TCL = Target Compound List
NA = Not available

TABLE 3
DATA QUALITY LEVELS (DQLs) FOR FISH TISSUE
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.		DQL (n) (mg/kg)	Basis
TCL Semi-Volatiles				
1,2,4-Trichlorobenzene	120-82-1		1 4E+01	N
1,2-Dichlorobenzene	95-50-1		1.2E+02	N
1,3-Dichlorobenzene	541-73-1		1.2E+00	N
1,4-Dichlorobenzene	106-46-7		1.3E-01	C
2,2'-oxybis(1-Chloropropane)	108-60-1	(m)	4.5E-02	C
2,4,5-Trichlorophenol	95-95-4		1 4E+02	N
2,4,6-Trichlorophenol	88-06-2		2.9E-01	C
2,4-Dichlorophenol	120-83-2		4.1E+00	N
2,4-Dimethylphenol	105-67-9		2.7E+01	N
2,4-Dinitrophenol	51-28-5		2 7E+00	N
2,4-Dinitrotoluene	121-14-2		2 7E+00	N
2,6-Dinitrotoluene	606-20-2		1 4E+00	N
2-Chloronaphthalene	91-58-7		1 1E+02	N
2-Chlorophenol	95-57-8		6.8E+00	N
2-Methylnaphthalene	91-57-6		2.7E+01	N
2-Methylphenol	95-48-7		6.8E+01	N
2-Nitroaniline	88-74-4		NA	O
2-Nitrophenol	88-75-5	(a)	1 1E+01	N
3,3'-Dichlorobenzidine	91-94-1		7.0E-03	C
3-Nitroaniline	99-09-2		NA	O
4,6-Dinitro-2-methylphenol	534-52-1		1 4E-01	N
4-Bromophenyl phenyl ether	101-55-3		NA	O
4-Chloraniline	106-47-8		5.4E+00	N
4-Chloro-3-methylphenol	59-50-7		NA	O
4-Chlorophenol phenyl ether	7005-72-3		NA	O
4-Methylphenol	106-44-5		6 8E+00	N
4-Nitroaniline	100-01-6		NA	O
4-Nitrophenol	100-02-7		1.1E+01	N
Acenaphthene	83-32-9		8.1E+01	N
Acenaphthylene	208-96-8	(b)	8.1E+01	N
Anthracene	120-12-7		4.1E+02	N
Benz[a]anthracene	56-55-3		4.3E-03	C
Benzo[a]pyrene	50-32-8		4.3E-04	C
Benzo[b]fluoranthene	205-99-2		4.3E-03	C
Benzo[g,h,i]perylene	191-24-2	(c)	4 1E+01	N
Benzo[k]fluoranthene	207-08-9		4.3E-02	C
bis(2-Chloroethoxy)methane	111-91-1		NA	O
bis(2-Chloroethyl)ether	111-44-4		2.9E-03	C
bis(2-Ethylhexyl)phthalate	117-81-7		2.3E-01	C
Butyl benzyl phthalate	85-68-7		2.7E+02	N
Carbazole	86-74-8		1.6E-01	C
Chrysene	218-01-9		4.3E-01	C
Dibenz[a,h]anthracene	53-70-3		4.3E-04	C
Dibenzofuran	132-64-9		5 4E+00	N

TABLE 3
DATA QUALITY LEVELS (DQLs) FOR FISH TISSUE
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.		DQL (n) (mg/kg)	Basis
Diethylphthalate	84-66-2		1.1E+03	N
Dimethyl phthalate	131-11-3		1.4E+04	N
Di-n-butyl phthalate	84-74-2		1.4E+02	N
Di-n-octyl phthalate	117-84-0		2.7E+01	N
Fluoranthene	206-44-0		5.4E+01	N
Fluorene	86-73-7		5.4E+01	N
Hexachlorobenzene	118-74-1		2.0E-03	C
Hexachlorobutadiene	87-68-3		4.0E-02	C
Hexachlorocyclopentadiene	77-47-4		9.5E+00	N
Hexachloroethane	67-72-1		2.3E-01	C
Indeno[1,2,3-cd]pyrene	193-39-5		4.3E-03	C
Isophorone	78-59-1		3.3E+00	C
Naphthalene	91-20-3		2.7E+01	N
Nitrobenzene	98-95-3		6.8E-01	N
N-Nitroso-di-n-propylamine	621-64-7		4.5E-04	C
N-Nitrosodiphenylamine	86-30-6		6.4E-01	C
Pentachlorophenol	87-86-5		2.6E-02	C
Phenanthrene	85-01-8	(d)	4.1E+02	N
Phenol	108-95-2		8.1E+02	N
Pyrene	129-00-0		4.1E+01	N
TAL Metals				
Aluminum	7429-90-5		1.4E+03	N
Antimony	7440-36-0		5.4E-01	N
Arsenic	7440-38-2		2.1E-03	C
Barium	7440-39-3		9.5E+01	N
Beryllium	7440-41-7		2.7E+00	N
Cadmium	7440-43-9	(f)	1.4E+00	N
Calcium	7440-70-2		NA	B
Chromium	7440-47-3	(g)	2.0E+03	N
Cobalt	7440-48-4		8.1E+01	N
Iron	7439-89-6		4.1E+02	N
Lead	7439-92-1		NA	O
Magnesium	7439-95-4		NA	O
Manganese	7439-96-5	(h)	1.9E+02	N
Nickel	7440-02-0		2.7E+01	N
Potassium	7440-09-7		NA	B
Selenium	7782-49-2		6.8E+00	N
Silver	7440-22-4		6.8E+00	N
Sodium	7440-23-5		NA	B
Thallium	7440-28-0		9.5E-02	N
Vanadium	7440-62-2		9.5E+00	N
Copper	7440-50-8		5.4E+01	N
Zinc	7440-66-6		4.1E+02	N

TABLE 3
DATA QUALITY LEVELS (DQLs) FOR FISH TISSUE
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.		DQL (n) (mg/kg)	Basis
PCBs				
Total PCBs	NA		1.6E-03	C
Pesticides				
Alpha-BHC	319-84-6		5.0E-04	C
Beta-BHC	319-85-7		1.8E-03	C
Delta-BHC	319-86-8	(i)	1.8E-03	C
Gamma-BHC (Lindane)	58-89-9		2.4E-03	C
Aldrin	309-00-2		1.9E-04	C
alpha-Chlordane	5103-71-9	(j)	9.0E-03	C
gamma-Chlordane	5103-74-2	(j)	9.0E-03	C
Chlordane	57-74-9		9.0E-03	C
Chlorobenzilate	510-15-6		1.2E-02	C
1,2-Dibromo-3-Chloropropane (DBCP)	96-12-8		2.3E-03	C
4,4'-DDD	72-54-8		1.3E-02	C
4,4'-DDE	72-55-9		9.3E-03	C
4,4'-DDT	50-29-3		9.3E-03	C
Diallate	2303-16-4		NA	O
Dieldrin	60-57-1		2.0E-04	C
Endosulfan I	959-98-8	(k)	8.1E+00	N
Endosulfan II	33213-65-9	(k)	8.1E+00	N
Endosulfan sulfate	1031-07-8	(k)	8.1E+00	N
Endrin	72-20-8		4.1E-01	N
Endrin aldehyde	7421-93-4	(l)	4.1E-01	N
Endrin Ketone	53494-70-5	(l)	4.1E-01	N
Heptachlor	76-44-8		7.0E-04	C
Heptachlor epoxide	1024-57-3		3.5E-04	C
Hexachlorobenzene	118-74-1		2.0E-03	C
Hexachlorocyclopentadiene	77-47-4		9.5E+00	N
Isodrin	465-73-6		NA	O
Methoxychlor	72-43-5		6.8E+00	N
Toxaphene	8001-35-2		2.9E-03	C
Herbicides				
2,4-D	94-75-7		1.4E+01	N
2,4-DB	94-82-6		1.1E+01	N
2,4,5-TP	93-72-1		1.1E+01	N
2,4,5-T	93-76-5		1.4E+01	N
Dalapon	75-99-0		4.1E+01	N
Dicamba	1918-00-9		4.1E+01	N
Dichloroprop	120-36-5		NA	O
Dinoseb	88-85-7		1.4E+00	N
MCPA	94-74-6		6.8E-01	N
MCPP	93-65-2		1.4E+00	N
4-Nitrophenol	100-02-7		1.1E+01	N

TABLE 3
DATA QUALITY LEVELS (DQLs) FOR FISH TISSUE
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	DQL (n) (mg/kg)	Basis
Pentachlorophenol	87-86-5	2.6E-02	C
Dioxins and Furans			
2,3,7,8-TCDD	1746-01-6	2.5E-05	(o)
1,2,3,7,8-PentaCDD	40321-76-4	2.5E-05	(o)
1,2,3,4,7,8-HexaCDD	39227-28-6	2.5E-05	(o)
1,2,3,6,7,8-HexaCDD	57653-85-7	2.5E-05	(o)
1,2,3,7,8,9-HexaCDD	19408-74-3	2.5E-05	(o)
1,2,3,4,6,7,8-HeptaCDD	35822-39-4	2.5E-05	(o)
OctaCDD	3268-87-9	2.5E-05	(o)
2,3,7,8-TetraCDF	51207-31-9	2.5E-05	(o)
1,2,3,7,8-PentaCDF	57117-41-6	2.5E-05	(o)
2,3,4,7,8-PentaCDF	57117-31-4	2.5E-05	(o)
1,2,3,4,7,8-HexaCDF	70648-26-9	2.5E-05	(o)
1,2,3,6,7,8-HexaCDF	57117-44-9	2.5E-05	(o)
1,2,3,7,8,9-HexaCDF	72918-21-9	2.5E-05	(o)
2,3,4,6,7,8-HexaCDF	60851-34-5	2.5E-05	(o)
1,2,3,4,6,7,8-HeptaCDF	67562-39-4	2.5E-05	(o)

TABLE 3
DATA QUALITY LEVELS (DQLs) FOR FISH TISSUE
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	DQL (n) (mg/kg)	Basis
1,2 3,4,7,8,9-HeptaCDF	55673-89-7	2 5E-05	(o)
OctaCDF	39001-02-0	2 5E-05	(o)

Notes
C = USEPA, 2000e, Based on carcinogenic USEPA Region 3 RBC value
N = USEPA, 2000e, Based on non-carcinogenic USEPA Region 3 RBC value
O = No RBC available, therefore, no DQL developed
CAS = Chemical Abstracts Service
CB = Chlorobiphenyl
CDD = Chlorodibenzodioxin
CDF = Chlorodibenzofuran
DQL = Data Quality Level
NA = Not Available
PCB = Polychlorinated Biphenyl
RBC = USEPA Region 3 Risk Based Concentration (USEPA, 2000d)
TAL = Target Analyte List
TCL = Target Compound List
(a) Due to structural similarities the value for 4-Nitrophenol was used
(b) Due to structural similarities, the value for Acenaphthene was used
(c) Due to structural similarities the value for Pyrene was used
(d) Due to structural similarities, the value for Anthracene was used
(f) Value for Cadmium-food
(g) Value for Chromium III
(h) Value for Manganese-food
(i) Due to structural similarities, the value for Beta BHC was used
(j) Due to structural similarities, the value for Chlordane was used
(k) Due to structural similarities, the value for Endosulfan was used
(l) Due to structural similarities, the value for Endrin was used
(m) Synonym of Bis(2-Chloroisopropyl) ether
(n) DQLs for fish tissue based on USEPA Region 3 RBCs (USEPA, 2000d)
(o) - Food and Drug Administration (FDA) Action Level as reported in
USEPA 1984 Ambient Water Quality Criteria Document for
2,3,7,8-Tetrachlorodibenzo-p-dioxin EPA 440/5-84-007
Cordel, Frank 1981 The Use of Epidemiology in The Regulation
of Dioxins in The Food Supply Regulatory Toxicology and
Pharmacology 1 379-387

TABLE 4
DATA QUALITY LEVELS (DQLs) FOR AIR
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	DQL (a) (ug/m^3)	
TCL Volatiles			
1,1,1-Trichloroethane	71-55-6	1.0E+03	NC
1,1,2,2-Tetrachloroethane	79-34-5	3.3E-02	C
1,1,2-Trichloroethane	79-00-5	1.2E-01	C
1,1-Dichloroethane	75-34-3	5.2E+02	NC
1,1-Dichloroethylene	75-35-4	3.8E-02	C
1,2-Dichloroethane	107-06-2	7.4E-02	C
1,2-Dichloroethylene (total)	540-59-0 (c)	3.7E+01	NC
1,2-Dichloropropane	78-87-5	9.9E-02	C
2-Butanone	78-93-3	1.0E+03	NC
2-Hexanone	591-78-6 (d)	8.3E+01	NC
4-Methyl-2-pentanone	108-10-1	8.3E+01	NC
Acetone	67-64-1	3.7E+02	NC
Benzene	71-43-2	2.5E-01	C
Bromodichloromethane	75-27-4	1.1E-01	C
Bromoform	75-25-2	1.7E+00	C
Bromomethane	74-83-9	5.2E+00	NC
Carbon Disulfide	75-15-0	7.3E+02	NC
Carbon tetrachloride	56-23-5	1.3E-01	C
Chlorobenzene	108-90-7	6.2E+01	NC
Chloroethane	75-00-3	2.3E+00	C
Chloroform	67-66-3	8.4E-02	C
Chloromethane	74-87-3	1.1E+00	C
cis-1,3-Dichloropropene	10061-01-5 (e)	4.8E-01	C
Dibromochloromethane	124-48-1	8.0E-02	C
Ethyl Benzene	100-41-4	1.1E+03	NC
Methylene chloride	75-09-2	4.1E+00	C
Styrene	100-42-5	1.1E+03	NC
Tetrachloroethene	127-18-4	3.3E+00	C
Toluene	108-88-3	4.0E+02	NC
Total Xylenes	1330-20-7	7.3E+02	NC
trans-1,3-Dichloropropene	10061-02-6 (e)	4.8E-01	C
Trichloroethene	79-01-6	1.1E+00	C
Vinyl chloride	75-01-4	2.2E-01	C
TCL Semi-Volatiles			
1,2,4-Trichlorobenzene	120-82-1	2.1E+02	NC
1,2-Dichlorobenzene	95-50-1	2.1E+02	NC
1,3-Dichlorobenzene	541-73-1	3.3E+00	NC
1,4-Dichlorobenzene	106-46-7	3.1E-01	C
2,2'-oxybis(1-Chloropropane)	108-60-1 (b)	1.9E-01	C
2,4,5-Trichlorophenol	95-95-4	3.7E+02	NC
2,4,6-Trichlorophenol	88-06-2	6.2E-01	C
2,4-Dichlorophenol	120-83-2	1.1E+01	NC
2,4-Dimethylphenol	105-67-9	7.3E+01	NC

TABLE 4
DATA QUALITY LEVELS (DQLs) FOR AIR
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.		DQL (a) (ug/m^3)	
2,4-Dinitrophenol	51-28-5		7.3E+00	NC
2,4-Dinitrotoluene	121-14-2		7.3E+00	NC
2,6-Dinitrotoluene	606-20-2		3.7E+00	NC
2-Chloronaphthalene	91-58-7		2.9E+02	NC
2-Chlorophenol	95-57-8		1.8E+01	NC
2-Methylnaphthalene	91-57-6	(f)	3.1E+00	NC
2-Methylphenol	95-48-7		1.8E+02	NC
2-Nitroaniline	88-74-4		2.1E-01	NC
2-Nitrophenol	88-75-5	(g)	2.9E+01	NC
3,3'-Dichlorobenzidine	91-94-1		1.5E-02	C
3-Nitroaniline	99-09-2	(h)	2.1E-01	NC
4,6-Dinitro-2-methylphenol	534-52-1		NA	-
4-Bromophenyl phenyl ether	101-55-3		NA	-
4-Chloraniline	106-47-8		1.5E+01	NC
4-Chloro-3-methylphenol	59-50-7		NA	-
4-Chlorophenol phenyl ether	7005-72-3		NA	-
4-Methylphenol	106-44-5		1.8E+01	NC
4-Nitroaniline	100-01-6	(h)	2.1E-01	NC
4-Nitrophenol	100-02-7		2.9E+01	NC
Acenaphthene	83-32-9		2.2E+02	NC
Acenaphthylene	208-96-8	(i)	2.2E+02	NC
Anthracene	120-12-7		1.1E+03	NC
Benz[a]anthracene	56-55-3		2.2E-02	C
Benzo[a]pyrene	50-32-8		2.2E-03	C
Benzo[b]fluoranthene	205-99-2		2.2E-02	C
Benzo[g,h,i]perylene	191-24-2	(j)	1.1E+02	NC
Benzo[k]fluoranthene	207-08-9		2.2E-01	C
bis(2-Chloroethoxy)methane	111-91-1		NA	-
bis(2-Chloroethyl)ether	111-44-4		5.8E-03	C
bis(2-Ethylhexyl)phthalate	117-81-7		4.8E-01	C
Butyl benzyl phthalate	85-68-7		7.3E+02	NC
Carbazole	86-74-8		3.4E-01	C
Chrysene	218-01-9		2.2E+00	C
Dibenz[a,h]anthracene	53-70-3		2.2E-03	C
Dibenzofuran	132-64-9		1.5E+01	NC
Diethylphthalate	84-66-2		2.9E+03	NC
Dimethyl phthalate	131-11-3		3.7E+04	NC
Di-n-butyl phthalate	84-74-2		3.7E+02	NC
Di-n-octyl phthalate	117-84-0		7.3E+01	NC
Fluoranthene	206-44-0		1.5E+02	NC
Fluorene	86-73-7		1.5E+02	NC
Hexachlorobenzene	118-74-1		4.2E-03	C
Hexachlorobutadiene	87-68-3		8.6E-02	C
Hexachlorocyclopentadiene	77-47-4		7.3E-02	NC
Hexachloroethane	67-72-1		4.8E-01	C

TABLE 4
DATA QUALITY LEVELS (DQLs) FOR AIR
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.		DQL (a) (ug/m^3)	
Indeno[1,2,3-cd]pyrene	193-39-5		2.2E-02	C
Isophorone	78-59-1		7.1E+00	C
Naphthalene	91-20-3		3.1E+00	NC
Nitrobenzene	98-95-3		2.1E+00	NC
N-Nitroso-di-n-propylamine	621-64-7		9.6E-04	C
N-Nitrosodiphenylamine	86-30-6		1.4E+00	C
Pentachlorophenol	87-86-5		5.6E-02	C
Phenanthrene	85-01-8	(k)	1.1E+03	NC
Phenol	108-95-2		2.2E+03	NC
Pyrene	129-00-0		1.1E+02	NC
TAL Metals				
Aluminum	7429-90-5		5.1E+00	NC
Antimony	7440-36-0		NA	-
Arsenic	7440-38-2		4.5E-04	C
Barium	7440-39-3		5.2E-01	NC
Beryllium	7440-41-7		8.0E-04	C
Cadmium	7440-43-9		1.1E-03	C
Calcium	7440-70-2		NA	-
Chromium	7440-47-3	(l)	2.3E-05	C
Cobalt	7440-48-4		NA	-
Iron	7439-89-6		NA	-
Lead	7439-92-1		NA	-
Magnesium	7439-95-4		NA	-
Manganese	7439-96-5		5.1E-02	NC
Nickel	7440-02-0	(m)	8.0E-03	C
Potassium	7440-09-7		NA	-
Selenium	7782-49-2		NA	-
Silver	7440-22-4		NA	-
Sodium	7440-23-5		NA	-
Thallium	7440-28-0		NA	-
Vanadium	7440-62-2		NA	-
Copper	7440-50-8		NA	-
Zinc	7440-66-6		NA	-
PCBs				
Total PCBs	NA		3.4E-03	C
Dioxins and Furans				
2,3,7,8-TCDD	1746-01-6		4.5E-08	C
1,2,3,7,8-PentaCDD	40321-76-4	(n)	4.5E-08	C
1,2,3,4,7,8-HexaCDD	39227-28-6	(n)	4.5E-08	C
1,2,3,6,7,8-HexaCDD	57653-85-7	(n)	4.5E-08	C
1,2,3,7,8,9-HexaCDD	19408-74-3	(n)	4.5E-08	C
1,2,3,4,6,7,8-HeptaCDD	35822-39-4	(n)	4.5E-08	C

TABLE 4
DATA QUALITY LEVELS (DQLs) FOR AIR
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.		DQL (a) (ug/m^3)	
OctaCDD	3268-87-9	(n)	4.5E-08	C
2,3,7,8-TetraCDF	51207-31-9	(n)	4 5E-08	C
1,2,3,7,8-PentaCDF	57117-41-6	(n)	4 5E-08	C
2,3,4,7,8-PentaCDF	57117-31-4	(n)	4.5E-08	C
1,2,3,4,7,8-HexaCDF	70648-26-9	(n)	4.5E-08	C
1,2,3,6,7,8-HexaCDF	57117-44-9	(n)	4.5E-08	C
1,2,3,7,8,9-HexaCDF	72918-21-9	(n)	4.5E-08	C
2,3,4,6,7,8-HexaCDF	60851-34-5	(n)	4.5E-08	C
1,2,3,4,6,7,8-HeptaCDF	67562-39-4	(n)	4.5E-08	C
1,2,3,4,7,8,9-HeptaCDF	55673-89-7	(n)	4.5E-08	C
OctaCDF	39001-02-0	(n)	4 5E-08	C
Pesticides				
Alpha-BHC	319-84-6		1 1E-03	C
Beta-BHC	319-85-7		3.7E-03	C
Delta-BHC	319-86-8	(o)	3.7E-03	C
Gamma-BHC (Lindane)	58-89-9		5 2E-03	C
Aldrin	309-00-2		3.9E-04	C
alpha-Chlordane	5103-71-9	(p)	1 9E-02	C
gamma-Chlordane	5103-74-2	(p)	1.9E-02	C
Chlordane	57-74-9		1.9E-02	C
Chlorobenzilate	510-15-6		2.5E-02	C
1,2-Dibromo-3-Chloropropane (DBCP)	96-12-8		2 1E-01	NC
4,4'-DDD	72-54-8		2 8E-02	C
4,4'-DDE	72-55-9		2.0E-02	C
4,4'-DDT	50-29-3		2.0E-02	C
Diallate	2303-16-4		1.1E-01	C
Dieldrin	60-57-1		4.2E-04	C
Endosulfan I	959-98-8	(q)	2 2E+01	NC
Endosulfan II	33213-65-9	(q)	2.2E+01	NC
Endosulfan sulfate	1031-07-8	(q)	2.2E+01	NC
Endrin	72-20-8		1.1E+00	NC
Endrin aldehyde	7421-93-4	(r)	1.1E+00	NC
Endrin Ketone	53494-70-5	(r)	1.1E+00	NC
Heptachlor	76-44-8		1.5E-03	C
Heptachlor epoxide	1024-57-3		7 4E-04	C
Hexachlorobenzene	118-74-1		4.2E-03	C
Hexachlorocyclopentadiene	77-47-4		7.3E-02	NC
Isodrin	465-73-6		NA	-
Methoxychlor	72-43-5		1.8E+01	NC
Toxaphene	8001-35-2		6.0E-03	C
Herbicides				
2,4-D	94-75-7		3 7E+01	NC
2,4-DB	94-82-6		2 9E+01	NC

TABLE 4
DATA QUALITY LEVELS (DQLs) FOR AIR
SAUGET AREA 2 - REMEDIAL INVESTIGATION
SAUGET AND CAHOKIA, ILLINOIS
SAUGET AREA 2 SITE GROUP

CONSTITUENT	CAS NO.	DQL (a) (ug/m^3)	
2,4,5-TP	93-72-1	2 9E+01	NC
2,4,5-T	93-76-5	3 7E+01	NC
Dalapon	75-99-0	1 1E+02	NC
Dicamba	1918-00-9	1 1E+02	NC
Dichloroprop	120-36-5	NA	-
Dinoseb	88-85-7	3 7E+00	NC
MCPA	94-74-6	1 8E+00	NC
MCPP	93-65-2	3 7E+00	NC

Notes
CAS = Chemical Abstracts Service
CDD = Chlorodibenzodioxin
CDF = Chlorodibenzofuran
DQL = Data Quality Level
NA = Not available
PCB = Polychlorinated Biphenyl
PRG = Preliminary Remedial Goal
TAL = Target Analyte List
TCL = Target Compound List
(a) Air DQLs are based on USEPA Region IX PRG Table (USEPA, 2000b)
(b) Synonym of Bis(2-Chloroisopropyl ether)
(c) Value for cis-1,2-Dichloroethylene used
(d) Due to structural similarities, the value for 4-Methyl-2-Pentanone was used
(e) Value for 1,3-Dichloropropene
(f) Due to structural similarities the value for Naphthalene was used
(g) Due to structural similarities, the value for 4-Nitrophenol was used
(h) Due to structural similarities, the value for 2-Nitroaniline was used
(i) Due to structural similarities, the value for Acenaphthene was used
(j) Due to structural similarities, the value for Pyrene was used
(k) Due to structural similarities, the value for Anthracene was used
(l) Value for Chromium VI
(m) Value for Nickel Refinery Dust
(n) Value for 2,3,7,8-TCDD
(o) Due to structural similarities the value for Beta-BHC was used
(p) Due to structural similarities, the value for Chlordane was used
(q) Due to structural similarities, the value for Endosulfan was used
(r) Due to structural similarities, the value for Endrin was used
C = Value Based on potential carcinogenic effects
NC = Value based on noncancer effects

B

APPENDIX B

SUMMARY STATISTICS AND SCREENING TABLES

APPENDIX B
SUMMARY STATISTICS AND SCREENING TABLES

This appendix provides the summary statistics for each area and medium that were quantitatively evaluated in the HHRA. The tables also present the screening and COPC selection as described in Section 3.2. The tables are provided in the following order:

- **Table B-1** - samples used in the calculation of summary statistics for each area and medium;
- **Table B-2** - summary statistics and screening for groundwater (depth to water less than or equal to 30 feet below ground surface) and leachate;
- **Table B-3** - summary statistics and screening for surface soil;
- **Table B-4** - summary statistics and screening for combined soil (for the construction pathway, surface soil, subsurface soil, and waste were combined to evaluate the 0-15 foot bgs soil column interval);
- **Table B-5** - summary statistics and screening for sediment;
- **Table B-6** - summary statistics and screening for surface water; and
- **Table B-7** - summary statistics and screening for fish fillet.

TABLE B-1
SAMPLES USED TO CALCULATE STATISTICS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Sample	Depth (ft bgs)	Parent Sample (b)
Shallow Groundwater				
O - AA-O-1-16	AA-O-1	GW-AA-O-1-16	16	
O - AA-O-2-13	AA-O-2	GW-AA-O-2-13	13	
OS - UAA-1/OS-1-20	UAA-1/OS-1	GW-UAA-1-20FT	20	
OS - UAA-2/OS-2-20	UAA-2/OS-2	GW-UAA-2-20FT	20	
OS - UAA-4/OS-4-20	UAA-4/OS-4	GW-AA-UAA-4-20-DUP	20	GW-AA-UAA-4-20
OS - UAA-4/OS-4-20	UAA-4/OS-4	GW-AA-UAA-4-20	20	
Leachate				
O	LEACH-O-1	LEACH-O-1	--	
Q	LEACH-Q-1	LEACH-Q-1-DUP	--	LEACH-Q-1
Q	LEACH-Q-1	LEACH-Q-1	--	
R	LEACH-R-1	LEACH-R-1	--	
Mid Groundwater				
O - AA-O-3-28	AA-O-3	GW-AA-O-3-28FT	28	
OS - UAA-1/OS-1-30	UAA-1/OS-1	GW-UAA-1-30FT	30	
OS - UAA-2/OS-2-30	UAA-2/OS-2	GW-UAA-2-30FT-DUP	30	GW-UAA-2-30FT
OS - UAA-2/OS-2-30	UAA-2/OS-2	GW-UAA-2-30FT	30	
OS - UAA-3/OS-3-24	UAA-3/OS-3	GW-UAA-3-24FT-R	24	
OS - UAA-3/OS-3-34	UAA-3/OS-3	GW-UAA-3-34FT-R	34	
OS - UAA-4/OS-4-30	UAA-4/OS-4	GW-AA-UAA-4-30	30	
P - AA-P-1-24	AA-P-1	GW-AA-P-1-24FT	24	
P - AA-P-1-24	AA-P-1	GW-AA-P-1-24FT-DUP	24	GW-AA-P-1-24FT
P - AA-P-1-34	AA-P-1	GW-AA-P-1-34FT	34	
P - AA-P-2-24	AA-P-2	GW-AA-P-2-24	24	
P - AA-P-2-34	AA-P-2	GW-AA-P-2-34	34	
P - AA-P-2-34	AA-P-2	GW-AA-P-2-34-DUP	34	GW-AA-P-2-34
P - AA-P-3-32	AA-P-3	GW-AA-P-3-32	32	
Q - AA-Q-6-24	AA-Q-6	GW-AA-Q-6-24-DUP	24	GW-AA-Q-6-24
Q - AA-Q-6-24	AA-Q-6	GW-AA-Q-6-24-Filter	24	
Q - AA-Q-6-24	AA-Q-6	GW-AA-Q-6-24	24	
Q - AA-Q-6-24	AA-Q-6	GW-AA-Q-6-24-DUP-Filter	24	GW-AA-Q-6-24-Filter
Q - AA-Q-6-34	AA-Q-6	GW-AA-Q-6-34	34	
Q - AA-Q-6-34	AA-Q-6	GW-AA-Q-6-34-DUP	34	GW-AA-Q-6-34
Q - AA-Q-7-24	AA-Q-7	GW-AA-Q-7-24	24	
Q - AA-Q-7-34	AA-Q-7	GW-AA-Q-7-34	34	
Q - AA-Q-8-24	AA-Q-8	GW-AA-Q-8-24	24	
Q - AA-Q-8-34	AA-Q-8	GW-AA-Q-8-34	34	
Q - AA-Q-8-34	AA-Q-8	GW-AA-Q-8-34-DUP	34	GW-AA-Q-8-34
R - AA-R-1-28	AA-R-1	GW-AA-R-1-28	28	
S - AA-S-1-24	AA-S-1	GW-AA-S-1-24FT	24	
S - AA-S-1-34	AA-S-1	GW-AA-S-1-34FT	34	
S - AA-S-2-28	AA-S-2	GW-AA-S-2-28	28	
S - AA-S-3-24	AA-S-3	GW-AA-S-3-24FT	24	
S - AA-S-3-34	AA-S-3	GW-AA-S-3-34FT	34	

TABLE B-1
SAMPLES USED TO CALCULATE STATISTICS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Sample	Depth (ft bgs)	Parent Sample (b)
Surface Soil (a)				
O	SOIL-O-2	SOIL-O-2-0.5	0.5	
O	SOIL-O-3	SOIL-O-3-0.5	0.5	
O North	SOIL-O-1	SOIL-O-1-0.5	0.5	
OS	OS-5	SOIL-OS-5-0.5ft	0.5	
OS	UAA-1/OS-1	SOIL-OS-1-0.5FT	0.5	
OS	UAA-2/OS-2	SOIL-OS-2-0.5FT	0.5	
OS	UAA-2/OS-2	SOIL-OS-2-0.5FT DUP	0.5	SOIL-OS-2-0.5FT
OS	UAA-3/OS-3	SOIL-OS-3-0.5FT	0.5	
OS	UAA-4/OS-4	SOIL-OS-4-0.5FT	0.5	
P	SOIL-P-1	SOIL-P-1-0.5	0.5	
P	SOIL-P-2	SOIL-P-2-0.5	0.5	
P	SOIL-P-3	SOIL-P-3-0.5	0.5	
P	SOIL-P-4	SOIL-P-4-0.5	0.5	
Q Central	SOIL-Q-6	SOIL-Q-6-0.5	0.5	
Q Central	SOIL-Q-7	SOIL-Q-7-0.5	0.5	
Q Central	SOIL-Q-7	SOIL-Q-7-0.5-DUP	0.5	SOIL-Q-7-0.5
Q Central	SOIL-Q-8	SOIL-Q-8-0.5	0.5	
Q North	SOIL-Q-1	SOIL-Q-1-0.5FT	0.5	
Q North	SOIL-Q-2	SOIL-Q-2-0.5	0.5	
Q North	SOIL-Q-3	SOIL-Q-3-0.5	0.5	
Q North	SOIL-Q-4	SOIL-Q-4-0.5	0.5	
Q North	SOIL-Q-5	SOIL-Q-5-0.5	0.5	
Q South	SOIL-Q-10	SOIL-Q-10-0.5	0.5	
Q South	SOIL-Q-10	SOIL-Q-10-0.5-DUP	0.5	SOIL-Q-10-0.5
Q South	SOIL-Q-11	SOIL-Q-11-0.5	0.5	
Q South	SOIL-Q-11	SOIL-Q-11-0 5-DUP	0.5	SOIL-Q-11-0.5
Q South	SOIL-Q-12	SOIL-Q-12-0.5	0.5	
Q South	SOIL-Q-13	SOIL-Q-13-0.5	0.5	
Q South	SOIL-Q-14	SOIL-Q-14-0.5	0.5	
Q South	SOIL-Q-15	SOIL-Q-15-0.5	0.5	
Q South	SOIL-Q-16	SOIL-Q-16-0.5	0.5	
Q South	SOIL-Q-17	SOIL-Q-17-0.5	0.5	
Q South	SOIL-Q-18	SOIL-Q-18-0.5	0.5	
Q South	SOIL-Q-19	SOIL-Q-19-0.5	0.5	
Q South	SOIL-Q-20	SOIL-Q-20-0.5	0.5	
Q South	SOIL-Q-9	SOIL-Q-9-0.5	0.5	
R	SOIL-R-1	SOIL-R-1-0.5	0.5	
R	SOIL-R-2	SOIL-R-2-0.5	0.5	
R	SOIL-R-3	SOIL-R-3-0.5FT	0.5	
R	SOIL-R-4	SOIL-R-4-0.5FT	0.5	
S	SOIL-S-1	SOIL-S-1-0.5	0.5	
S	SOIL-S-2	SOIL-S-2-0.5	0.5	

TABLE B-1
SAMPLES USED TO CALCULATE STATISTICS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Sample	Depth (ft bgs)	Parent Sample (b)
Subsurface Soil (a)				
O	SOIL-O-2	SOIL-O-2-6FT	6	
O	SOIL-O-3	SOIL-O-3-6FT	6	
O	SOIL-O-3	SOIL-O-3-6FT-DUP	6	SOIL-O-3-6FT
O North	SOIL-O-1	SOIL-O-1-6FT	6	
OS	OS-5	SOIL-OS-5-6ft	6	
OS	UAA-1/OS-1	SOIL-OS-1-6FT	6	
OS	UAA-2/OS-2	SOIL-OS-2-6FT	6	
OS	UAA-2/OS-2	SOIL-OS-2-6FT DUP	6	SOIL-OS-2-6FT
OS	UAA-3/OS-3	SOIL-OS-3-6FT	6	
OS	UAA-4/OS-4	SOIL-OS-4-6FT	6	
OS	UAA-4/OS-4	SOIL-OS-4-6FT-DUP	6	SOIL-OS-4-6FT
P	SOIL-P-1	SOIL-P-1-6FT	6	
P	SOIL-P-2	SOIL-P-2-6FT	6	
P	SOIL-P-3	SOIL-P-3-6FT	6	
P	SOIL-P-4	SOIL-P-4-6FT	6	
Q Central	SOIL-Q-6	SOIL-Q-6-6	6	
Q Central	SOIL-Q-7	SOIL-Q-7-6	6	
Q Central	SOIL-Q-8	SOIL-Q-8-6	6	
Q Central	SOIL-Q-8	SOIL-Q-8-6-DUP	6	SOIL-Q-8-6
Q North	SOIL-Q-1	SOIL-Q-1-6FT	6	
Q North	SOIL-Q-2	SOIL-Q-2-6FT	6	
Q North	SOIL-Q-3	SOIL-Q-3-6	6	
Q North	SOIL-Q-4	SOIL-Q-4-6	6	
Q North	SOIL-Q-5	SOIL-Q-5-6FT	6	
Q South	SOIL-Q-10	SOIL-Q-10-6	6	
Q South	SOIL-Q-11	SOIL-Q-11-6	6	
Q South	SOIL-Q-12	SOIL-Q-12-6	6	
Q South	SOIL-Q-9	SOIL-Q-9-6	6	
R	SOIL-R-1	SOIL-R-1-6FT	6	
R	SOIL-R-2	SOIL-R-2-6	6	
R	SOIL-R-3	SOIL-R-3-6FT	6	
R	SOIL-R-4	SOIL-R-4-6FT	6	
S	SOIL-S-1	SOIL-S-1-6FT	6	
S	SOIL-S-2	SOIL-S-2-6FT	6	

TABLE B-1
SAMPLES USED TO CALCULATE STATISTICS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Sample	Depth (ft bgs)	Parent Sample (b)
Waste (a)				
O	Waste-O-2	Waste-O-2-7FT	7	
O	Waste-O-2	Waste-O-2-COMP	6-11	
O	Waste-O-3	Waste-O-3-9FT	9	
O	Waste-O-3	Waste-O-3-COMP	4-10	
O North	Waste-O-1	WASTE-O-1-4FT	4	
O North	Waste-O-1	Waste-O-1-COMP	0.5-15	
P	WASTE-P-1	WASTE-P-1-15FT	15	
P	WASTE-P-1	WASTE-P-1-COMP	0-18	
P	WASTE-P-2	WASTE-P-2-6FT	6	
P	WASTE-P-2	WASTE-P-2-COMP	0-30	
P	WASTE-P-3	WASTE-P-3-22FT	22	
P	WASTE-P-3	WASTE-P-3-COMP	0-24	
P	WASTE-P-4	WASTE-P-4-17	17	
P	WASTE-P-4	WASTE-P-4-COMP	1-19	
Q Central	WASTE-Q-6	WASTE-Q-6-15	15	
Q Central	WASTE-Q-6	WASTE-Q-6-15-DUP	15	WASTE-Q-6-15
Q Central	WASTE-Q-6	WASTE-Q-6-COMP	0-16	
Q Central	WASTE-Q-6	WASTE-Q-6-COMP-DUP	0-16	WASTE-Q-6-COMP
Q Central	WASTE-Q-7	WASTE-Q-7-9	9	
Q Central	WASTE-Q-7	WASTE-Q-7-COMP	0-16	
Q Central	WASTE-Q-8	WASTE-Q-8-7	7	
Q Central	WASTE-Q-8	WASTE-Q-8-COMP	0-18	
Q North	WASTE-Q-1	WASTE-Q-1-5FT	5	
Q North	WASTE-Q-1	WASTE-Q-1-COMP	1-12	
Q North	WASTE-Q-2	WASTE-Q-2-8FT	8	
Q North	WASTE-Q-2	WASTE-Q-2-COMP	0-18	
Q North	WASTE-Q-3	WASTE-Q-3-6FT	6	
Q North	WASTE-Q-3	WASTE-Q-3-COMP	0-9	
Q North	WASTE-Q-4	WASTE-Q-4-9	9	
Q North	WASTE-Q-4	WASTE-Q-4-COMP	0-13	
Q North	WASTE-Q-5	WASTE-Q-5-8	8	
Q North	WASTE-Q-5	WASTE-Q-5-COMP	0-12	
Q South	WASTE-Q-10	WASTE-Q-10-8	8	
Q South	WASTE-Q-10	WASTE-Q-10-8-DUP	8	WASTE-Q-10-8
Q South	WASTE-Q-10	WASTE-Q-10-COMP	0-18	
Q South	WASTE-Q-10	WASTE-Q-10-COMP-DUP	0-18	WASTE-Q-10-COMP
Q South	WASTE-Q-11	WASTE-Q-11-8	8	
Q South	WASTE-Q-11	WASTE-Q-11-COMP	0-9	
Q South	WASTE-Q-12	WASTE-Q-12-4	4	
Q South	WASTE-Q-12	WASTE-Q-12-4-DUP	4	WASTE-Q-12-4
Q South	WASTE-Q-12	WASTE-Q-12-COMP	0-5	
Q South	WASTE-Q-12	WASTE-Q-12-COMP-DUP	0-5	WASTE-Q-12-COMP
Q South	WASTE-Q-9	WASTE-Q-9-8	8	
Q South	WASTE-Q-9	WASTE-Q-9-COMP	0-9	
R	WASTE-R-1	WASTE-R-1-19FT	19	
R	WASTE-R-1	WASTE-R-1-COMP	6-25	
R	WASTE-R-2	WASTE-R-2-20FT	20	
R	WASTE-R-2	WASTE-R-2-COMP	6-21	
R	WASTE-R-3	WASTE-R-3-22FT	22	
R	WASTE-R-3	WASTE-R-3-COMP	4.5-26	
R	WASTE-R-4	WASTE-R-4-24FT	24	
R	WASTE-R-4	WASTE-R-4-COMP	13-19	
S	WASTE-S-1	WASTE-S-1-6FT	6	
S	WASTE-S-1	WASTE-S-1-COMP	0.5-10	
S	WASTE-S-2	WASTE-S-2-6FT	6	
S	WASTE-S-2	WASTE-S-2-COMP	0.5-7	

TABLE B-1
SAMPLES USED TO CALCULATE STATISTICS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Sample	Depth (ft bgs)	Parent Sample (b)
Sediment				
Pond (Site Q)	P1	P11S	--	
Pond (Site Q)	P1	P12S	--	P11S
River	R2CM	R2CM1S	--	
River	R2AU	R2AU1S	--	
River	R2AM	R2AM1S	--	
River	R4CM	R4CM2S	--	R4CM1S
River	R2AD	R2AD1S	--	
River	R2BD	R2BD1S	--	
River	R4CM	R4CM1S	--	
River	R4AD	R4AD1S	--	
River	R4BU	R4BU1S	--	
River	R2BU	R2BU1S	--	
River	R3BM	R3BM1S	--	
River	R4BM	R4BM1S	--	
River	R4AM	R4AM1S	--	
River	R4AU	R4AU1S	--	
River	R3CM	R3CM1S	--	
River	R3BU	R3BU1S	--	
River	R3AD	R3AD1S	--	
River	R3AM	R3AM1S	--	
River	R3AU	R3AU1S	--	
River	R4BD	R4BD1S	--	
River	R3BD	R3BD1S	--	
River	R2BM	R2BM1S	--	
River	R6AU	R6AU1S	--	
River	R5AM	R5AM1S	--	
River	R6BU	R6BU1S	--	
River	R6BM	R6BM1S	--	
River	R6CM	R6CM1S	--	
River	R6AM	R6AM2S	--	R6AM1S
River	R6AM	R6AM1S	--	
River	R6AD	R6AD1S	--	
River	R5CM	R5CM1S	--	
River	R5BU	R5BU1S	--	
River	R5BN	R5BN1S	--	
River	R5AU	R5AU1S	--	
River	R5AN	R5AN1S	--	
River	R2AM	R2AM2S	--	R2AM1S
River	R5BM	R5BM1S	--	

TABLE B-1
SAMPLES USED TO CALCULATE STATISTICS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Sample	Depth (ft bgs)	Parent Sample (b)
Surface Water				
Upgradient	R1AU	R1AU1S	--	
Upgradient	R1BD	R1BD1S	--	
Upgradient	R1AM	R1AM1S	--	
Upgradient	R1AD	R1AD1S	--	
Upgradient	R1CM	R1CM1S	--	
Upgradient	R1BM	R1BM2S	--	R1BM1S
Upgradient	R1BU	R1BU1S	--	
Upgradient	R1BM	R1BM1S	--	
Pond (Site Q)	P1	P11W	--	
River	R4CM	R4CM2W	--	R4CM1W
River	R4CM	R4CM1W	--	
River	R6BU	R6BU1W	--	
River	R4BU	R4BU1W	--	
River	R4BM	R4BM1W	--	
River	R4BD	R4BD1W	--	
River	R6CM	R6CM1W	--	
River	R2AM	R2AM2W	--	R2AM1W
River	R5CM	R5CM1W	--	
River	R6AD	R6AD1W	--	
River	R6AM	R6AM1W	--	
River	R4AM	R4AM1W	--	
River	R6AM	R6AM2W	--	R6AM1W
River	R4AD	R4AD1W	--	
River	R5AD	R5AD1W	--	
River	R6AU	R6AU1W	--	
River	R6BM	R6BM1W	--	
River	R5BM	R5BM1W	--	
River	R5BD	R5BD1W	--	
River	R5AU	R5AU1W	--	
River	R5AN	R5AN1W	--	
River	R5AM	R5AM1W	--	
River	R5BU	R5BU1W	--	
River	R5BN	R5BN1W	--	
River	R3AD	R3AD1W	--	
River	R2AM	R2AM1W	--	
River	R2BM	R2BM1W	--	
River	R3AM	R3AM1W	--	
River	R2CM	R2CM1W	--	
River	R4AU	R4AU1W	--	
River	R2BU	R2BU1W	--	
River	R3CM	R3CM1W	--	
River	R3BU	R3BU1W	--	
River	R3BM	R3BM1W	--	
River	R2AD	R2AD1W	--	
River	R3AU	R3AU1W	--	
River	R2BD	R2BD1W	--	
River	R2AU	R2AU1W	--	
River	R3BD	R3BD1W	--	
Upgradient	R1AD	R1AD1W	--	
Upgradient	R1AU	R1AU1W	--	
Upgradient	R1AM	R1AM1W	--	
Upgradient	R1BD	R1BD1W	--	
Upgradient	R1BM	R1BM1W	--	
Upgradient	R1CM	R1CM1W	--	
Upgradient	R1BU	R1BU1W	--	
Upgradient	R1BM	R1BM2W	--	R1BM1W

TABLE B-1
SAMPLES USED TO CALCULATE STATISTICS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Sample	Depth (ft bgs)	Parent Sample (b)
Fish Fillet				
DDA (Buffalo Fillet)	Buffalo	DDA DA-1 Buffalo Fillet	--	
PDA (Buffalo Fillet)	Buffalo	PDA Buffalo Fillet Comp#3	--	
PDA (Buffalo Fillet)	Buffalo	PDA Buffalo Fillet Comp#2	--	
PDA (Buffalo Fillet)	Buffalo	PDA Buffalo Fillet Comp#1	--	
UDA (Buffalo Fillet)	Buffalo	UDA Buffalo Fillet	--	
Pond (Site Q) (Black Bullhead Fillet)	Black Bullhead	Black Bullhead - Fillets	--	
Pond (Site Q) (Carp - Fillet)	Carp	Carp - Fillets	--	

Notes
DDA - Downstream Discharge Area (Mississippi River)
ft bgs - feet below ground surface
OS - Off-Site (used in calculation of background statistics)
PDA - Plume Discharge Area (Mississippi River)
UDA - Upstream Discharge Area (Mississippi River)
(a) - Combined soil statistics include surface soil, subsurface soil, and waste samples
(b) - *Parent of duplicate sample Duplicates are average prior to running statistics, and are treated as one* sample in deriving frequency of detection, minimum, maximum mean, and upper confidence levels

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Leachate - O															
VOCs															
1,1,1 Trichloroethane	71-55 6	ug/L	1 1 1	100	9 60E+00	No	NA		–	2 00E+02	No	No	</=Screening Level	No	</=Screening Level
1,1-Dichloroethane	75 34-3	ug/L	1 1 1	100	3 20E+00	No	NA		–	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	2 00E+00	No	NA		–	7 00E+01	No	No	</=Screening Level	No	</=Screening Level
2 Butanone (MEK)	78-93 3	ug/L	1 1 1	100	2 00E+01	No	NA		–	1 90E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108 10 1	ug/L	1 1 1	100	2 10E+02	No	NA		–	1 60E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Acetone	67 64 1	ug/L	1 1 1	100	1 60E+02	No	NA		–	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	9 20E+02	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Carbon Disulfide	75 15 0	ug/L	1 1 1	100	2 10E+00	No	NA		–	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 70E+03	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Chloroform	67 66-3	ug/L	1 1 1	100	8 00E+00	No	NA		–	8 00E+01	No	No	</=Screening Level	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	2 90E+02	No	NA		–	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
Tetrachloroethene	127-18-4	ug/L	1 1 1	100	2 10E+00	No	NA		–	5 00E+00	No	No	</=Screening Level	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	1 00E+02	No	NA		–	1 00E+03	No	No	</=Screening Level	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	2 10E+00	No	NA		–	5 00E+00	No	No	</=Screening Level	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 50E+00	No	NA		–	2 00E+00	No	No	</=Screening Level	No	</=Screening Level
Xylenes, Total	1330 20 7	ug/L	1 1 1	100	1 70E+03	No	NA		–	1 00E+04	No	No	</=Screening Level	No	</=Screening Level
SVOCs															
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	3 80E+02	No	NA		–	6 00E+02	No	No	</=Screening Level	No	Non-volatile
2,4,5-Trichlorophenol	95-95-4	ug/L	1 1 1	100	4 30E+01	No	NA		–	7 00E+02	No	No	</=Screening Level	No	Non-volatile
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	3 80E+02	No	NA		–	1 00E+01	Yes	Yes	>Screening Level	No	Non volatile
2,4 Dichlorophenol	120-83-2	ug/L	1 1 1	100	3 20E+02	No	NA		–	2 10E+01	Yes	Yes	>Screening Level	No	Non volatile
2 4-Dimethylphenol	105 67-9	ug/L	1 1 1	100	6 30E+01	No	NA		–	1 40E+02	No	No	</=Screening Level	No	Non-volatile
2 Chlorophenol	95-57-8	ug/L	1 1 1	100	3 30E+02	No	NA		–	3 50E+01	Yes	Yes	>Screening Level	No	Non volatile
2 Nitroaniline	88-74 4	ug/L	1 1 1	100	2 60E+02	No	NA		–	1 00E+00	Yes	Yes	>Screening Level	No	Non-volatile
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	6 40E+02	No	NA		–	3 50E+02	Yes	Yes	>Screening Level	No	Non volatile
4 Chloroaniline	106-47 8	ug/L	1 1 1	100	4 20E+03	No	NA		–	2 80E+01	Yes	Yes	>Screening Level	No	Non-volatile
4-Nitroaniline	100-01-6	ug/L	1 1 1	100	7 00E+02	No	NA		–	1 00E+00	Yes	Yes	>Screening Level	No	Non-volatile
Naphthalene	91-20-3	ug/L	1 1 1	100	5 70E+02	No	NA		–	1 40E+02	Yes	Yes	>Screening Level	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Nitrobenzene	98-95-3	ug/L	1 1 1	100	8 00E+01	No	NA		–	3 50E+00	Yes	Yes	>Screening Level	No	Non-volatile
Phenol	108 95 2	ug/L	1 1 1	100	3 80E+03	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	No	Non-volatile
Pesticide															
beta BHC	319 85-7	ug/L	1 1 1	100	2 50E+00	No	NA		–	2 00E 01	Yes	Yes	>Screening Level	No	Non volatile
Dieldrin	60-57-1	ug/L	1 1 1	100	2 60E-01	No	NA		–	9 00E+00	No	No	</=Screening Level	No	Non-volatile
Heptachlor	76-44-8	ug/L	1 1 1	100	2 30E-01	No	NA		–	4 00E-01	No	No	</=Screening Level	No	Non-volatile
Herbicide															
2 4,5-T	93-76 5	ug/L	1 1 1	100	4 80E+02	No	NA		–	3 60E+02	Yes	Yes	>Screening Level	No	Non-volatile
2,4-D	94-75 7	ug/L	1 1 1	100	9 30E+02	No	NA		–	7 00E+01	Yes	Yes	>Screening Level	No	Non volatile
Dichlorprop	120 36 5	ug/L	1 1 1	100	9 70E+01	No	NA		–	2 92E+02	No	No	</=Screening Level	No	Non-volatile
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	7 60E+02	No	NA		–	1 00E+00	Yes	Yes	>Screening Level	No	Non volatile
PCBs															
Total PCBs	1336-36-3	ug/L	1 1 1	100	5 49E+01	No	NA		–	5 00E 01	Yes	Yes	>Screening Level	No	Non volatile
Dioxin															
2 3,7 8-TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	6 87E-04	No	NA		–	3 00E-05	Yes	Yes	>Screening Level	No	Non volatile
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	6 00E+02	No	NA		–	3 60E+04	No	No	</=Screening Level	No	Non-volatile
Arsenic	7440-38-2	ug/L	1 1 1	100	2 80E+01	No	NA		–	5 00E+01	No	No	</=Screening Level	No	Non-volatile
Barium	7440 39-3	ug/L	1 1 1	100	2 30E+02	No	NA		–	2 00E+03	No	No	</=Screening Level	No	Non-volatile
Cadmium	7440-43-9	ug/L	1 1 1	100	1 00E+00	No	NA		–	5 00E+00	No	No	</=Screening Level	No	Non volatile
Calcium	7440-70-2	ug/L	1 1 1	100	4 60E+05	Yes	NA		–	NA	–	No	EN	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	2 40E+00	No	NA		–	1 00E+03	No	No	</=Screening Level	No	Non-volatile
Copper	7440-50 8	ug/L	1 1 1	100	1 00E+01	No	NA		–	6 50E+02	No	No	</=Screening Level	No	Non volatile
Iron	7439-89 6	ug/L	1 1 1	100	2 70E+03	Yes	NA		–	5 00E+03	No	No	EN	No	Non volatile
Lead	7439 92-1	ug/L	1 1 1	100	4 50E+00	No	NA		–	7 50E+00	No	No	</=Screening Level	No	Non volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	2 00E+05	Yes	NA			NA	–	No	EN	No	Non volatile
Manganese	7439-96-5	ug/L	1 1 1	100	1 80E+04	No	NA		–	1 50E+02	Yes	Yes	>Screening Level	No	Non-volatile
Mercury	7439-97-6	ug/L	1 1 1	100	1 20E+00	No	NA		–	2 00E+00	No	No	</=Screening Level	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	1 40E+01	No	NA		–	1 00E+02	No	No	</=Screening Level	No	Non volatile
Potassium	7440-09 7	ug/L	1 1 1	100	1 60E+04	Yes	NA		–	NA	–	No	EN	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Silver	7440 22-4	ug/L	1 1 1	100	8 00E 01	No	NA		–	5 00E+01	No	No	<=Screening Level	No	Non-volatile
Sodium	7440-23-5	ug/L	1 1 1	100	7 00E+04	Yes	NA		–	NA	–	No	EN	No	Non-volatile
Thallium	7440 28 0	ug/L	1 1 1	100	3 70E+00	No	NA		–	2 00E+00	Yes	Yes	>Screening Level	No	Non-volatile
Zinc	7440-66-6	ug/L	1 1 1	100	2 20E+02	No	NA		–	5 00E+03	No	No	<=Screening Level	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Leachate - Q															
VOCs															
1 1 1 Trichloroethane	71 55 6	ug/L	1 1 1	100	1 20E+01	No	NA		–	2 00E+02	No	No	</=Screening Level	No	</=Screening Level
1 2 Dichloroethane	107 06-2	ug/L	1 1 1	100	2 15E+03	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
1 2 Dichloroethene (total)	540 59 0	ug/L	1 1 1	100	1 10E+01	No	NA		–	7 00E+01	No	No	</=Screening Level	No	</=Screening Level
4 Methyl 2 pentanone (MIBK)	108 10-1	ug/L	1 1 1	100	7 50E+02	No	NA		–	1 60E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Acetone	67 64 1	ug/L	1 1 1	100	1 40E+03	No	NA		–	7 00E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Benzene	71-43 2	ug/L	1 1 1	100	4 25E+02	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Carbon Disulfide	75 15-0	ug/L	1 1 1	100	2 15E+01	No	NA		–	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108 90-7	ug/L	1 1 1	100	1 15E+03	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Chloroform	67 66 3	ug/L	1 1 1	100	5 30E+01	No	NA		–	8 00E+01	No	No	</=Screening Level	No	</=Screening Level
Dichloromethane	75 09-2	ug/L	1 1 1	100	4 70E+01	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Ethylbenzene	100-41 4	ug/L	1 1 1	100	3 25E+01	No	NA		–	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
Tetrachloroethene	127 18-4	ug/L	1 1 1	100	8 25E+01	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	9 25E+02	No	NA		–	1 00E+03	No	No	</=Screening Level	No	</=Screening Level
Trichloroethylene	79-01 6	ug/L	1 1 1	100	2 00E+01	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Xylenes Total	1330 20 7	ug/L	1 1 1	100	3 05E+02	No	NA		–	1 00E+04	No	No	</=Screening Level	No	</=Screening Level
SVOCs															
1 2 Dichlorobenzene	95 50-1	ug/L	1 1 1	100	2 80E+02	No	NA		–	6 00E+02	No	No	</=Screening Level	No	Non volatile
2 4 6 Trichlorophenol	88-06 2	ug/L	1 1 1	100	1 25E+04	No	NA		–	1 00E+01	Yes	Yes	>Screening Level	No	Non volatile
2 4 Dichlorophenol	120 83 2	ug/L	1 1 1	100	1 70E+05	No	NA		–	2 10E+01	Yes	Yes	>Screening Level	No	Non volatile
2 4 Dimethylphenol	105-67 9	ug/L	1 1 1	100	2 40E+02	No	NA		–	1 40E+02	Yes	Yes	>Screening Level	No	Non volatile
2 Chlorophenol	95 57 8	ug/L	1 1 1	100	7 90E+03	No	NA		–	3 50E+01	Yes	Yes	>Screening Level	No	Non volatile
2 Nitroaniline	88 74 4	ug/L	1 1 1	100	1 55E+04	No	NA		–	1 00E+00	Yes	Yes	>Screening Level	No	Non volatile
3 Methylphenol/4 Methylphenol	106-44 5	ug/L	1 1 1	100	1 60E+03	No	NA		–	3 50E+02	Yes	Yes	>Screening Level	No	Non volatile
4 Chloroaniline	106-47 8	ug/L	1 1 1	100	9 30E+03	No	NA		–	2 80E+01	Yes	Yes	>Screening Level	No	Non volatile
4 Nitroaniline	100-01 6	ug/L	1 1 1	100	1 07E+03	No	NA			1 00E+00	Yes	Yes	>Screening Level	No	Non volatile
Naphthalene	91 20-3	ug/L	1 1 1	100	1 20E+03	No	NA		–	1 40E+02	Yes	Yes	>Screening Level	No	Non volatile
Nitrobenzene	98 95-3	ug/L	1 1 1	100	1 30E+03	No	NA			3 50E+00	Yes	Yes	>Screening Level	No	Non volatile
Phenol	108 95 2	ug/L	1 1 1	100	8 05E+03	No	NA			1 00E+02	Yes	Yes	>Screening Level	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Pesticide															
beta BHC	319-85-7	ug/L	1 1 1	100	1 35E+01	No	NA		–	2 00E 01	Yes	Yes	>Screening Level	No	Non volatile
Endrin Ketone	53494 70-5	ug/L	1 1 1	100	3 20E+00	No	NA		–	2 00E+00	Yes	Yes	>Screening Level	No	Non volatile
Herbicide															
2 4 D	94 75 7	ug/L	1 1 1	100	9 65E+04	No	NA		–	7 00E+01	Yes	Yes	>Screening Level	No	Non volatile
Pentachlorophenol	87-86 5	ug/L	1 1 1	100	4 60E+03	No	NA		–	1 00E+00	Yes	Yes	>Screening Level	No	Non volatile
PCBs															
Total PCBs	1336 36 3	ug/L	1 1 1	100	1 04E+00	No	NA		–	5 00E 01	Yes	Yes	>Screening Level	No	Non volatile
Dioxin															
2 3 7 8 TCDD TEQ	1746-01-6	ug/L	1 1 1	100	2 00E 06	No	NA		–	3 00E 05	No	No	</-Screening Level	No	Non volatile
Metals															
Aluminum	7429 90 5	ug/L	1 1 1	100	1 15E+02	No	NA		–	3 60E+04	No	No	</=Screening Level	No	Non volatile
Antimony	7440 36-0	ug/L	1 1 1	100	1 60E+01	No	NA		–	6 00E+00	Yes	Yes	>Screening Level	No	Non volatile
Barium	7440 39 3	ug/L	1 1 1	100	1 30E+02	No	NA		–	2 00E+03	No	No	</=Screening Level	No	Non volatile
Calcium	7440 70 2	ug/L	1 1 1	100	2 70E+05	Yes	NA		–	NA	–	No	EN	No	Non volatile
Chromium	7440-47 3	ug/L	1 1 1	100	1 80E+01	No	NA		–	1 00E+02	No	No	</=Screening Level	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	7 95E+01	No	NA		–	1 00E+03	No	No	</=Screening Level	No	Non volatile
Iron	7439 89 6	ug/L	1 1 1	100	2 25E+04	Yes	NA		–	5 00E+03	Yes	No	EN	No	Non volatile
Magnesium	7439 95-4	ug/L	1 1 1	100	2 70E+04	Yes	NA		–	NA	–	No	EN	No	Non volatile
Manganese	7439 96 5	ug/L	1 1 1	100	1 80E+03	No	NA		–	1 50E+02	Yes	Yes	>Screening Level	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	3 10E+02	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	No	Non volatile
Potassium	7440-09 7	ug/L	1 1 1	100	1 40E+04	Yes	NA		–	NA	–	No	EN	No	Non volatile
Sodium	7440 23 5	ug/L	1 1 1	100	8 00E+04	Yes	NA		–	NA	–	No	EN	No	Non volatile
Vanadium	7440-62 2	ug/L	1 1 1	100	1 80E+01	No	NA		–	4 90E+01	No	No	</=Screening Level	No	Non volatile
Zinc	7440-66-6	ug/L	1 1 1	100	7 45E+03	No	NA		–	5 00E+03	Yes	Yes	>Screening Level	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Leachate - R															
VOCs															
1 2 Dichloroethane	107-06-2	ug/L	1 1 1	100	5 00E+04	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
1 2 Dichloroethene (total)	540 59 0	ug/L	1 1 1	100	1 30E+04	No	NA		–	7 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
2 Butanone (MEK)	78 93 3	ug/L	1 1 1	100	7 90E+03	No	NA		–	1 90E+03	Yes	Yes	>Screening Level	Yes	>Screening Level
Acetone	67 64 1	ug/L	1 1 1	100	3 20E+04	No	NA		–	7 00E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	6 80E+03	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Chlorobenzene	108 90-7	ug/L	1 1 1	100	1 30E+03	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Chloroform	67-66-3	ug/L	1 1 1	100	2 00E+03	No	NA		–	8 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 90E+03	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Tetrachloroethene	127 18-4	ug/L	1 1 1	100	3 30E+04	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Toluene	108 88 3	ug/L	1 1 1	100	2 10E+04	No	NA		–	1 00E+03	Yes	Yes	>Screening Level	Yes	>Screening Level
Trichloroethylene	79-01 6	ug/L	1 1 1	100	1 50E+05	No	NA		–	5 00E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
2 Chlorophenol	95 57 8	ug/L	1 1 1	100	1 10E+04	No	NA		–	3 50E+01	Yes	Yes	>Screening Level	No	Non volatile
3 Methylphenol/4 Methylphenol	106-44 5	ug/L	1 1 1	100	4 50E+03	No	NA		–	3 50E+02	Yes	Yes	>Screening Level	No	Non volatile
4 Chloroaniline	106-47 8	ug/L	1 1 1	100	4 20E+04	No	NA		–	2 80E+01	Yes	Yes	>Screening Level	No	Non volatile
4 Nitroaniline	100 01 6	ug/L	1 1 1	100	1 80E+04	No	NA		–	1 00E+00	Yes	Yes	>Screening Level	No	Non volatile
Benzo(g h i)perylene	191 24 2	ug/L	1 1 1	100	1 40E+03	No	NA		–	2 10E+02	Yes	Yes	>Screening Level	No	Non volatile
Dimethyl Phthalate	131 11 3	ug/L	1 1 1	100	4 20E+03	No	NA		–	3 60E+05	No	No	</=Screening Level	No	Non volatile
Phenol	108 95-2	ug/L	1 1 1	100	1 10E+06	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	No	Non volatile
Pesticide															
4 4 DDT	50 29 3	ug/L	1 1 1	100	2 10E+02	No	NA		–	8 00E+00	Yes	Yes	>Screening Level	No	Non volatile
beta BHC	319-85-7	ug/L	1 1 1	100	2 00E+02	No	NA		–	2 00E 01	Yes	Yes	>Screening Level	No	Non volatile
Dieldrin	60 57 1	ug/L	1 1 1	100	1 90E+02	No	NA		–	9 00E+00	Yes	Yes	>Screening Level	No	Non volatile
Endosulfan II	33213 65 9	ug/L	1 1 1	100	3 10E+01	No	NA		–	4 20E+01	No	No	</=Screening Level	No	Non volatile
gamma BHC (Lindane)	58 89 9	ug/L	1 1 1	100	2 80E+01	No	NA		–	2 00E 01	Yes	Yes	>Screening Level	No	Non volatile
Heptachlor	76-44 8	ug/L	1 1 1	100	2 10E+02	No	NA		–	4 00E 01	Yes	Yes	>Screening Level	No	Non volatile
Herbicide															
2 4 D	94 75 7	ug/L	1 1 1	100	3 80E+03	No	NA		–	7 00E+01	Yes	Yes	>Screening Level	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
PCBs															
Total PCBs	1336-36-3	ug/L	1 1 1	100	3 98E+03	No	NA		–	5 00E-01	Yes	Yes	>Screening Level	No	Non-volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	3 14E-03	No	NA		–	3 00E-05	Yes	Yes	>Screening Level	No	Non volatile
Metals															
Aluminum	7429 90 5	ug/L	1 1 1	100	1 50E+04	No	NA		–	3 60E+04	No	No	</=Screening Level	No	Non volatile
Arsenic	7440-38-2	ug/L	1 1 1	100	2 10E+01	No	NA		–	5 00E+01	No	No	</=Screening Level	No	Non volatile
Barium	7440-39-3	ug/L	1 1 1	100	1 40E+02	No	NA		–	2 00E+03	No	No	</=Screening Level	No	Non-volatile
Beryllium	7440-41-7	ug/L	1 1 1	100	3 10E+01	No	NA		–	4 00E+00	Yes	Yes	>Screening Level	No	Non-volatile
Cadmium	7440-43-9	ug/L	1 1 1	100	3 20E+00	No	NA		–	5 00E+00	No	No	</=Screening Level	No	Non volatile
Calcium	7440-70 2	ug/L	1 1 1	100	1 70E+06	Yes	NA		–	NA	–	No	EN	No	Non volatile
Chromium	7440-47-3	ug/L	1 1 1	100	6 00E+02	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	2 60E+03	No	NA		–	1 00E+03	Yes	Yes	>Screening Level	No	Non volatile
Copper	7440-50-8	ug/L	1 1 1	100	2 60E+01	No	NA		–	6 50E+02	No	No	</=Screening Level	No	Non-volatile
Iron	7439-89-6	ug/L	1 1 1	100	3 70E+05	Yes	NA		–	5 00E+03	Yes	No	EN	No	Non-volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	2 20E+05	Yes	NA		–	NA	–	No	EN	No	Non-volatile
Manganese	7439 96 5	ug/L	1 1 1	100	2 50E+05	No	NA		–	1 50E+02	Yes	Yes	>Screening Level	No	Non-volatile
Mercury	7439-97-6	ug/L	1 1 1	100	1 30E+01	No	NA		–	2 00E+00	Yes	Yes	>Screening Level	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	1 80E+03	No	NA		–	1 00E+02	Yes	Yes	>Screening Level	No	Non volatile
Potassium	7440-09-7	ug/L	1 1 1	100	4 20E+05	Yes	NA		–	NA	–	No	EN	No	Non volatile
Silver	7440-22-4	ug/L	1 1 1	100	8 80E+00	No	NA		–	5 00E+01	No	No	</=Screening Level	No	Non-volatile
Sodium	7440-23-5	ug/L	1 1 1	100	3 00E+06	Yes	NA		–	NA	–	No	EN	No	Non volatile
Thallium	7440-28-0	ug/L	1 1 1	100	1 20E+02	No	NA		-	2 00E+00	Yes	Yes	>Screening Level	No	Non volatile
Vanadium	7440-62-2	ug/L	1 1 1	100	3 60E+02	No	NA		–	4 90E+01	Yes	Yes	>Screening Level	No	Non volatile
Zinc	7440-66-6	ug/L	1 1 1	100	9 90E+04	No	NA		–	5 00E+03	Yes	Yes	>Screening Level	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC In Shallow Groundwater? (g)	Reason	COPC In Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - O - AA-O-3-28															
VOCs															
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 80E-01	No	NA	OS - UAA-2/OS-2-30	--	1 00E+02	No	No	Not Shallow/Leachate	No	<=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-2/OS-2-30	-	NA	-	No	Not Shallow/Leachate	No	No Dose-Response Valu
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	1 80E+02	No	NA	OS - UAA-2/OS-2-30	--	3 60E+04	No	No	Not Shallow/Leachate	No	Non volatile
Barium	7440-39-3	ug/L	1 1 1	100	1 90E+02	No	NA	OS - UAA-2/OS-2-30	-	2 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	2 40E+05	Yes	NA	OS - UAA-2/OS-2-30	--	NA	-	No	Not Shallow/Leachate	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	9 40E-01	No	NA	OS - UAA-2/OS-2 30	-	1 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Iron	7439-89-6	ug/L	1 1 1	100	2 00E+03	Yes	NA	OS - UAA-2/OS-2-30	-	5 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Iron, Ferrous (2+)	C FE+2	ug/L	1 1 1	100	8 40E+02	Yes	NA	OS - UAA-2/OS-2-30	-	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	3 80E+04	Yes	NA	OS - UAA 2/OS 2 30	-	NA	-	No	Not Shallow/Leachate	No	Non-volatile
Manganese	7439-96-5	ug/L	1 1 1	100	5 30E+01	No	NA	OS - UAA-2/OS-2-30	-	1 50E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Nickel	7440-02-0	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-2/OS-2-30	-	1 00E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Potassium	7440-09-7	ug/L	1 1 1	100	5 60E+03	Yes	NA	OS UAA-2/OS-2-30	-	NA	-	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440-23-5	ug/L	1 1 1	100	5 80E+04	Yes	NA	OS - UAA-2/OS-2-30	-	NA	-	No	Not Shallow/Leachate	No	Non volatile
Vanadium	7440-62-2	ug/L	1 1 1	100	1 90E+00	No	NA	OS - UAA-2/OS-2-30	-	4 90E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Zinc	7440-66-6	ug/L	1 1 1	100	8 90E+00	No	NA	OS - UAA-2/OS 2 30	-	5 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater P - AA-P 1 24															
VOCs															
2 Butanone (MEK)	78 93-3	ug/L	1 1 1	100	6 25E+00	No	NA	OS UAA 1/OS 1 20	–	1 90E+03	No	No	Not Shallow/Leachate	No	</=Screening Level
Acetone	67-64 1	ug/L	1 1 1	100	3 40E+01	No	NA	OS UAA 1/OS 1 20	–	7 00E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Chloromethane	74-87 3	ug/L	1 1 1	100	3 30E 01	No	NA	OS UAA 1/OS 1 20	–	1 50E+00	No	No	Not Shallow/Leachate	No	</=Screening Level
Methane	74-82 8	ug/L	1 1 1	100	3 45E 01	No	9 20E 01	OS UAA 1/OS 1 20	No	NA		No	Not Shallow/Leachate	No	</=BKG
Herbicide															
2 4 5 T	93 76 5	ug/L	1 1 1	100	2 20E 01	No	NA	OS UAA 1/OS 1 20	–	3 60E+02	No	No	Not Shallow/Leachate	No	Non volatile
2 4 D	94 75 7	ug/L	1 1 1	100	5 25E 01	No	NA	OS UAA 1/OS 1 20	–	7 00E+01	No	No	Not Shallow/Leachate	No	Non volatile
Pentachlorophenol	87 86-5	ug/L	1 1 1	100	2 10E 01	No	NA	OS UAA 1/OS 1 20	–	1 00E+00	No	No	Not Shallow/Leachate	No	Non volatile
PCBs															
Total PCBs	1336 36 3	ug/L	1 1 1	100	1 45E 01	No	NA	OS UAA 1/OS 1 20	–	5 00E 01	No	No	Not Shallow/Leachate	No	Non volatile
Metals															
Barium	7440 39 3	ug/L	1 1 1	100	1 20E+02	No	6 00E+02	OS UAA 1/OS 1 20	No	2 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Calcium	7440 70 2	ug/L	1 1 1	100	2 30E+05	Yes	3 80E+05	OS UAA 1/OS 1 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Copper	7440 50-8	ug/L	1 1 1	100	1 20E+00	No	NA	OS UAA 1/OS 1 20		6 50E+02	No	No	Not Shallow/Leachate	No	Non volatile
Iron	7439 89 6	ug/L	1 1 1	100	2 10E+03	Yes	9 40E+03	OS UAA 1/OS 1 20	No	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Magnesium	7439 95-4	ug/L	1 1 1	100	3 15E+04	Yes	8 60E+04	OS UAA 1/OS 1 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Manganese	7439 96 5	ug/L	1 1 1	100	3 00E+01	No	3 40E+03	OS UAA 1/OS 1 20	No	1 50E+02	No	No	Not Shallow/Leachate	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	8 85E+00	No	4 20E+01	OS UAA 1/OS 1 20	No	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09 7	ug/L	1 1 1	100	4 70E+03	Yes	1 72E+04	OS UAA 1/OS 1 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440 23 5	ug/L	1 1 1	100	1 75E+04	Yes	9 60E+04	OS UAA 1/OS 1 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Vanadium	7440-62 2	ug/L	1 1 1	100	1 70E+00	No	NA	OS UAA 1/OS 1 20	–	4 90E+01	No	No	Not Shallow/Leachate	No	Non volatile
Zinc	7440-66-6	ug/L	1 1 1	100	3 20E+00	No	4 40E+01	OS UAA 1/OS 1 20	No	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - P - AA-P-2-24															
VOCs															
Chloromethane	74-87-3	ug/L	1 1 1	100	3 40E 01	No	NA	OS - UAA 1/OS 1 20	–	1 50E+00	No	No	Not Shallow/Leachate	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	8 60E-01	No	NA	OS UAA-1/OS 1 20	–	7 00E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	9 30E 01	No	9 20E 01	OS UAA-1/OS 1-20	Yes	NA	–	No	Not Shallow/Leachate	No	No Dose-Response Vali
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	1 30E+02	No	2 80E+03	OS - UAA-1/OS-1-20	No	3 60E+04	No	No	Not Shallow/Leachate	No	Non volatile
Barium	7440 39-3	ug/L	1 1 1	100	6 20E+01	No	6 00E+02	OS - UAA 1/OS 1 20	No	2 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	7 90E+04	Yes	3 80E+05	OS UAA 1/OS-1 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	1 00E+00	No	9 20E+00	OS UAA 1/OS 1-20	No	1 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Copper	7440 50 8	ug/L	1 1 1	100	1 90E+00	No	NA	OS - UAA-1/OS-1-20	–	8 50E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Iron	7439-89-6	ug/L	1 1 1	100	1 30E+03	Yes	9 40E+03	OS UAA 1/OS-1 20	No	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	1 40E+04	Yes	8 80E+04	OS - UAA 1/OS 1 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Manganese	7439-96-5	ug/L	1 1 1	100	3 20E+01	No	3 40E+03	OS - UAA-1/OS-1-20	No	1 50E+02	No	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09-7	ug/L	1 1 1	100	3 00E+03	Yes	1 72E+04	OS - UAA-1/OS-1-20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440-23 5	ug/L	1 1 1	100	9 70E+03	Yes	9 60E+04	OS - UAA-1/OS-1 20	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Zinc	7440-66 6	ug/L	1 1 1	100	3 60E+00	No	4 40E+01	OS UAA 1/OS 1 20	No	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - P - AA-P-3-32															
VOCs															
Methane	74 82-8	ug/L	1 1 1	100	4 70E+01	No	NA	OS - UAA-1/OS 1-30	–	NA	–	No	Not Shallow/Leachate	No	No Dose Response Valu
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	7 90E+04	No	NA	OS UAA 1/OS 1-30	–	3 60E+04	Yes	No	Not Shallow/Leachate	No	Non-volatile
Antimony	7440-36-0	ug/L	1 1 1	100	8 60E+00	No	NA	OS UAA-1/OS 1-30	–	6 00E+00	Yes	No	Not Shallow/Leachate	No	Non volatile
Arsenic	7440-38 2	ug/L	1 1 1	100	7 70E+01	No	NA	OS UAA-1/OS 1-30	–	5 00E+01	Yes	No	Not Shallow/Leachate	No	Non volatile
Barium	7440-39-3	ug/L	1 1 1	100	1 80E+03	No	NA	OS UAA-1/OS-1-30	–	2 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Beryllium	7440-41-7	ug/L	1 1 1	100	4 80E+00	No	NA	OS UAA-1/OS-1 30	–	4 00E+00	Yes	No	Not Shallow/Leachate	No	Non-volatile
Cadmium	7440-43 9	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-1/OS 1 30	–	5 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	5 70E+05	Yes	NA	OS - UAA 1/OS 1 30	–	NA	–	No	Not Shallow/Leachate	No	Non volatile
Chromium	7440-47-3	ug/L	1 1 1	100	5 70E+02	No	NA	OS UAA 1/OS-1-30	–	1 00E+02	Yes	No	Not Shallow/Leachate	No	Non-volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	8 10E+01	No	NA	OS - UAA-1/OS-1 30	–	1 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Copper	7440-50-8	ug/L	1 1 1	100	9 50E+01	No	NA	OS UAA-1/OS 1 30	–	6 50E+02	No	No	Not Shallow/Leachate	No	Non volatile
Iron	7439-89-6	ug/L	1 1 1	100	2 10E+05	Yes	NA	OS - UAA-1/OS-1-30	–	5 00E+03	Yes	No	Not Shallow/Leachate	No	Non-volatile
Lead	7439 92 1	ug/L	1 1 1	100	9 00E+01	No	NA	OS - UAA-1/OS 1-30	–	7 50E+00	Yes	No	Not Shallow/Leachate	No	Non-volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	1 50E+05	Yes	NA	OS UAA 1/OS 1 30		NA	–	No	Not Shallow/Leachate	No	Non-volatile
Manganese	7439-96-5	ug/L	1 1 1	100	6 60E+03	No	NA	OS - UAA-1/OS 1 30	–	1 50E+02	Yes	No	Not Shallow/Leachate	No	Non volatile
Mercury	7439-97-6	ug/L	1 1 1	100	1 60E-01	No	NA	OS UAA 1/OS 1-30	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	3 40E+02	No	NA	OS - UAA-1/OS-1-30	–	1 00E+02	Yes	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09-7	ug/L	1 1 1	100	2 60E+04	Yes	NA	OS - UAA 1/OS-1-30	–	NA	–	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440-23-5	ug/L	1 1 1	100	1 50E+04	Yes	NA	OS - UAA-1/OS 1-30	–	NA	–	No	Not Shallow/Leachate	No	Non volatile
Vanadium	7440-62-2	ug/L	1 1 1	100	2 40E+02	No	NA	OS - UAA-1/OS-1-30	–	4 90E+01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Zinc	7440 66-6	ug/L	1 1 1	100	4 20E+02	No	NA	OS - UAA 1/OS 1-30	–	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - Q - AA-Q-6-24															
VOCs															
Acetone	67-64-1	ug/L	1 1 1	100	5 70E+01	No	NA	OS - UAA-4/OS-4-20	-	7 00E+02	No	No	Not Shallow/Leachate	No	<=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	4 75E+02	No	NA	OS - UAA-4/OS 4-20	-	5 00E+00	Yes	No	Not Shallow/Leachate	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	6 10E+01	No	NA	OS - UAA-4/OS 4-20	-	7 00E+02	No	No	Not Shallow/Leachate	No	<=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 80E+02	No	3 99E+01	OS - UAA 4/OS 4-20	Yes	NA	-	No	Not Shallow/Leachate	No	No Dose-Response Valu
Toluene	108-88-3	ug/L	1 1 1	100	6 80E+01	No	NA	OS - UAA-4/OS-4-20	-	1 00E+03	No	No	Not Shallow/Leachate	No	<=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	2 55E+01	No	NA	OS - UAA-4/OS-4-20	-	1 00E+04	No	No	Not Shallow/Leachate	No	<=Screening Level
SVOCs															
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	7 20E+00	No	NA	OS UAA 4/OS 4-20	-	2 10E+01	No	No	Not Shallow/Leachate	No	Non-volatile
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	4 55E+02	No	NA	OS UAA 4/OS-4-20	-	1 40E+02	Yes	No	Not Shallow/Leachate	No	Non-volatile
Acenaphthene	83-32-9	ug/L	1 1 1	100	7 40E+00	No	NA	OS - UAA-4/OS-4-20	-	4 20E+02	No	No	Not Shallow/Leachate	No	Non volatile
Anthracene	120-12-7	ug/L	1 1 1	100	6 50E 01	No	NA	OS - UAA-4/OS-4-20	-	2 10E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Benzo(a)pyrene	50-32-8	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-4/OS-4-20	-	2 00E-01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Benzo(k)fluoranthene	207-08-9	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA 4/OS 4-20	-	1 70E-01	Yes	No	Not Shallow/Leachate	No	Non volatile
Carbazole	86-74-8	ug/L	1 1 1	100	1 15E+01	No	NA	OS - UAA-4/OS-4-20	-	3 40E+00	Yes	No	Not Shallow/Leachate	No	Non-volatile
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-4/OS-4-20	-	3 00E-01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Dibenzofuran	132-64-9	ug/L	1 1 1	100	4 90E+00	No	NA	OS - UAA-4/OS-4-20	-	2 40E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Fluorene	86-73-7	ug/L	1 1 1	100	9 10E+00	No	NA	OS - UAA-4/OS-4-20	-	2 80E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Naphthalene	91-20 3	ug/L	1 1 1	100	9 55E+01	No	NA	OS - UAA 4/OS 4 20	-	1 40E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Phenanthrene	85-01-8	ug/L	1 1 1	100	1 70E+01	No	NA	OS - UAA 4/OS 4 20	-	2 10E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Phenol	108-95-2	ug/L	1 1 1	100	9 00E+00	No	NA	OS - UAA-4/OS-4-20	-	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Pesticide															
4,4' DDD	72-54-8	ug/L	1 1 1	100	2 80E-02	No	NA	OS - UAA-4/OS-4-20	-	1 40E+01	No	No	Not Shallow/Leachate	No	Non-volatile
4,4' DDE	72-55-9	ug/L	1 1 1	100	1 90E 02	No	NA	OS UAA-4/OS 4-20	-	1 00E+01	No	No	Not Shallow/Leachate	No	Non volatile
4,4'-DDT	50-29-3	ug/L	1 1 1	100	2 95E-02	No	NA	OS - UAA-4/OS-4-20	-	8 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
alpha-BHC	319 84-8	ug/L	1 1 1	100	6 00E-01	No	NA	OS - UAA 4/OS 4-20	-	1 10E-01	Yes	No	Not Shallow/Leachate	No	Non-volatile
alpha-Chlordane	5103-71-9	ug/L	1 1 1	100	1 65E 02	No	NA	OS - UAA 4/OS 4 20	-	2 00E+00	No	No	Not Shallow/Leachate	No	Non volatile
Endosulfan I	959-98-8	ug/L	1 1 1	100	8 10E-03	No	NA	OS - UAA-4/OS 4 20	-	4 20E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Endrin Ketone	53494-70-5	ug/L	1 1 1	100	1 40E-02	No	NA	OS - UAA-4/OS 4 20	-	2 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	1 80E-01	No	NA	OS - UAA-4/OS-4-20	–	2 00E-01	No	No	Not Shallow/Leachate	No	Non-volatile
gamma-Chlordane	5103-74-2	ug/L	1 1 1	100	2 55E-02	No	NA	OS - UAA-4/OS-4-20	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Heptachlor	76-44-8	ug/L	1 1 1	100	1 80E-01	No	NA	OS - UAA-4/OS 4-20	–	4 00E-01	No	No	Not Shallow/Leachate	No	Non-volatile
Heptachlor Epoxide	1024-57-3	ug/L	1 1 1	100	2 00E-02	No	NA	OS - UAA-4/OS-4-20	–	2 00E-01	No	No	Not Shallow/Leachate	No	Non-volatile
Herbicide															
MCPA	94 74 6	ug/L	1 1 1	100	1 90E+01	No	NA	OS - UAA 4/OS 4 20	–	1 80E+01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	4 20E+02	No	6 90E+02	OS - UAA 4/OS-4-20	No	3 60E+04	No	No	Not Shallow/Leachate	No	Non-volatile
Arsenic	7440-38-2	ug/L	1 1 1	100	7 90E+01	No	NA	OS - UAA-4/OS-4-20	–	5 00E+01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Barium	7440-39-3	ug/L	1 1 1	100	2 85E+02	No	3 60E+02	OS - UAA-4/OS-4-20	No	2 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	1 30E+05	Yes	2 60E+05	OS - UAA-4/OS-4-20	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	1 60E+00	No	4 80E+00	OS - UAA-4/OS-4-20	No	1 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Iron	7439-89-6	ug/L	1 1 1	100	4 00E+04	Yes	4 60E+03	OS - UAA-4/OS 4-20	Yes	5 00E+03	Yes	No	Not Shallow/Leachate	No	Non-volatile
Lead	7439-92-1	ug/L	1 1 1	100	5 10E+00	No	NA	OS UAA 4/OS-4-20	–	7 50E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	3 00E+04	Yes	5 80E+04	OS - UAA-4/OS-4-20	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Manganese	7439-96-5	ug/L	1 1 1	100	5 00E+03	No	2 80E+03	OS - UAA-4/OS-4-20	Yes	1 50E+02	Yes	No	Not Shallow/Leachate	No	Non-volatile
Nickel	7440-02-0	ug/L	1 1 1	100	4 10E+00	No	2 50E+01	OS - UAA 4/OS-4-20	No	1 00E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Potassium	7440-09-7	ug/L	1 1 1	100	8 15E+03	Yes	1 16E+04	OS - UAA 4/OS-4-20	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Sodium	7440-23-5	ug/L	1 1 1	100	2 25E+04	Yes	2 30E+04	OS - UAA-4/OS-4-20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater	**Q - AA-Q-7-24**														
VOCs															
1 2 Dichloroethene (total)	540 59 0	ug/L	1 1 1	100	2 20E 01	No	NA	OS UAA 4/OS 4 20	–	7 00E+01	No	No	Not Shallow/Leachate	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	7 10E 01	No	NA	OS UAA 4/OS 4 20	–	5 00E+00	No	No	Not Shallow/Leachate	No	</=Screening Level
Chlorobenzene	108 90-7	ug/L	1 1 1	100	9 50E+01	No	NA	OS UAA 4/OS 4 20	–	1 00E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Chloroethane	75-00-3	ug/L	1 1 1	100	8 70E 01	No	NA	OS UAA 4/OS 4 20	–	4 60E+00	No	No	Not Shallow/Leachate	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	8 80E 01	No	NA	OS UAA 4/OS 4 20	–	7 00E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Methane	74 82 8	ug/L	1 1 1	100	7 80E+01	No	3 99E+01	OS UAA 4/OS 4 20	Yes	NA	–	No	Not Shallow/Leachate	No	No Dose Response Valu
SVOCs															
2 Chlorophenol	95 57 8	ug/L	1 1 1	100	3 60E+00	No	NA	OS UAA 4/OS 4 20	–	3 50E+01	No	No	Not Shallow/Leachate	No	Non volatile
Naphthalene	91 20-3	ug/L	1 1 1	100	2 20E+00	No	NA	OS UAA 4/OS 4 20	–	1 40E+02	No	No	Not Shallow/Leachate	No	Non volatile
Metals															
Aluminum	7429 90 5	ug/L	1 1 1	100	1 90E+03	No	6 90E+02	OS UAA 4/OS 4 20	Yes	3 60E+04	No	No	Not Shallow/Leachate	No	Non volatile
Arsenic	7440 38 2	ug/L	1 1 1	100	1 10E+02	No	NA	OS UAA 4/OS 4 20	–	5 00E+01	Yes	No	Not Shallow/Leachate	No	Non volatile
Barium	7440 39 3	ug/L	1 1 1	100	4 70E+02	No	3 60E+02	OS UAA 4/OS 4 20	Yes	2 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Calcium	7440 70 2	ug/L	1 1 1	100	1 80E+05	Yes	2 60E+05	OS UAA 4/OS 4 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Chromium	7440-47 3	ug/L	1 1 1	100	8 00E+00	No	NA	OS UAA 4/OS 4 20	–	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	1 10E+01	No	4 80E+00	OS UAA 4/OS 4 20	Yes	1 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Iron	7439 89 6	ug/L	1 1 1	100	2 50E+04	Yes	4 60E+03	OS UAA 4/OS 4 20	Yes	5 00E+03	Yes	No	Not Shallow/Leachate	No	Non volatile
Lead	7439 92 1	ug/L	1 1 1	100	3 20E+00	No	NA	OS UAA 4/OS 4 20	–	7 50E+00	No	No	Not Shallow/Leachate	No	Non volatile
Magnesium	7439 95-4	ug/L	1 1 1	100	3 50E+04	Yes	5 80E+04	OS UAA 4/OS 4 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Manganese	7439 96 5	ug/L	1 1 1	100	2 30E+03	No	2 80E+03	OS UAA 4/OS 4 20	No	1 50E+02	Yes	No	Not Shallow/Leachate	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	1 40E+01	No	2 50E+01	OS UAA 4/OS 4 20	No	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09 7	ug/L	1 1 1	100	8 30E+03	Yes	1 16E+04	OS UAA 4/OS 4 20	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440-23 5	ug/L	1 1 1	100	2 90E+04	Yes	2 30E+04	OS UAA 4/OS 4 20	Yes	NA		No	Not Shallow/Leachate	No	Non volatile
Vanadium	7440-62 2	ug/L	1 1 1	100	4 60E+00	No	3 20E+00	OS UAA 4/OS 4 20	Yes	4 90E+01	No	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - Q - AA-Q-8-24															
VOCs															
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-4/OS 4-20	--	7 00E+01	No	No	Not Shallow/Leachate	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	4 80E+00	No	3 99E+01	OS UAA-4/OS-4-20	No	NA	--	No	Not Shallow/Leachate	No	</=BKG
Trichloroethylene	79-01 6	ug/L	1 1 1	100	1 70E 01	No	NA	OS - UAA-4/OS 4-20	--	5 00E+00	No	No	Not Shallow/Leachate	No	</=Screening Level
Pesticide															
beta BHC	319-85-7	ug/L	1 1 1	100	1 20E 02	No	NA	OS UAA 4/OS-4-20	--	2 00E-01	No	No	Not Shallow/Leachate	No	Non volatile
Endosulfan I	959-98-8	ug/L	1 1 1	100	4 80E-03	No	NA	OS - UAA-4/OS-4-20	--	4 20E+01	No	No	Not Shallow/Leachate	No	Non volatile
Methoxychlor	72-43-5	ug/L	1 1 1	100	1 00E-02	No	NA	OS - UAA-4/OS-4-20	--	4 00E+01	No	No	Not Shallow/Leachate	No	Non volatile
Metals															
Aluminum	7429 90 5	ug/L	1 1 1	100	2 00E+02	No	6 90E+02	OS - UAA 4/OS 4 20	No	3 60E+04	No	No	Not Shallow/Leachate	No	Non volatile
Arsenic	7440-38-2	ug/L	1 1 1	100	3 50E+01	No	NA	OS UAA 4/OS 4-20	--	5 00E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Barium	7440-39-3	ug/L	1 1 1	100	4 10E+02	No	3 60E+02	OS - UAA-4/OS-4-20	Yes	2 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Calcium	7440 70 2	ug/L	1 1 1	100	1 30E+05	Yes	2 60E+05	OS - UAA-4/OS-4-20	No	NA	--	No	Not Shallow/Leachate	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	1 60E+00	No	4 80E+00	OS - UAA 4/OS-4-20	No	1 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Copper	7440-50-8	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA 4/OS 4-20	--	6 50E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Iron	7439 89 6	ug/L	1 1 1	100	2 40E+04	Yes	4 60E+03	OS - UAA 4/OS-4-20	Yes	5 00E+03	Yes	No	Not Shallow/Leachate	No	Non-volatile
Magnesium	7439 95 4	ug/L	1 1 1	100	2 20E+04	Yes	5 80E+04	OS - UAA-4/OS 4 20	No	NA	--	No	Not Shallow/Leachate	No	Non volatile
Manganese	7439-96 5	ug/L	1 1 1	100	1 40E+03	No	2 80E+03	OS UAA-4/OS 4-20	No	1 50E+02	Yes	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09 7	ug/L	1 1 1	100	1 10E+04	Yes	1 16E+04	OS - UAA-4/OS 4-20	No	NA	--	No	Not Shallow/Leachate	No	Non-volatile
Sodium	7440-23-5	ug/L	1 1 1	100	2 20E+04	Yes	2 30E+04	OS - UAA-4/OS-4-20	No	NA	--	No	Not Shallow/Leachate	No	Non-volatile
Zinc	7440-66-6	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-4/OS 4-20	--	5 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC In Shallow Groundwater? (g)	Reason	COPC In Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - R - AA-R-1-26															
VOCs															
Benzene	71-43 2	ug/L	1 1 1	100	5 10E+02	No	NA	OS - UAA-2/OS-2-30	–	5 00E+00	Yes	No	Not Shallow/Leachate	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 00E+03	No	NA	OS - UAA-2/OS 2-30	–	1 00E+02	Yes	No	Not Shallow/Leachate	Yes	>Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-2/OS-2-30	–	1 50E+00	Yes	No	Not Shallow/Leachate	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	4 60E+01	No	NA	OS - UAA-2/OS-2-30	–	7 00E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 00E+03	No	NA	OS - UAA-2/OS-2-30	–	NA	–	No	Not Shallow/Leachate	No	No Dose-Response Valu
Toluene	108-88-3	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-2/OS-2-30	–	1 00E+03	No	No	Not Shallow/Leachate	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 20E+01	No	NA	OS - UAA-2/OS-2-30	–	1 00E+04	No	No	Not Shallow/Leachate	No	</=Screening Level
SVOCs															
4-Chloroaniline	106-47 8	ug/L	1 1 1	100	1 10E+04	No	NA	OS - UAA-2/OS 2-30	–	2 80E+01	Yes	No	Not Shallow/Leachate	No	Non-volatile
bis(2-Chloroethyl)ether	111-44-4	ug/L	1 1 1	100	3 60E+02	No	NA	OS - UAA-2/OS-2-30	–	1 00E+01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Pesticide															
Aldrin	309-00-2	ug/L	1 1 . 1	100	3 30E-02	No	NA	OS - UAA-2/OS-2-30	–	1 40E+01	No	No	Not Shallow/Leachate	No	Non-volatile
alpha-Chlordane	5103-71-9	ug/L	1 1 1	100	1 40E 01	No	NA	OS - UAA-2/OS-2-30	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
beta-BHC	319 85-7	ug/L	1 1 1	100	1 60E 01	No	NA	OS - UAA-2/OS-2 30	–	2 00E-01	No	No	Not Shallow/Leachate	No	Non-volatile
delta-BHC	319-86-8	ug/L	1 1 1	100	1 50E-02	No	NA	OS - UAA-2/OS-2-30	–	2 00E-01	No	No	Not Shallow/Leachate	No	Non-volatile
Endosulfan I	959-98-8	ug/L	1 1 1	100	3 10E-02	No	NA	OS - UAA 2/OS-2-30	–	4 20E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Endosulfan Sulfate	1031-07-8	ug/L	1 1 1	100	1 80E-02	No	NA	OS - UAA 2/OS 2-30	–	4 20E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Endrin Aldehyde	7421-93-4	ug/L	1 1 1	100	4 20E-02	No	NA	OS - UAA-2/OS-2-30	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	4 30E-02	No	NA	OS - UAA-2/OS 2 30	–	2 00E-01	No	No	Not Shallow/Leachate	No	Non-volatile
gamma-Chlordane	5103 74-2	ug/L	1 1 1	100	1 50E 01	No	NA	OS UAA-2/OS-2-30	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Herbicide															
MCPA	94-74 6	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA 2/OS 2-30	–	1 80E+01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	1 90E 08	No	NA	OS - UAA-2/OS-2-30	–	3 00E-05	No	No	Not Shallow/Leachate	No	Non volatile
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	5 30E+04	No	NA	OS - UAA-2/OS-2 30	–	3 80E+04	Yes	No	Not Shallow/Leachate	No	Non-volatile
Arsenic	7440-38-2	ug/L	1 1 1	100	2 90E+01	No	NA	OS - UAA-2/OS 2-30	–	5 00E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Barium	7440-39-3	ug/L	1 1 1	100	1 20E+03	No	NA	OS - UAA-2/OS 2 30	-	2 00E+03	No	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Beryllium	7440-41-7	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-2/OS-2-30	–	4 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Cadmium	7440-43-9	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-2/OS-2-30	–	5 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	4 50E+05	Yes	NA	OS - UAA-2/OS-2-30	–	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Chromium	7440-47-3	ug/L	1 1 1	100	8 40E+01	No	NA	OS - UAA-2/OS-2-30	–	1 00E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-2/OS-2 30	–	1 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Copper	7440-50-8	ug/L	1 1 1	100	6 70E+01	No	NA	OS - UAA-2/OS-2-30	–	6 50E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Iron	7439-89-6	ug/L	1 1 1	100	6 60E+04	Yes	NA	OS - UAA 2/OS-2-30	–	5 00E+03	Yes	No	Not Shallow/Leachate	No	Non-volatile
Lead	7439-92-1	ug/L	1 1 1	100	3 40E+01	No	NA	OS - UAA-2/OS-2-30	–	7 50E+00	Yes	No	Not Shallow/Leachate	No	Non-volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	7 80E+04	Yes	NA	OS - UAA-2/OS-2-30	–	NA	–	No	Not Shallow/Leachate	No	Non volatile
Manganese	7439-96-5	ug/L	1 1 1	100	7 20E+03	No	NA	OS - UAA-2/OS-2-30	–	1 50E+02	Yes	No	Not Shallow/Leachate	No	Non-volatile
Mercury	7439-97-6	ug/L	1 1 1	100	1 10E-01	No	NA	OS - UAA-2/OS-2-30	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	5 70E+01	No	NA	OS - UAA-2/OS-2-30	–	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09-7	ug/L	1 1 1	100	3 80E+04	Yes	NA	OS - UAA-2/OS 2 30	–	NA	–	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440-23-5	ug/L	1 1 1	100	5 90E+05	Yes	NA	OS - UAA-2/OS-2-30	–	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Vanadium	7440-62-2	ug/L	1 1 1	100	1 40E+02	No	NA	OS - UAA-2/OS-2-30	–	4 90E+01	Yes	No	Not Shallow/Leachate	No	Non-volatile
Zinc	7440-66-6	ug/L	1 1 1	100	1 90E+02	No	NA	OS - UAA-2/OS-2-30	–	5 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - S - AA-S-1-24															
VOCs															
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	3 00E 01	No	NA	OS - UAA-3/OS-3-24	–	7 00E+01	No	No	Not Shallow/Leachate	No	<=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-3/OS-3 24	–	5 00E+00	No	No	Not Shallow/Leachate	No	<=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 70E+01	No	4 40E+00	OS - UAA-3/OS-3-24	Yes	NA	–	No	Not Shallow/Leachate	No	No Dose-Response Valu
Toluene	108-88-3	ug/L	1 1 1	100	4 10E 01	No	NA	OS - UAA-3/OS-3 24	–	1 00E+03	No	No	Not Shallow/Leachate	No	<=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 20E-01	No	NA	OS - UAA-3/OS-3-24	–	2 00E+00	No	No	Not Shallow/Leachate	No	<=Screening Level
SVOCs															
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3-24	–	6 00E+02	No	No	Not Shallow/Leachate	No	Non-volatile
bis(2-Chloroethyl)ether	111-44-4	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-3/OS-3-24	–	1 00E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Pesticide															
alpha-Chlordane	5103-71-9	ug/L	1 1 1	100	2 40E-02	No	NA	OS - UAA 3/OS-3-24	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non volatile
delta BHC	319-86-8	ug/L	1 1 1	100	1 80E-02	No	NA	OS - UAA-3/OS-3-24	–	2 00E 01	No	No	Not Shallow/Leachate	No	Non volatile
Endrin Aldehyde	7421-93-4	ug/L	1 1 1	100	3 20E-02	No	NA	OS - UAA-3/OS-3-24	–	2 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Dioxin															
2,3,7,8 TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	6 40E-09	No	NA	OS - UAA 3/OS 3-24	–	3 00E 05	No	No	Not Shallow/Leachate	No	Non volatile
Metals															
Aluminum	7429 90-5	ug/L	1 1 1	100	1 30E+02	No	NA	OS - UAA 3/OS-3 24	–	3 60E+04	No	No	Not Shallow/Leachate	No	Non volatile
Arsenic	7440-38 2	ug/L	1 1 1	100	4 10E+00	No	NA	OS - UAA 3/OS-3-24	-	5 00E+01	No	No	Not Shallow/Leachate	No	Non volatile
Barium	7440-39-3	ug/L	1 1 1	100	2 90E+02	No	3 60E+02	OS - UAA 3/OS-3-24	No	2 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Calcium	7440-70-2	ug/L	1 1 1	100	1 30E+05	Yes	2 00E+05	OS - UAA-3/OS 3 24	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Chromium	7440-47-3	ug/L	1 1 1	100	3 10E+00	No	NA	OS - UAA-3/OS 3 24	–	1 00E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	8 30E+00	No	1 78E+00	OS - UAA-3/OS-3-24	Yes	1 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Iron	7439-89-6	ug/L	1 1 1	100	1 00E+04	Yes	4 00E+03	OS - UAA-3/OS-3-24	Yes	5 00E+03	Yes	No	Not Shallow/Leachate	No	Non-volatile
Lead	7439-92-1	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-3/OS-3-24	–	7 50E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	9 80E+03	Yes	6 40E+04	OS - UAA-3/OS-3-24	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Manganese	7439 96 5	ug/L	1 1 1	100	2 80E+03	No	1 84E+02	OS - UAA 3/OS-3-24	Yes	1 50E+02	Yes	No	Not Shallow/Leachate	No	Non-volatile
Nickel	7440-02-0	ug/L	1 1 1	100	3 10E+01	No	1 44E+01	OS - UAA-3/OS 3 24	Yes	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09-7	ug/L	1 1 1	100	7 50E+03	Yes	8 80E+04	OS - UAA-3/OS 3 24	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Sodium	7440 23 5	ug/L	1 1 1	100	1 80E+05	Yes	4 80E+03	OS UAA 3/OS 3 24	Yes	NA	–	No	Not Shallow/Leachate	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Zinc	7440-66-6	ug/L	1 1 1	100	2 50E+01	No	1 88E+01	OS - UAA-3/OS-3 24	Yes	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - S - AA-S-2-28															
VOCs															
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	6 80E+00	No	NA	OS - UAA-3/OS-3-24	–	1 90E+03	No	No	Not Shallow/Leachate	No	<=Screening Level
4-Methyl 2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-3/OS-3 24	–	1 60E+02	No	No	Not Shallow/Leachate	No	<=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 80E-01	No	4 40E+00	OS - UAA-3/OS-3-24	No	NA	–	No	Not Shallow/Leachate	No	<=BKG
Methyl N-Butyl Ketone	591-78 6	ug/L	1 1 1	100	2 00E+00	No	NA	OS UAA 3/OS 3-24	–	1 60E+02	No	No	Not Shallow/Leachate	No	<=Screening Level
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	5 50E+03	No	NA	OS - UAA-3/OS-3-24	–	3 60E+04	No	No	Not Shallow/Leachate	No	Non-volatile
Barium	7440-39-3	ug/L	1 1 1	100	2 80E+02	No	3 60E+02	OS - UAA-3/OS-3-24	No	2 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Beryllium	7440-41-7	ug/L	1 1 1	100	2 10E-01	No	NA	OS - UAA 3/OS 3-24	–	4 00E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	1 20E+05	Yes	2 00E+05	OS - UAA 3/OS-3 24	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Chromium	7440-47-3	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS 3 24	–	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	5 40E+00	No	1 78E+00	OS - UAA-3/OS-3 24	Yes	1 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Iron	7439 89-6	ug/L	1 1 1	100	1 00E+04	Yes	4 00E+03	OS - UAA-3/OS-3-24	Yes	5 00E+03	Yes	No	Not Shallow/Leachate	No	Non-volatile
Lead	7439-92-1	ug/L	1 1 1	100	3 90E+00	No	NA	OS - UAA-3/OS-3-24	–	7 50E+00	No	No	Not Shallow/Leachate	No	Non-volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	1 90E+04	Yes	8 40E+04	OS UAA-3/OS 3 24	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Manganese	7439-96-5	ug/L	1 1 1	100	2 00E+02	No	1 84E+02	OS UAA-3/OS 3-24	Yes	1 50E+02	Yes	No	Not Shallow/Leachate	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	1 60E+01	No	1 44E+01	OS - UAA-3/OS-3-24	Yes	1 00E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Potassium	7440-09-7	ug/L	1 1 1	100	1 10E+04	Yes	8 80E+04	OS UAA-3/OS-3 24	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Selenium	7782-49-2	ug/L	1 1 1	100	9 20E+00	No	1 84E+01	OS UAA-3/OS 3 24	No	5 00E+01	No	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440-23-5	ug/L	1 1 1	100	2 80E+03	Yes	4 80E+03	OS - UAA 3/OS-3-24	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Vanadium	7440-62-2	ug/L	1 1 1	100	1 20E+01	No	4 00E+00	OS - UAA 3/OS 3-24	Yes	4 90E+01	No	No	Not Shallow/Leachate	No	Non volatile
Zinc	7440 66-6	ug/L	1 1 1	100	3 00E+01	No	1 88E+01	OS - UAA 3/OS 3 24	Yes	5 00E+03	No	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Mid Groundwater - S - AA-S-3-24															
VOCs															
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	6 80E+00	No	NA	OS - UAA-3/OS-3-24	–	1 90E+03	No	No	Not Shallow/Leachate	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-24	–	1 60E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 80E-01	No	NA	OS UAA-3/OS 3-24	–	5 00E+00	No	No	Not Shallow/Leachate	No	</=Screening Level
Chlorobenzene	108 90-7	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-3/OS 3 24	–	1 00E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Methane	74 82 8	ug/L	1 1 1	100	2 70E 01	No	4 40E+00	OS UAA 3/OS 3-24	No	NA	–	No	Not Shallow/Leachate	No	</=BKG
Methyl N-Butyl Ketone	591-78 6	ug/L	1 1 1	100	1 90E+00	No	NA	OS UAA 3/OS 3-24	–	1 60E+02	No	No	Not Shallow/Leachate	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	4 10E 01	No	NA	OS - UAA 3/OS 3-24	–	1 00E+03	No	No	Not Shallow/Leachate	No	</=Screening Level
PCBs															
Total PCBs	1336-36-3	ug/L	1 1 1	100	1 00E 01	No	NA	OS UAA 3/OS-3-24	–	5 00E-01	No	No	Not Shallow/Leachate	No	Non volatile
Metals															
Arsenic	7440-38-2	ug/L	1 1 1	100	3 80E+00	No	NA	OS - UAA 3/OS 3 24	–	5 00E+01	No	No	Not Shallow/Leachate	No	Non-volatile
Barium	7440 39 3	ug/L	1 1 1	100	1 20E+02	No	3 60E+02	OS - UAA-3/OS 3 24	No	2 00E+03	No	No	Not Shallow/Leachate	No	Non volatile
Calcium	7440-70-2	ug/L	1 1 1	100	1 70E+05	Yes	2 00E+05	OS - UAA-3/OS-3-24	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Iron	7439-89-6	ug/L	1 1 1	100	2 10E+03	Yes	4 00E+03	OS - UAA 3/OS-3-24	No	5 00E+03	No	No	Not Shallow/Leachate	No	Non-volatile
Magnesium	7439 95-4	ug/L	1 1 1	100	2 60E+04	Yes	6 40E+04	OS - UAA-3/OS 3 24	No	NA	–	No	Not Shallow/Leachate	No	Non-volatile
Manganese	7439-96-5	ug/L	1 1 1	100	3 00E+01	No	1 84E+02	OS - UAA-3/OS-3-24	No	1 50E+02	No	No	Not Shallow/Leachate	No	Non-volatile
Nickel	7440 02-0	ug/L	1 1 1	100	7 60E+00	No	1 44E+01	OS - UAA-3/OS 3-24	No	1 00E+02	No	No	Not Shallow/Leachate	No	Non volatile
Potassium	7440-09-7	ug/L	1 1 1	100	5 20E+03	Yes	8 80E+04	OS - UAA-3/OS-3-24	No	NA	–	No	Not Shallow/Leachate	No	Non volatile
Selenium	7782-49-2	ug/L	1 1 1	100	5 10E+00	No	1 84E+01	OS - UAA-3/OS 3 24	No	5 00E+01	No	No	Not Shallow/Leachate	No	Non volatile
Sodium	7440 23 5	ug/L	1 1 1	100	1 20E+04	Yes	4 80E+03	OS UAA-3/OS 3 24	Yes	NA	–	No	Not Shallow/Leachate	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Shallow Groundwater - O - AA-O-1-16															
VOCs															
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 40E+00	No	NA	OS - UAA-2/OS-2-20	–	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
1,2-Dichloroethane (total)	540 59-0	ug/L	1 1 1	100	3 00E+00	No	NA	OS UAA-2/OS-2 20	–	7 00E+01	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 00E-01	No	NA	OS - UAA 2/OS 2 20	–	5 00E+00	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 . 1	100	7 80E+00	No	NA	OS - UAA 2/OS-2-20	–	1 00E+02	No	No	</=Screening Level	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	7 00E+00	No	2 20E+01	OS - UAA-2/OS-2-20	No	NA	–	No	</=BKG	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 50E-01	No	NA	OS - UAA-2/OS-2 20	–	2 00E+00	No	No	</=Screening Level	No	</=Screening Level
SVOCs															
Benzo(a)pyrene	50-32-8	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-2/OS-2-20	–	2 00E-01	Yes	Yes	>Screening Level	No	Non-volatile
Benzo(b)fluoranthene	205-99-2	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-2/OS-2-20	–	1 80E-01	Yes	Yes	>Screening Level	No	Non-volatile
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-2/OS-2-20	–	2 10E+02	No	No	</=Screening Level	No	Non-volatile
Benzo(k)fluoranthene	207-08-9	ug/L	1 . 1 . 1	100	1 20E+00	No	NA	OS - UAA 2/OS-2-20	–	1 70E-01	Yes	Yes	>Screening Level	No	Non-volatile
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	2 70E+00	No	NA	OS - UAA-2/OS-2-20	–	3 00E-01	Yes	Yes	>Screening Level	No	Non-volatile
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-2/OS-2-20	–	4 30E-01	Yes	Yes	>Screening Level	No	Non-volatile
Pesticide															
alpha-BHC	319-84-6	ug/L	1 1 1	100	8 30E-02	No	NA	OS - UAA-2/OS 2-20	–	1 10E-01	No	No	</=Screening Level	No	Non-volatile
beta-BHC	319-85-7	ug/L	1 1 1	100	2 70E-02	No	NA	OS - UAA-2/OS-2-20	–	2 00E-01	No	No	</=Screening Level	No	Non-volatile
delta-BHC	319 86-8	ug/L	1 1 1	100	1 70E-02	No	NA	OS - UAA-2/OS-2-20	–	2 00E-01	No	No	</=Screening Level	No	Non-volatile
Dieldrin	60-57-1	ug/L	1 1 1	100	6 50E-03	No	NA	OS - UAA-2/OS-2-20	–	9 00E+00	No	No	</=Screening Level	No	Non-volatile
gamma-BHC (Lindane)	58 89-9	ug/L	1 1 1	100	6 70E-03	No	NA	OS - UAA-2/OS 2-20	–	2 00E-01	No	No	</=Screening Level	No	Non-volatile
Herbicide															
2,4,5-T	93-76-5	ug/L	1 1 1	100	7 20E-01	No	NA	OS - UAA-2/OS-2-20	–	3 60E+02	No	No	</=Screening Level	No	Non volatile
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	5 00E+03	No	1 62E+01	OS - UAA-2/OS 2 20	Yes	3 60E+04	No	No	</=Screening Level	No	Non volatile
Arsenic	7440-38-2	ug/L	1 1 1	100	7 00E+01	No	NA	OS - UAA-2/OS-2-20	–	5 00E+01	Yes	Yes	>Screening Level	No	Non-volatile
Barium	7440-39-3	ug/L	1 1 1	100	3 00E+02	No	2 40E+02	OS UAA 2/OS-2-20	Yes	2 00E+03	No	No	</=Screening Level	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	3 00E+05	Yes	2 60E+05	OS - UAA-2/OS-2-20	Yes	NA	–	No	EN	No	Non-volatile
Chromium	7440-47-3	ug/L	1 1 1	100	8 90E+00	No	NA	OS - UAA-2/OS-2-20	–	1 00E+02	No	No	</=Screening Level	No	Non-volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	2 10E+01	No	NA	OS UAA-2/OS 2 20	–	1 00E+03	No	No	</=Screening Level	No	Non-volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Copper	7440 50-8	ug/L	1 1 1	100	4 30E+00	No	NA	OS UAA 2/OS 2 20	–	6 50E+02	No	No	</=Screening Level	No	Non volatile
Iron	7439 89 6	ug/L	1 1 1	100	4 10E+04	Yes	3 80E+03	OS UAA 2/OS 2 20	Yes	5 00E+03	Yes	No	EN	No	Non volatile
Iron Ferrous (2+)	C FE+2	ug/L	1 1 1	100	1 10E+04	Yes	1 02E+02	OS UAA 2/OS 2 20	Yes	5 00E+03	Yes	No	EN	No	Non volatile
Lead	7439 92 1	ug/L	1 1 1	100	1 90E+01	No	NA	OS UAA 2/OS 2 20	–	7 50E+00	Yes	Yes	>Screening Level	No	Non volatile
Magnesium	7439 95-4	ug/L	1 1 1	100	5 70E+04	Yes	7 20E+04	OS UAA 2/OS 2 20	No	NA	–	No	EN	No	Non volatile
Manganese	7439 96 5	ug/L	1 1 1	100	4 10E+03	No	3 60E+01	OS UAA 2/OS 2 20	Yes	1 50E+02	Yes	Yes	>Screening Level	No	Non volatile
Nickel	7440-02-0	ug/L	1 1 1	100	4 80E+01	No	1 44E+01	OS UAA 2/OS 2 20	Yes	1 00E+02	No	No	</=Screening Level	No	Non volatile
Potassium	7440-09 7	ug/L	1 1 1	100	6 00E+03	Yes	2 60E+03	OS UAA 2/OS 2 20	Yes	NA	–	No	EN	No	Non volatile
Sodium	7440 23 5	ug/L	1 1 1	100	1 30E+05	Yes	1 62E+04	OS UAA 2/OS 2 20	Yes	NA	–	No	EN	No	Non volatile
Vanadium	7440-62 2	ug/L	1 1 1	100	1 60E+01	No	NA	OS UAA 2/OS 2 20	–	4 90E+01	No	No	</=Screening Level	No	Non volatile
Zinc	7440-66-6	ug/L	1 1 1	100	6 50E+01	No	5 20E+01	OS UAA 2/OS 2 20	Yes	5 00E+03	No	No	</=Screening Level	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason
Shallow Groundwater - O - AA-O-2-13															
VOCs															
Ethylbenzene	100-41-4	ug/L	1 1 . 1	100	1 90E-01	No	NA	OS - UAA 2/OS-2-20	-	7 00E+02	No	No	</=Screening Level	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	3 30E+00	No	2 20E+01	OS - UAA-2/OS 2-20	No	NA	-	No	</=BKG	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	3 60E-01	No	NA	OS - UAA-2/OS-2-20	-	1 00E+03	No	No	</=Screening Level	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	4 90E-01	No	NA	OS - UAA-2/OS 2-20	-	1 00E+04	No	No	</=Screening Level	No	</=Screening Level
Metals															
Aluminum	7429-90-5	ug/L	1 1 1	100	1 90E+03	No	1 62E+01	OS - UAA-2/OS 2-20	Yes	3 80E+04	No	No	</=Screening Level	No	Non-volatile
Barium	7440-39-3	ug/L	1 1 1	100	1 30E+02	No	2 40E+02	OS - UAA-2/OS 2-20	No	2 00E+03	No	No	</=Screening Level	No	Non-volatile
Calcium	7440-70-2	ug/L	1 1 1	100	1 90E+05	Yes	2 60E+05	OS - UAA 2/OS 2-20	No	NA	-	No	EN	No	Non volatile
Chromium	7440-47-3	ug/L	1 1 1	100	8 90E+00	No	NA	OS - UAA-2/OS 2-20	-	1 00E+02	No	No	</=Screening Level	No	Non-volatile
Cobalt	7440-48-4	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-2/OS-2-20	-	1 00E+03	No	No	</=Screening Level	No	Non-volatile
Iron	7439-89-6	ug/L	1 1 1	100	2 90E+03	Yes	3 80E+03	OS - UAA-2/OS 2-20	No	5 00E+03	No	No	EN	No	Non-volatile
Iron, Ferrous (2+)	C-FE+2	ug/L	1 1 1	100	1 40E+01	Yes	1 02E+02	OS - UAA-2/OS-2-20	No	5 00E+03	No	No	EN	No	Non-volatile
Magnesium	7439-95-4	ug/L	1 1 1	100	2 90E+04	Yes	7 20E+04	OS - UAA-2/OS-2-20	No	NA	-	No	EN	No	Non-volatile
Manganese	7439-96-5	ug/L	1 1 1	100	6 50E+01	No	3 60E+01	OS UAA-2/OS-2-20	Yes	1 50E+02	No	No	</=Screening Level	No	Non-volatile
Nickel	7440-02-0	ug/L	1 1 1	100	1 20E+01	No	1 44E+01	OS - UAA 2/OS-2-20	No	1 00E+02	No	No	</=Screening Level	No	Non-volatile
Potassium	7440-09-7	ug/L	1 1 1	100	7 00E+03	Yes	2 60E+03	OS - UAA-2/OS-2-20	Yes	NA	-	No	EN	No	Non-volatile
Selenium	7782-49-2	ug/L	1 1 1	100	2 20E+01	No	NA	OS - UAA-2/OS-2-20	-	5 00E+01	No	No	</=Screening Level	No	Non-volatile
Sodium	7440-23-5	ug/L	1 1 1	100	2 90E+05	Yes	1 62E+04	OS - UAA 2/OS 2-20	Yes	NA	-	No	EN	No	Non volatile
Vanadium	7440-62-2	ug/L	1 1 1	100	6 30E+00	No	NA	OS - UAA 2/OS-2-20	-	4 90E+01	No	No	</=Screening Level	No	Non volatile
Zinc	7440-66-6	ug/L	1 1 1	100	1 10E+01	No	5 20E+01	OS - UAA-2/OS 2 20	No	5 00E+03	No	No	</=Screening Level	No	Non volatile

TABLE B-2
MID/SHALLOW GROUNDWATER AND LEACHATE SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off site Background Location (e)	Is Detected Concentration > Background ?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC in Shallow Groundwater? (g)	Reason	COPC in Shallow and Mid Groundwater? (h)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
EN - Essential nutrient
FOD - Frequency of detection
NA - Not available
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
USEPA - United States Environmental Protection Agency
VOC - Volatile Organic Compound
Not applicable
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as COPCs
(c) The detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non detected values were excluded
(d) Equal to two times the average concentration for the constituent in mid and shallow groundwater in an off site sampling location
(e) Off-site locations used to calculate background concentration for mid/shallow groundwater locations
(f) Groundwater screening levels were used according to the following hierarchy
Illinois Groundwater Quality Standards for Class I Potable Resource Groundwater 35 Ill Adm Code 620 410 February 2, 2002
USEPA, 2002 2002 Edition of the Drinking Water Standards and Health Advisories Office of Water EPA 822-R-02-038 Maximum Contaminant Levels Summer 2002
IEPA, 2002 Tiered Approach to Corrective Action Objectives Appendix B, Table E Tier 1 Groundwater Remediation Objectives for the Groundwater Component of the Groundwater Ingestion Route Class I values February 5 2002
USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for Tap Water
(g) A constituent is identified as a COPC in shallow groundwater/leachate if it is detected in shallow groundwater and/or leachate in greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient if the maximum detected concentration is greater than the background concentration and if the maximum detected concentration is greater than the groundwater screening level
(h) A constituent is identified as a COPC in mid/shallow groundwater/leachate if it is a VOC, is detected in shallow or mid groundwater and/or leachate in greater than 5 percent of samples, provided 20 samples are available if it is not an essential nutrient, if the detected concentration is greater than the background concentration and if the detected concentration is greater than the groundwater screening level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site O													
VOCs													
2-Butanone (MEK)	78-93-3	mg/kg	1 1 2	100	1 70E-02	1 70E-02	No	NA	--	2 70E+03	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	1 2 2	50	8 95E-02	1 30E-01	No	NA	--	6 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	1 1 2	100	3 80E-04	3 80E-04	No	1 07E-03	No	2 00E+01	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	1 1 2	100	1 00E-03	1 00E-03	No	8 80E-04	Yes	3 40E+00	No	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	1 1 2	100	5 80E-04	5 80E-04	No	NA	--	1 10E-01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	1 1 2	100	1 30E-03	1 30E-03	No	1 61E-03	No	9 00E+01	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	mg/kg	1 1 2	100	3 60E-02	3 60E-02	No	NA	--	4 10E+02	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	mg/kg	1 1 2	100	3 50E-02	3 50E-02	No	NA	--	1 80E+02	No	No	</=Screening Level
2-Nitroaniline	88-74-4	mg/kg	1 1 2	100	5 30E-02	5 30E-02	No	NA	--	1 80E+00	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	1 1 2	100	6 30E-02	6 30E-02	No	2 76E-01	No	2 10E+00	No	No	</=Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	2 2 2	100	1 19E-01	1 40E-01	No	3 66E-01	No	2 10E+00	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	1 2 2	50	6 95E-01	1 20E+00	No	4 14E-01	Yes	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	1 1 2	100	1 00E-01	1 00E-01	No	2 83E-01	No	2 10E+01	No	No	</=Screening Level
Benzyl Butyl Phthalate	85-68-7	mg/kg	1 1 2	100	3 50E-02	3 50E-02	No	NA	--	1 20E+04	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	2 2 2	100	4 25E-02	6 20E-02	No	3 53E-01	No	1 20E+02	No	No	</=Screening Level
Chrysene	218-01-9	mg/kg	1 2 2	50	1 95E-01	2 00E 01	No	2 99E-01	No	2 10E+02	No	No	</=Screening Level
Di-n-butylphthalate	84-74-2	mg/kg	1 1 2	100	4 90E-02	4 90E-02	No	NA	--	6 20E+03	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	2 2 2	100	1 04E-01	1 30E-01	No	1 20E-01	Yes	2 10E-01	No	No	</=Screening Level
Hexachlorobenzene	118-74-1	mg/kg	1 1 2	100	1 10E-01	1 10E-01	No	NA	--	1 10E+00	No	No	</=Screening Level
Phenanthrene	85-01-8	mg/kg	1 1 2	100	4 00E-02	4 00E-02	No	3 31E-01	No	2 40E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	1 1 2	100	1 30E-01	1 30E-01	No	4 30E-01	No	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDD	72-54-8	mg/kg	1 2 2	50	4 39E-02	8 60E-02	No	7 04E-03	Yes	1 00E+01	No	No	</=Screening Level
4,4'-DDT	50-29-3	mg/kg	2 2 2	100	1 15E-01	2 30E-01	No	4 04E-02	Yes	7 00E+00	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	mg/kg	1 2 2	50	5 17E-03	9 40E-03	No	6 15E-03	Yes	6 50E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	1 2 2	50	9 10E-02	1 80E-01	No	1 13E 02	Yes	1 10E 01	Yes	Yes	>Screening Level
Endosulfan II	33213-65-9	mg/kg	1 2 2	50	6 45E-03	1 10E-02	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Endosulfan Sulfate	1031-07-8	mg/kg	1 2 2	50	8 60E-02	1 70E-01	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	mg/kg	1 1 2	100	3 40E-03	3 40E-03	No	5 88E-03	No	1 80E+01	No	No	</=Screening Level
Endrin Ketone	53494-70-5	mg/kg	1 2 2	50	1 19E-02	2 20E-02	No	NA	--	1 80E+01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	mg/kg	1 2 2	50	1 65E-02	3 20E-02	No	NA	--	1 70E+00	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	mg/kg	1 2 2	50	9 05E-02	1 80E-01	No	4 11E-02	Yes	6 50E+00	No	No	</=Screening Level
Heptachlor	76-44-8	mg/kg	1 2 2	50	8 47E-03	1 60E-02	No	3 12E-02	No	3 80E-01	No	No	</=Screening Level
Methoxychlor	72-43 5	mg/kg	1 1 2	100	8 80E-04	8 80E-04	No	5 60E-03	No	3 10E+02	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	mg/kg	1 2 2	50	1 09E-02	1 70E-02	No	NA	--	6 20E+02	No	No	</=Screening Level
2,4-D	94-75-7	mg/kg	2 2 2	100	4 05E-02	5 00E-02	No	9 96E-03	Yes	7 70E+02	No	No	</=Screening Level
2,4-DB	94-82-6	mg/kg	2 2 2	100	1 60E-02	1 90E-02	No	NA	--	4 90E+02	No	No	</=Screening Level
Dicamba	1918-00-9	mg/kg	1 1 2	100	2 40E-03	2 40E-03	No	NA	--	1 80E+03	No	No	</=Screening Level
Dichlorprop	120-36-5	mg/kg	2 2 2	100	2 35E-02	3 70E-02	No	1 14E-01	No	4 92E+02	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	2 2 2	100	1 15E+01	1 20E+01	No	3 60E+00	Yes	6 20E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	2 2 2	100	1 01E+00	2 00E+00	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	2 2 2	100	5 40E+00	1 08E+01	No	1 85E-01	Yes	1 00E+00	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	2 2 2	100	2 99E-03	5 93E-03	No	1 69E-05	Yes	1 00E-03	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	2 2 2	100	8 00E+03	8 60E+03	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	1 1 2	100	7 40E-01	7 40E-01	No	2 33E+00	No	4 10E+01	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	2 2 2	100	5 70E+00	6 30E+00	No	1 24E+01	No	1 60E+00	Yes	No	</=BKG
Barium	7440-39-3	mg/kg	2 2 2	100	1 15E+02	1 30E+02	No	3 07E+02	No	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	2 2 2	100	5 00E-01	5 40E-01	No	9 02E-01	No	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	2 2 2	100	1 12E+00	1 70E+00	No	3 34E+00	No	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	2 2 2	100	1 63E+04	2 60E+04	Yes	9 74E+04	No	NA	--	No	EN
Chromium	7440-47-3	mg/kg	2 2 2	100	1 40E+01	1 50E+01	No	2 21E+01	No	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	2 2 2	100	6 75E+00	6 90E+00	No	9 40E+00	No	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	2 2 2	100	3 30E+01	4 00E+01	No	8 58E+01	No	4 10E+03	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Iron	7439-89-6	mg/kg	2 2 2	100	1 55E+04	1 60E+04	Yes	2 33E+04	No	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	2 2 2	100	1 70E+01	2 00E+01	No	1 30E+02	No	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	2 2 2	100	6 30E+03	8 50E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	2 2 2	100	5 10E+02	5 30E+02	No	5 52E+02	No	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	2 2 2	100	1 47E+00	2 90E+00	No	1 [illegible]4E-01	Yes	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	2 2 2	100	1 80E+01	1 80E+01	No	3 30E+01	No	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	2 2 2	100	8 55E+02	8 60E+02	Yes	3 01E+03	No	NA	--	No	EN
Sodium	7440-23-5	mg/kg	2 2 2	100	9 75E+01	1 10E+02	Yes	1 58E+02	No	NA	--	No	EN
Vanadium	7440-62-2	mg/kg	2 2 2	100	2 80E+01	2 80E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	2 2 2	100	1 00E+02	1 30E+02	No	3 90E+02	No	3 10E+04	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site O North													
VOCs													
Benzene	71-43-2	mg/kg	1 1 1	100	5 90E-01	5 90E-01	No	NA	--	1 30E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	mg/kg	1 1 1	100	1 80E-01	1 80E-01	No	NA	--	1 20E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	1 1 1	100	5 80E+00	5 80E+00	No	NA	--	5 30E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	1 1 1	100	4 40E+00	4 40E+00	No	1 07E-03	Yes	2 00E+01	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	1 1 1	100	2 90E 01	2 90E-01	No	8 80E-04	Yes	3 40E+00	No	No	</=Screening Level
Toluene	108-88-3	mg/kg	1 1 1	100	8 70E-01	8 70E-01	No	NA	--	2 20E+02	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	1 1 1	100	8 00E+01	8 00E+01	No	1 61E-03	Yes	9 00E+01	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	mg/kg	1 1 1	100	3 40E-02	3 40E-02	No	NA	--	4 10E+02	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	1 1 1	100	4 10E 02	4 10E-02	No	2 76E-01	No	2 10E+00	No	No	</=Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	1 1 1	100	4 60E-02	4 60E-02	No	4 06E-01	No	2 10E-01	No	No	</=Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	1 1 1	100	8 90E-02	8 90E-02	No	3 66E 01	No	2 10E+00	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	1 1 1	100	4 20E-02	4 20E-02	No	4 14E-01	No	2 90E+03	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	1 1 1	100	2 50E-01	2 50E-01	No	3 53E-01	No	1 20E+02	No	No	</=Screening Level
Chrysene	218-01-9	mg/kg	1 1 1	100	6 70E-02	6 70E-02	No	2 99E 01	No	2 10E+02	No	No	</=Screening Level
Fluoranthene	206-44-0	mg/kg	1 1 1	100	8 20E-02	8 20E-02	No	4 50E-01	No	2 20E+03	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	1 1 1	100	3 20E-02	3 20E-02	No	NA	--	2 10E+00	No	No	</=Screening Level
Phenanthrene	85 01 8	mg/kg	1 1 1	100	3 20E 02	3 20E-02	No	3 31E-01	No	2 40E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	1 1 1	100	7 80E-02	7 80E-02	No	4 30E-01	No	2 90E+03	No	No	</=Screening Level
Pesticide													
Dieldrin	60-57-1	mg/kg	1 1 1	100	1 40E-03	1 40E-03	No	1 13E-02	No	1 10E-01	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	mg/kg	1 1 1	100	3 30E-04	3 30E-04	No	4 11E-02	No	6 50E+00	No	No	</=Screening Level
Herbicide													
Dichlorprop	120-36-5	mg/kg	1 1 1	100	1 10E-02	1 10E-02	No	1 14E-01	No	4 92E+02	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	1 1 1	100	4 30E+01	4 30E+01	No	3 60E+00	Yes	6 20E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	1 1 1	100	6 10E-02	6 10E-02	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	1 1 1	100	7 09E+02	7 09E+02	No	1 85E 01	Yes	1 00E+00	Yes	Yes	>Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	1 1 1	100	5 08E-02	5 08E-02	No	1 69E-05	Yes	1 00E-03	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	1 1 1	100	5 20E+03	5 20E+03	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	1 1 1	100	8 10E-01	8 10E-01	No	2 33E+00	No	4 10E+01	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	1 1 1	100	1 10E+01	1 10E+01	No	1 24E+01	No	1 60E+00	Yes	No	</=BKG
Barium	7440-39-3	mg/kg	1 1 1	100	3 40E+02	3 40E+02	No	3 07E+02	Yes	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	1 1 1	100	3 90E-01	3 90E-01	No	9 02E-01	No	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	1 1 1	100	1 70E+01	1 70E+01	No	3 34E+00	Yes	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	1 1 1	100	4 90E+03	4 90E+03	Yes	9 74E+04	No	NA	--	No	EN
Chromium	7440-47-3	mg/kg	1 1 1	100	1 60E+01	1 60E+01	No	2 21E+01	No	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	1 1 1	100	5 90E+00	5 90E+00	No	9 40E+00	No	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	1 1 1	100	2 70E+02	2 70E+02	No	8 58E+01	Yes	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	1 1 1	100	1 10E+04	1 10E+04	Yes	2 33E+04	No	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	1 1 1	100	1 30E+02	1 30E+02	No	1 30E+02	No	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	1 1 1	100	2 30E+03	2 30E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	1 1 1	100	4 20E+02	4 20E+02	No	5 52E+02	No	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	1 1 1	100	4 30E+01	4 30E+01	No	1 04E-01	Yes	3 10E+01	Yes	Yes	>Screening Level
Nickel	7440-02-0	mg/kg	1 1 1	100	2 80E+01	2 80E+01	No	3 30E+01	No	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	1 1 1	100	7 20E+02	7 20E+02	Yes	3 01E+03	No	NA	--	No	EN
Silver	7440-22-4	mg/kg	1 1 1	100	2 90E+00	2 90E+00	No	9 90E-01	Yes	5 10E+02	No	No	</=Screening Level
Sodium	7440-23-5	mg/kg	1 1 1	100	9 60E+01	9 60E+01	Yes	1 58E+02	No	NA	--	No	EN
Vanadium	7440-62-2	mg/kg	1 1 1	100	1 90E+01	1 90E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	1 1 1	100	9 40E+02	9 40E+02	No	3 90E+02	Yes	3 10E+04	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site P													
VOCs													
2-Butanone (MEK)	78-93-3	mg/kg	1 1 4	100	7 10E-03	7 10E-03	No	NA	--	2 70E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	2 3 4	67	1 87E-02	2 10E-02	No	NA	--	2 80E+02	No	No	</=Screening Level
Benzene	71-43-2	mg/kg	2 4 4	50	5 37E-03	9 40E-03	No	NA	--	1 30E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	mg/kg	2 2 4	100	1 40E-03	1 40E-03	No	NA	--	1 20E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	1 2 4	50	3 78E-03	4 00E-03	No	NA	--	5 30E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	2 2 4	100	1 33E-03	2 40E-03	No	1 07E-03	Yes	2 00E+01	No	No	</=Screening Level
Methyl N-Butyl Ketone	591-78-6	mg/kg	1 1 4	100	5 90E-03	5 90E-03	No	NA	--	2 70E+03	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	mg/kg	1 1 4	100	3 40E-04	3 40E-04	No	4 47E-03	No	1 80E+03	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	3 4 4	75	3 94E-03	6 00E-03	No	8 80E-04	Yes	3 40E+00	No	No	</=Screening Level
Toluene	108-88-3	mg/kg	1 4 4	25	1 18E 02	3 20E-02	No	NA	--	2 20E+02	No	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	2 2 4	100	1 15E-03	1 50E-03	No	NA	--	1 10E-01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	1 1 4	100	9 70E-04	9 70E-04	No	1 61E-03	No	9 00E+01	No	No	</=Screening Level
SVOCs													
Acenaphthene	83-32-9	mg/kg	1 1 4	100	7 50E-02	7 50E-02	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level
Anthracene	120-12-7	mg/kg	1 3 4	33	2 08E-01	2 30E-01	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	2 3 4	67	3 00E-01	6 80E-01	No	2 76E-01	Yes	2 10E+00	No	No	</=Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	2 3 4	67	3 01E-01	6 70E-01	No	4 06E-01	Yes	2 10E-01	Yes	Yes	>Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	2 3 4	67	3 01E-01	6 80E-01	No	3 66E-01	Yes	2 10E+00	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	2 3 4	67	1 94E-01	3 20E-01	No	4 14E-01	No	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	2 3 4	67	2 63E-01	5 70E-01	No	2 83E-01	Yes	2 10E+01	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	3 3 4	100	4 03E-02	5 00E-02	No	3 53E-01	No	1 20E+02	No	No	</=Screening Level
Carbazole	86-74-8	mg/kg	1 1 4	100	7 30E-02	7 30E-02	No	NA	--	8 60E+01	No	No	</=Screening Level
Chrysene	218-01-9	mg/kg	2 3 4	67	3 31E-01	7 70E-01	No	2 99E-01	Yes	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	2 2 4	100	8 45E-02	1 10E-01	No	1 20E-01	No	2 10E-01	No	No	</=Screening Level
Dibenzofuran	132-64-9	mg/kg	1 1 4	100	2 90E-02	2 90E-02	No	NA	--	3 10E+02	No	No	</=Screening Level
Fluoranthene	206-44-0	mg/kg	2 4 4	50	7 08E-01	1 70E+00	No	4 50E-01	Yes	2 20E+03	No	No	</=Screening Level
Fluorene	86-73-7	mg/kg	1 1 4	100	6 50E-02	6 50E-02	No	NA	--	2 60E+03	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	2 3 4	67	1 65E-01	2 40E-01	No	NA	--	2 10E+00	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Phenanthrene	85-01-8	mg/kg	2 4 4	50	5 53E-01	1 10E+00	No	3 31E-01	Yes	2 40E+04	No	No	</=Screening Level
Phenol	108-95-2	mg/kg	1 3 4	33	2 52E-01	3 60E-01	No	NA	--	3 70E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	2 4 4	50	7 35E-01	1 80E+00	No	4 30E-01	Yes	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDE	72-55-9	mg/kg	1 1 4	100	3 00E-03	3 00E-03	No	1 23E-02	No	7 00E+00	No	No	</=Screening Level
4,4'-DDT	50-29-3	mg/kg	4 4 4	100	2 84E-01	1 10E+00	No	4 04E-02	Yes	7 00E+00	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	mg/kg	2 3 4	67	9 67E-03	1 80E-02	No	6 15E-03	Yes	6 50E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	2 2 4	100	2 50E-03	3 00E-03	No	1 13E-02	No	1 10E-01	No	No	</=Screening Level
Endosulfan Sulfate	1031-07-8	mg/kg	1 3 4	33	1 88E-02	3 60E-02	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	mg/kg	1 4 4	25	5 03E-02	1 40E-01	No	5 68E-03	Yes	1 80E+01	No	No	</=Screening Level
Endrin Ketone	53494-70-5	mg/kg	1 2 4	50	5 88E-03	9 70E-03	No	NA	--	1 80E+01	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	mg/kg	1 3 4	33	8 52E-03	1 50E-02	No	1 05E-02	Yes	1 90E-01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	mg/kg	1 1 4	100	1 40E-03	1 40E-03	No	NA	--	6 20E+02	No	No	</=Screening Level
2,4-D	94-75-7	mg/kg	2 4 4	50	6 06E-03	1 00E-02	No	9 96E-03	Yes	7 70E+02	No	No	</=Screening Level
Dichlorprop	120-36-5	mg/kg	3 3 4	100	4 37E-03	9 50E-03	No	1 14E-01	No	4 92E+02	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	2 4 4	50	1 34E+00	2 30E+00	No	3 60E+00	No	6 20E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	4 4 4	100	1 26E-02	2 80E-02	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	3 4 4	75	1 78E+00	7 02E+00	No	1 85E-01	Yes	1 00E+00	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	3 4 4	75	7 90E-05	2 59E-04	No	1 69E-05	Yes	1 00E-03	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	4 4 4	100	4 80E+03	6 00E+03	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	3 4 4	75	9 33E-01	1 60E+00	No	2 33E+00	No	4 10E+01	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	4 4 4	100	1 41E+01	2 60E+01	No	1 24E+01	Yes	1 60E+00	Yes	Yes	>Screening Level
Barium	7440-39-3	mg/kg	4 4 4	100	1 16E+02	1 80E+02	No	3 07E+02	No	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	4 4 4	100	1 14E+00	1 80E+00	No	9 02E-01	Yes	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	4 4 4	100	1 66E+00	3 00E+00	No	3 34E+00	No	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	4 4 4	100	2 32E+04	7 00E+04	Yes	9 74E+04	No	NA	--	No	EN

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Chromium	7440-47-3	mg/kg	4 4 4	100	1 55E+01	1 90E+01	No	2 21E+01	No	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	4 4 4	100	9 13E+00	1 30E+01	No	9 40E+00	Yes	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	4 4 4	100	4 88E+01	6 40E+01	No	8 58E+01	No	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	4 4 4	100	9 88E+03	1 20E+04	Yes	2 33E+04	No	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	4 4 4	100	7 90E+01	1 70E+02	No	1 30E+02	Yes	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	4 4 4	100	3 36E+03	7 90E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	4 4 4	100	2 15E+02	3 90E+02	No	5 52E+02	No	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	4 4 4	100	1 15E-01	2 30E-01	No	1 34E-01	Yes	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	4 4 4	100	2 75E+01	4 70E+01	No	3 30E+01	Yes	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	4 4 4	100	9 08E+02	1 40E+03	Yes	3 01E+03	No	NA	--	No	EN
Selenium	7782-49-2	mg/kg	2 4 4	50	2 41E+00	7 00E+00	No	1 08E+00	Yes	5 10E+02	No	No	</=Screening Level
Silver	7440-22-4	mg/kg	3 3 4	100	1 93E-01	2 30E-01	No	9 90E 01	No	5 10E+02	No	No	</=Screening Level
Sodium	7440-23-5	mg/kg	3 4 4	75	1 78E+02	2 60E+02	Yes	1 58E+02	Yes	NA	--	No	EN
Thallium	7440-28-0	mg/kg	1 4 4	25	7 06E-01	1 30E+00	No	NA	--	6 70E+00	No	No	</=Screening Level
Vanadium	7440-62-2	mg/kg	4 4 4	100	2 90E+01	4 40E+01	No	3 89E+01	Yes	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	4 4 4	100	2 16E+02	3 90E+02	No	3 90E+02	No	3 10E+04	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site Q Central													
VOCs													
2-Butanone (MEK)	78-93-3	mg/kg	3 3 3	100	1 34E-02	2 45E-02	No	NA	--	2 70E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	1 1 3	100	1 02E-02	1 02E-02	No	NA	--	2 80E+02	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	3 3 3	100	1 92E-01	4 85E-01	No	NA	--	6 00E+02	No	No	</=Screening Level
Benzene	71-43-2	mg/kg	1 3 3	33	4 68E-03	7 85E-03	No	NA	--	1 30E+00	No	No	</=Screening Level
Carbon Disulfide	75-15 0	mg/kg	3 3 3	100	2 52E-03	5 40E-03	No	NA	--	1 20E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	3 3 3	100	4 46E-02	1 31E-01	No	NA	--	5 30E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	3 3 3	100	1 19E-02	3 50E-02	No	1 07E-03	Yes	2 00E+01	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	3 3 3	100	1 42E-03	3 40E-03	No	8 80E-04	Yes	3 40E+00	No	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	3 3 3	100	8 37E-04	1 00E-03	No	NA	--	1 10E-01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	3 3 3	100	5 95E-02	1 75E-01	No	1 61E-03	Yes	9 00E+01	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	mg/kg	3 3 3	100	1 62E-01	3 00E-01	No	NA	--	7 90E+00	No	No	</=Screening Level
2-Methylnaphthalene	91-57-6	mg/kg	2 2 3	100	5 20E-02	6 90E-02	No	NA	--	1 90E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	mg/kg	1 1 3	100	6 60E-02	6 60E-02	No	NA	--	3 10E+02	No	No	</=Screening Level
Acenaphthene	83-32-9	mg/kg	3 3 3	100	4 17E-02	5 30E-02	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level
Anthracene	120-12-7	mg/kg	3 3 3	100	9 90E-02	1 30E-01	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	3 3 3	100	3 22E-01	4 25E-01	No	2 76E-01	Yes	2 10E+00	No	No	</=Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	3 3 3	100	3 28E-01	4 05E-01	No	4 06E-01	No	2 10E-01	Yes	No	</=BKG
Benzo(b)fluoranthene	205-99-2	mg/kg	3 3 3	100	4 02E-01	4 95E-01	No	3 66E-01	Yes	2 10E+00	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	2 3 3	67	1 97E-01	2 30E-01	No	4 14E-01	No	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	3 3 3	100	3 13E-01	3 70E-01	No	2 83E-01	Yes	2 10E+01	No	No	</=Screening Level
Benzyl Butyl Phthalate	85-68-7	mg/kg	2 3 3	67	1 41E-01	2 20E-01	No	NA	--	1 20E+04	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	3 3 3	100	4 74E-01	1 22E+00	No	3 53E 01	Yes	1 20E+02	No	No	</=Screening Level
Carbazole	86-74-8	mg/kg	1 1 3	100	6 50E-02	6 50E-02	No	NA	--	8 60E+01	No	No	</=Screening Level
Chrysene	218-01-9	mg/kg	3 3 3	100	3 93E-01	5 70E-01	No	2 99E-01	Yes	2 10E+02	No	No	</=Screening Level
Di-n-butylphthalate	84-74-2	mg/kg	1 3 3	33	2 07E-01	2 40E-01	No	NA	--	6 20E+03	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	2 2 3	100	6 35E-02	7 20E-02	No	1 20E-01	No	2 10E-01	No	No	</=Screening Level
Dibenzofuran	132-64-9	mg/kg	3 3 3	100	3 70E 02	4 60E-02	No	NA	--	3 10E+02	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Fluoranthene	206-44-0	mg/kg	3 3 3	100	6 78E-01	1 08E+00	No	4 50E-01	Yes	2 20E+03	No	No	</=Screening Level
Fluorene	86-73-7	mg/kg	3 3 3	100	4 87E-02	6 40E-02	No	NA	--	2 60E+03	No	No	</=Screening Level
Hexachlorobenzene	118-74-1	mg/kg	1 1 3	100	2 90E-02	2 90E-02	No	NA	--	1 10E+00	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	3 3 3	100	1 18E-01	1 45E-01	No	NA	--	2 10E+00	No	No	</=Screening Level
Naphthalene	91-20-3	mg/kg	2 2 3	100	5 50E-02	6 40E-02	No	NA	--	1 90E+01	No	No	</=Screening Level
Phenanthrene	85-01-8	mg/kg	3 3 3	100	4 60E-01	6 40E-01	No	3 31E-01	Yes	2 40E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	3 3 3	100	7 87E-01	1 19E+00	No	4 30E-01	Yes	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDD	72-54-8	mg/kg	1 3 3	33	8 53E-03	2 00E-02	No	7 04E-03	Yes	1 00E+01	No	No	</=Screening Level
4,4'-DDT	50-29-3	mg/kg	1 3 3	33	3 67E-02	1 05E-01	No	4 04E-02	Yes	7 00E+00	No	No	</=Screening Level
Aldrin	309-00-2	mg/kg	1 2 3	50	1 98E-03	2 10E-03	No	3 56E-03	No	1 00E-01	No	No	</=Screening Level
alpha-BHC	319 84-6	mg/kg	1 3 3	33	2 11E 02	6 05E-02	No	4 96E 02	Yes	3 60E-01	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	mg/kg	1 3 3	33	2 25E-03	3 85E-03	No	6 15E-03	No	6 50E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	2 3 3	67	1 89E-02	4 80E-02	No	1 13E-02	Yes	1 10E-01	No	No	</=Screening Level
Endosulfan Sulfate	1031-07-8	mg/kg	1 2 3	50	2 20E-03	2 40E-03	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level
Endrin Ketone	53494-70-5	mg/kg	1 1 3	100	1 10E-03	1 10E-03	No	NA	--	1 80E+01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	mg/kg	1 1 3	100	3 55E-03	3 55E-03	No	NA	--	6 20E+02	No	No	</=Screening Level
2,4-D	94-75-7	mg/kg	1 1 3	100	4 70E-03	4 70E-03	No	9 96E 03	No	7 70E+02	No	No	</=Screening Level
2,4-DB	94-82-6	mg/kg	1 2 3	50	1 25E-02	2 00E-02	No	NA	--	4 90E+02	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	3 3 3	100	7 95E-01	2 30E+00	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	3 3 3	100	1 08E+00	2 57E+00	No	1 85E-01	Yes	1 00E+00	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	3 3 3	100	1 14E-03	3 31E-03	No	1 69E 05	Yes	1 00E-03	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	3 3 3	100	4 42E+03	5 20E+03	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	3 3 3	100	2 03E+00	3 25E+00	No	2 33E+00	Yes	4 10E+01	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	3 3 3	100	7 30E+00	1 30E+01	No	1 24E+01	Yes	1 60E+00	Yes	Yes	>Screening Level
Barium	7440-39-3	mg/kg	3 3 3	100	1 94E+02	3 80E+02	No	3 07E+02	Yes	6 70E+03	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Beryllium	7440-41-7	mg/kg	3 3 3	100	3 77E-01	6 40E-01	No	9 02E-01	No	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	3 3 3	100	1 43E+00	2 00E+00	No	3 34E+00	No	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	3 3 3	100	1 76E+05	2 40E+05	Yes	9 74E+04	Yes	NA	--	No	EN
Chromium	7440-47-3	mg/kg	3 3 3	100	1 43E+01	2 00E+01	No	2 21E+01	No	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	3 3 3	100	3 35E+00	5 00E+00	No	9 40E+00	No	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	3 3 3	100	3 82E+01	5 40E+01	No	8 58E+01	No	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	3 3 3	100	1 03E+04	1 60E+04	Yes	2 33E+04	No	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	3 3 3	100	1 62E+02	3 60E+02	No	1 30E+02	Yes	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	3 3 3	100	1 06E+04	1 70E+04	Yes	1 23E+04	Yes	NA	--	No	EN
Manganese	7439-96-5	mg/kg	3 3 3	100	1 87E+02	2 40E+02	No	5 52E+02	No	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	3 3 3	100	1 50E-01	2 70E-01	No	1 34E-01	Yes	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	3 3 3	100	1 15E+01	1 40E+01	No	3 30E+01	No	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	3 3 3	100	1 00E+03	1 10E+03	Yes	3 01E+03	No	NA	--	No	EN
Silver	7440-22-4	mg/kg	3 3 3	100	1 42E-01	1 75E-01	No	9 90E-01	No	5 10E+02	No	No	</=Screening Level
Sodium	7440-23-5	mg/kg	3 3 3	100	3 32E+02	3 85E+02	Yes	1 58E+02	Yes	NA	--	No	EN
Vanadium	7440-62-2	mg/kg	3 3 3	100	1 72E+01	2 05E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	3 3 3	100	5 00E+02	1 06E+03	No	3 90E+02	Yes	3 10E+04	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site Q North													
VOCs													
2-Butanone (MEK)	78-93-3	mg/kg	1 1 5	100	1 50E-03	1 50E-03	No	NA	--	2 70E+03	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	1 1 5	100	2 30E-02	2 30E-02	No	NA	--	6 00E+02	No	No	</=Screening Level
Benzene	71-43-2	mg/kg	1 1 5	100	7 60E-04	7 60E-04	No	NA	--	1 30E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	mg/kg	2 2 5	100	1 82E 03	2 80E-03	No	NA	--	1 20E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	1 1 5	100	5 20E-04	5 20E-04	No	NA	--	5 30E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	2 2 5	100	2 65E-04	3 40E-04	No	1 07E-03	No	2 00E+01	No	No	</=Screening Level
Methyl N-Butyl Ketone	591-78-6	mg/kg	1 1 5	100	3 10E-03	3 10E-03	No	NA	--	2 70E+03	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	4 4 5	100	1 79E-03	2 80E-03	No	8 80E-04	Yes	3 40E+00	No	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	4 4 5	100	9 75E-04	1 50E-03	No	NA	--	1 10E-01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	4 4 5	100	1 26E-03	2 20E-03	No	1 61E-03	Yes	9 00E+01	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	mg/kg	2 4 5	50	2 95E 01	6 30E-01	No	NA	--	7 90E+00	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	mg/kg	1 5 5	20	3 51E-01	1 00E+00	No	NA	--	1 80E+02	No	No	</=Screening Level
2-Methylnaphthalene	91-57-6	mg/kg	4 4 5	100	1 01E-01	2 40E-01	No	NA	--	1 90E+01	No	No	</=Screening Level
Acenaphthene	83-32-9	mg/kg	4 5 5	80	1 65E-01	2 00E-01	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level
Anthracene	120-12-7	mg/kg	4 5 5	80	3 91E-01	6 10E-01	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	5 5 5	100	1 20E+00	1 70E+00	No	2 76E-01	Yes	2 10E+00	No	No	</=Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	5 5 5	100	1 24E+00	1 80E+00	No	4 06E-01	Yes	2 10E-01	Yes	Yes	>Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	5 5 5	100	1 20E+00	1 80E+00	No	3 66E-01	Yes	2 10E+00	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	5 5 5	100	6 90E-01	1 10E+00	No	4 14E-01	Yes	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	5 5 5	100	1 12E+00	1 90E+00	No	2 83E-01	Yes	2 10E+01	No	No	</=Screening Level
Benzyl Butyl Phthalate	85-68-7	mg/kg	1 1 5	100	3 30E-02	3 30E-02	No	NA	--	1 20E+04	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	4 4 5	100	5 38E-02	7 90E-02	No	3 53E-01	No	1 20E+02	No	No	</=Screening Level
Carbazole	86-74-8	mg/kg	3 4 5	75	1 88E-01	2 80E-01	No	NA	--	8 60E+01	No	No	</=Screening Level
Chrysene	218-01-9	mg/kg	5 5 5	100	1 33E+00	1 80E+00	No	2 99E-01	Yes	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	4 5 5	80	2 12E-01	3 70E-01	No	1 20E-01	Yes	2 10E-01	Yes	Yes	>Screening Level
Dibenzofuran	132-64-9	mg/kg	3 3 5	100	1 23E-01	1 80E-01	No	NA	--	3 10E+02	No	No	</=Screening Level
Fluoranthene	206-44-0	mg/kg	5 5 5	100	2 06E+00	3 80E+00	No	4 50E-01	Yes	2 20E+03	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Fluorene	86-73-7	mg/kg	3 4 5	75	1 62E-01	2 10E-01	No	NA	--	2 60E+03	No	No	</=Screening Level
Hexachlorobenzene	118-74-1	mg/kg	1 1 5	100	3 00E-02	3 00E-02	No	NA	--	1 10E+00	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	5 5 5	100	5 56E-01	1 00E+00	No	NA	--	2 10E+00	No	No	</=Screening Level
Naphthalene	91-20-3	mg/kg	3 4 5	75	1 48E-01	2 60E-01	No	NA	--	1 90E+01	No	No	</=Screening Level
Phenanthrene	85-01-8	mg/kg	5 5 5	100	1 65E+00	2 70E+00	No	3 31E-01	Yes	2 40E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	5 5 5	100	2 29E+00	3 80E+00	No	4 20E-01	Yes	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDD	72-54-8	mg/kg	2 5 5	40	1 81E-02	3 90E-02	No	7 04E-03	Yes	1 00E+01	No	No	</=Screening Level
4,4'-DDE	72-55-9	mg/kg	2 3 5	67	3 37E-02	5 00E-02	No	1 23E-02	Yes	7 00E+00	No	No	</=Screening Level
4,4'-DDT	50-29-3	mg/kg	3 5 5	60	9 18E-02	2 60E-01	No	4 04E-02	Yes	7 00E+00	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	mg/kg	3 3 5	100	6 92E-02	2 00E-01	No	6 15E-03	Yes	6 50E+00	No	No	</=Screening Level
beta-BHC	319-85-7	mg/kg	2 5 5	40	9 22E-03	4 00E-02	No	NA	--	1 30E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	3 5 5	60	2 18E-02	7 70E-02	No	1 13E-02	Yes	1 10E-01	No	No	</=Screening Level
Endosulfan II	33213-65-9	mg/kg	1 5 5	20	6 67E-03	1 40E-02	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level
Endrin	72-20-8	mg/kg	2 5 5	40	5 95E-03	1 80E-02	No	5 02E-03	Yes	1 80E+01	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	mg/kg	1 1 5	100	1 60E-03	1 60E-03	No	5 68E-03	No	1 80E+01	No	No	</=Screening Level
Endrin Ketone	53494-70-5	mg/kg	2 4 5	50	4 00E-03	6 10E-03	No	NA	--	1 80E+01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	mg/kg	1 5 5	20	3 10E-03	5 70E-03	No	NA	--	1 70E+00	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	mg/kg	3 5 5	60	4 72E-02	2 10E-01	No	4 11E-02	Yes	6 50E+00	No	No	</=Screening Level
Heptachlor	76-44-8	mg/kg	2 5 5	40	4 17E-03	1 10E-02	No	3 12E-02	No	3 80E-01	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	mg/kg	1 3 5	33	2 55E-03	3 80E-03	No	1 05E-02	No	1 90E-01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	mg/kg	2 2 5	100	2 05E-03	2 10E-03	No	NA	--	6 20E+02	No	No	</=Screening Level
2,4-D	94-75-7	mg/kg	3 5 5	60	5 61E-03	8 90E-03	No	9 96E-03	No	7 70E+02	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	2 5 5	40	9 62E-01	1 20E+00	No	3 60E+00	No	6 20E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	5 5 5	100	1 34E-01	4 20E-01	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	5 5 5	100	5 73E-01	1 87E+00	No	1 85E-01	Yes	1 00E+00	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	4 5 5	80	1 37E-04	6 03E-04	No	1 69E-05	Yes	1 00E-03	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Metals													
Aluminum	7429-90-5	mg/kg	5 5 5	100	4 18E+03	1 10E+04	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	4 5 5	80	9 54E-01	1 60E+00	No	2 33E+00	No	4 10E+01	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	5 5 5	100	6 92E+00	1 10E+01	No	1 24E+01	No	1 60E+00	Yes	No	</=BKG
Barium	7440-39-3	mg/kg	5 5 5	100	6 43E+02	2 90E+03	No	3 07E+02	Yes	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	5 5 5	100	5 68E-01	9 50E-01	No	9 02E-01	Yes	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	5 5 5	100	2 01E+01	9 20E+01	No	3 34E+00	Yes	4 50E+01	Yes	Yes	>Screening Level
Calcium	7440-70-2	mg/kg	5 5 5	100	8 44E+04	2 30E+05	Yes	9 74E+04	Yes	NA	--	No	EN
Chromium	7440-47-3	mg/kg	5 5 5	100	1 30E+01	2 00E+01	No	2 21E+01	No	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	5 5 5	100	7 80E+00	1 60E+01	No	9 40E+00	Yes	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	5 5 5	100	7 12E+01	2 30E+02	No	8 58E+01	Yes	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	5 5 5	100	1 38E+04	2 40E+04	Yes	2 33E+04	Yes	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	4 4 5	100	1 10E+02	2 70E+02	No	1 30E+02	Yes	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	5 5 5	100	5 49E+03	9 70E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	5 5 5	100	3 32E+02	5 30E+02	No	5 52E+02	No	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	5 5 5	100	1 45E-01	4 00E-01	No	1 [illegible]4E-01	Yes	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	5 5 5	100	1 79E+01	3 10E+01	No	3 30E+01	No	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	5 5 5	100	8 84E+02	2 30E+03	Yes	3 01E+03	No	NA	--	No	EN
Selenium	7782-49-2	mg/kg	1 5 5	20	5 69E-01	7 10E-01	No	1 08E+00	No	5 10E+02	No	No	</=Screening Level
Silver	7440-22-4	mg/kg	2 5 5	40	1 42E+00	5 20E+00	No	9 [illegible]0E-01	Yes	5 10E+02	No	No	</=Screening Level
Sodium	7440-23-5	mg/kg	4 5 5	80	2 69E+02	5 60E+02	Yes	1 58E+02	Yes	NA	--	No	EN
Vanadium	7440-62-2	mg/kg	5 5 5	100	1 65E+01	2 80E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	5 5 5	100	1 88E+03	8 00E+03	No	3 90E+02	Yes	3 10E+04	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site Q South													
VOCs													
2-Butanone (MEK)	78-93-3	mg/kg	6 11 12	55	1 38E-02	2 40E-02	No	NA	--	2 70E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	4 4 12	100	6 06E-03	7 50E-03	No	NA	--	2 80E+02	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	5 12 12	42	8 04E-02	2 60E-01	No	NA	--	6 00E+02	No	No	</=Screening Level
Benzene	71-43-2	mg/kg	5 12 12	42	3 09E-03	5 35E-03	No	NA	--	1.30E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	mg/kg	5 11 12	45	3 40E-03	4 80E-03	No	NA	--	1 20E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	4 12 12	33	4 77E-03	2 75E-02	No	NA	--	5 30E+01	No	No	</=Screening Level
Chloroform	67-66-3	mg/kg	1 1 12	100	1 80E-03	1 80E-03	No	NA	--	1 20E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	mg/kg	1 8 12	13	3 23E-03	3 60E-03	No	NA	--	2 10E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	9 12 12	75	2 33E-03	1 30E-02	No	1 0 'E-03	Yes	2 00E+01	No	No	</=Screening Level
Methyl N-Butyl Ketone	591-78-6	mg/kg	6 12 12	50	5 29E-02	1 90E-01	No	NA	--	2 70E+03	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	3 3 12	100	1 20E-03	2 10E-03	No	8 80E-04	Yes	3 40E+00	No	No	</=Screening Level
Toluene	108-88-3	mg/kg	8 12 12	67	4 42E-03	1 80E-02	No	NA	--	2 20E+02	No	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	2 2 12	100	1 48E-03	1 70E-03	No	NA	--	1 10E-01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	11 12 12	92	1 48E-02	1 59E-01	No	1 6 IE-03	Yes	9 00E+01	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	mg/kg	1 1 12	100	3 10E-02	3 10E-02	No	NA	--	4 10E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	mg/kg	1 12 12	8	2 20E-01	3 50E-01	No	NA	--	7 90E+00	No	No	</=Screening Level
2-Methylnaphthalene	91-57-6	mg/kg	1 1 12	100	5 50E-02	5 50E-02	No	NA	--	1 90E+01	No	No	</=Screening Level
Acenaphthene	83-32-9	mg/kg	3 12 12	25	1 81E-01	1 48E-01	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level
Anthracene	120-12-7	mg/kg	4 12 12	33	2 82E-01	8 00E-01	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	10 12 12	83	5 57E-01	2 52E+00	No	2 76E-01	Yes	2 10E+00	Yes	Yes	>Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	9 12 12	75	5 98E-01	2 98E+00	No	4 06E-01	Yes	2 10E-01	Yes	Yes	>Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	8 12 12	67	7 26E-01	3 30E+00	No	3 66E-01	Yes	2 10E+00	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	8 12 12	67	3 19E-01	2 09E+00	No	4 14E-01	Yes	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	10 12 12	83	3 93E-01	2 50E+00	No	2 8 3E-01	Yes	2 10E+01	No	No	</=Screening Level
Benzyl Butyl Phthalate	85-68-7	mg/kg	2 12 12	17	2 77E-01	8 70E 01	No	NA	--	1 20E+04	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	9 12 12	75	9 28E-01	8 60E+00	No	3 5 3E-01	Yes	1 20E+02	No	No	</=Screening Level
Carbazole	86-74-8	mg/kg	3 12 12	25	2 09E-01	3 76E-01	No	NA	--	8 60E+01	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Chrysene	218-01-9	mg/kg	12 12 12	100	6 10E-01	2 85E+00	No	2 99E-01	Yes	2 10E+02	No	No	</=Screening Level
Di-n-butylphthalate	84-74-2	mg/kg	4 4 12	100	8 23E-02	1 13E-01	No	NA	--	6 20E+03	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1 12 12	8	2 07E-01	1 83E-01	No	1 20E-01	Yes	2 10E-01	No	No	</=Screening Level
Dibenzofuran	132-64-9	mg/kg	3 3 12	100	4 53E-02	8 30E-02	No	NA	--	3 10E+02	No	No	</=Screening Level
Diethyl Phthalate	84-66-2	mg/kg	1 1 12	100	7 80E-02	7 80E-02	No	NA	--	4 90E+04	No	No	</=Screening Level
Fluoranthene	206-44 0	mg/kg	10 12 12	83	1 00E+00	4 48E+00	No	4 50E-01	Yes	2 20E+03	No	No	</=Screening Level
Fluorene	86-73-7	mg/kg	3 12 12	25	1 79E-01	1 68E-01	No	NA	--	2 60E+03	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	4 12 12	33	1 84E-01	3 10E-01	No	NA	--	2 10E+00	No	No	</=Screening Level
Naphthalene	91-20-3	mg/kg	1 12 12	8	2 19E-01	3 30E-01	No	NA	--	1 90E+01	No	No	</=Screening Level
Phenanthrene	85-01-8	mg/kg	9 12 12	75	6 60E-01	3 62E+00	No	3 31E-01	Yes	2 40E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	7 12 12	58	1 08E+00	4 95E+00	No	4 30E-01	Yes	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDD	72-54-8	mg/kg	2 6 12	33	2 65E-03	5 70E 03	No	7 04E 03	No	1 00E+01	No	No	</=Screening Level
4,4'-DDE	72 55-9	mg/kg	5 11 12	45	6 10E-02	5 65E 01	No	1 23E-02	Yes	7 00E+00	No	No	</=Screening Level
4,4'-DDT	50-29-3	mg/kg	10 12 12	83	4 68E-01	2 60E+00	No	4 04E-02	Yes	7 00E+00	No	No	</=Screening Level
alpha-BHC	319-84-6	mg/kg	1 12 12	8	2 10E-02	1 85E-01	No	4 96E-02	Yes	3 60E-01	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	mg/kg	7 12 12	58	1 12E-02	5 65E-02	No	6 15E-03	Yes	6 50E+00	No	No	</=Screening Level
beta-BHC	319-85-7	mg/kg	1 8 12	13	2 86E-03	1 10E-02	No	NA	--	1 30E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	9 12 12	75	7 96E-02	3 75E-01	No	1 13E-02	Yes	1 10E-01	Yes	Yes	>Screening Level
Endosulfan II	33213-65-9	mg/kg	1 1 12	100	1 25E-03	1 25E-03	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level
Endosulfan Sulfate	1031-07-8	mg/kg	3 12 12	25	1 08E-02	3 75E-02	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level
Endrin	72-20-8	mg/kg	2 12 12	17	2 72E-02	1 70E-01	No	5 02E-03	Yes	1 80E+01	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	mg/kg	4 9 12	44	6 25E-03	1 70E-02	No	5 88E-03	Yes	1 80E+01	No	No	</=Screening Level
Endrin Ketone	53494-70-5	mg/kg	5 12 12	42	1 98E-02	1 10E-01	No	NA	--	1 80E+01	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	mg/kg	5 12 12	42	5 14E-02	4 00E-01	No	4 11E-02	Yes	6 50E+00	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	mg/kg	6 12 12	50	1 36E-02	7 60E-02	No	1 05E-02	Yes	1 90E-01	No	No	</=Screening Level
Methoxychlor	72-43-5	mg/kg	1 4 12	25	3 22E-02	9 20E-02	No	5 60E 03	Yes	3 10E+02	No	No	</=Screening Level
Herbicide													
2,4,5 T	93-76-5	mg/kg	2 12 12	17	5 27E-03	7 40E-03	No	NA	--	6 20E+02	No	No	</=Screening Level
2,4-D	94-75-7	mg/kg	10 12 12	83	8 16E-03	1 40E-02	No	9 96E-03	Yes	7 70E+02	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
2,4-DB	94-82-6	mg/kg	1 12 12	8	6 27E-03	1 65E-02	No	NA	--	4 90E+02	No	No	</=Screening Level
Dichlorprop	120-36-5	mg/kg	4 4 12	100	4 38E-03	6 20E-03	No	1 14E-01	No	4 92E+02	No	No	</=Screening Level
MCPA	94-74-6	mg/kg	7 12 12	58	1 47E+00	3 70E+00	No	NA	--	3 10E+01	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	8 12 12	67	1 99E+00	5 20E+00	No	3 60E+00	Yes	6 20E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	9 12 12	75	2 54E-01	2 95E+00	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	9 12 12	75	2 75E+00	1 34E+01	No	1 85E-01	Yes	1 00E+00	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	12 12 12	100	6 89E-04	6 82E-03	No	1 69E-05	Yes	1 00E-03	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	12 12 12	100	9 00E+03	1 40E+04	No	1 38E+04	Yes	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	3 12 12	25	6 95E+00	4 70E+01	No	2 33E+00	Yes	4 10E+01	Yes	Yes	>Screening Level
Arsenic	7440-38-2	mg/kg	12 12 12	100	9 66E+00	3 30E+01	No	1 24E+01	Yes	1 60E+00	Yes	Yes	>Screening Level
Barium	7440-39-3	mg/kg	12 12 12	100	3 82E+02	1 40E+03	No	3 07E+02	Yes	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	12 12 12	100	6 34E-01	9 90E-01	No	9 02E-01	Yes	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	12 12 12	100	6 33E+00	2 95E+01	No	3 34E+00	Yes	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	12 12 12	100	1 62E+04	7 15E+04	Yes	9 74E+04	No	NA	--	No	EN
Chromium	7440-47-3	mg/kg	12 12 12	100	8 41E+01	6 60E+02	No	2 27E+01	Yes	4 50E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	mg/kg	12 12 12	100	9 57E+00	2 00E+01	No	9 40E+00	Yes	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	12 12 12	100	2 56E+02	1 74E+03	No	8 58E+01	Yes	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	12 12 12	100	2 89E+04	9 00E+04	Yes	2 33E+04	Yes	3 10E+04	Yes	No	EN
Lead	7439-92-1	mg/kg	12 12 12	100	5 15E+02	3 10E+03	No	1 30E+02	Yes	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	12 12 12	100	4 05E+03	5 00E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	12 12 12	100	6 03E+02	2 10E+03	No	5 52E+02	Yes	1 90E+03	Yes	Yes	>Screening Level
Mercury	7439-97-6	mg/kg	12 12 12	100	6 28E-01	3 20E+00	No	1 34E-01	Yes	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	12 12 12	100	6 73E+01	5 00E+02	No	3 30E+01	Yes	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	12 12 12	100	1 29E+03	2 30E+03	Yes	3 07E+03	No	NA	--	No	EN
Selenium	7782-49-2	mg/kg	1 12 12	8	8 31E-01	2 75E+00	No	1 08E+00	Yes	5 10E+02	No	No	</=Screening Level
Silver	7440-22-4	mg/kg	5 12 12	42	2 62E+00	1 27E+01	No	9 90E-01	Yes	5 10E+02	No	No	</=Screening Level
Sodium	7440-23-5	mg/kg	2 12 12	17	1 26E+02	5 50E+02	Yes	1 58E+02	Yes	NA	--	No	EN

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Thallium	7440-28-0	mg/kg	4 12 12	33	8 32E-01	1 90E+00	No	NA	--	6 70E+00	No	No	</=Screening Level
Vanadium	7440-62-2	mg/kg	12 12 12	100	2 50E+01	3 60E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	12 12 12	100	7 90E+02	3 50E+03	No	3 90E+02	Yes	3 10E+04	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site R													
VOCs													
1,2-Dichloroethane	107-06-2	mg/kg	2 2 4	100	2 05E-03	2 60E-03	No	NA	--	6 00E-01	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	mg/kg	1 1 4	100	9 40E-04	9 40E-04	No	NA	--	1 50E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	4 4 4	100	1 23E-02	1 60E-02	No	NA	--	2 70E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	1 1 4	100	1 00E-02	1 00E-02	No	NA	--	2 80E+02	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	4 4 4	100	9 73E-02	1 50E-01	No	NA	--	6 00E+02	No	No	</=Screening Level
Benzene	71-43-2	mg/kg	4 4 4	100	1 45E-03	2 10E-03	No	NA	--	1 30E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	3 4 4	75	1 80E-02	6 40E-02	No	NA	--	5 30E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	4 4 4	100	7 08E-04	1 90E-03	No	1 07E-03	Yes	2 00E+01	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	3 4 4	75	7 04E-03	1 20E-02	No	8 80E-04	Yes	3 40E+00	No	No	</=Screening Level
Toluene	108-88-3	mg/kg	1 1 4	100	1 80E-03	1 80E-03	No	NA	--	2 20E+02	No	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	3 4 4	75	8 71E-03	1 90E-02	No	NA	--	1 10E-01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	3 4 4	75	4 59E-03	9 10E-03	No	1 61E-03	Yes	9 00E+01	No	No	</=Screening Level
SVOCs													
Benzo(a)anthracene	56-55-3	mg/kg	2 2 4	100	3 15E-02	3 30E-02	No	2 76E-01	No	2 10E+00	No	No	</=Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	2 2 4	100	2 95E-02	3 30E-02	No	4 06E-01	No	2 10E-01	No	No	</=Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	2 2 4	100	3 10E-02	3 20E-02	No	3 66E-01	No	2 10E+00	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	2 2 4	100	3 50E-02	4 50E-02	No	4 11E-01	No	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	2 2 4	100	3 05E-02	3 50E-02	No	2 83E-01	No	2 10E+01	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	1 1 4	100	7 80E-02	7 80E-02	No	3 53E-01	No	1 20E+02	No	No	</=Screening Level
Chrysene	218-01-9	mg/kg	3 3 4	100	3 43E-02	5 10E-02	No	2 93E-01	No	2 10E+02	No	No	</=Screening Level
Fluoranthene	206-44-0	mg/kg	1 1 4	100	3 90E-02	3 90E-02	No	4 50E-01	No	2 20E+03	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	1 1 4	100	4 30E-02	4 30E-02	No	NA	--	2 10E+00	No	No	</=Screening Level
Phenanthrene	85-01-8	mg/kg	2 2 4	100	2 55E-02	3 00E-02	No	3 31E-01	No	2 40E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	1 1 4	100	4 80E-02	4 80E-02	No	4 30E-01	No	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDT	50-29-3	mg/kg	1 4 4	25	2 02E-03	2 70E-03	No	4 01E-02	No	7 00E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	3 3 4	100	9 23E-04	1 40E-03	No	1 13E-02	No	1 10E-01	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	mg/kg	1 1 4	100	2 30E-04	2 30E-04	No	4 11E-02	No	6 50E+00	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Herbicide													
2,4,5-TP (Silvex)	93-72-1	mg/kg	1 1 4	100	9 30E-03	9 30E-03	No	NA	--	4 90E+02	No	No	</=Screening Level
2,4-D	94-75-7	mg/kg	1 4 4	25	2 62E-02	5 50E-02	No	9 96E-03	Yes	7 70E+02	No	No	</=Screening Level
2,4-DB	94-82-6	mg/kg	3 4 4	75	3 44E-02	6 00E-02	No	NA	--	4 90E+02	No	No	</=Screening Level
Dichlorprop	120-36-5	mg/kg	4 4 4	100	7 75E-02	1 00E-01	No	1 11E-01	No	4 92E+02	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	4 4 4	100	3 70E+01	5 10E+01	No	3 60E+00	Yes	6 20E+01	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	1 1 1	100	6 62E-03	6 62E-03	No	1 85E-01	No	1 00E+00	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	4 4 4	100	8 75E+03	1 00E+04	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	1 1 4	100	4 40E-01	4 40E-01	No	2 33E+00	No	4 10E+01	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	4 4 4	100	6 35E+00	7 20E+00	No	1 24E+01	No	1 60E+00	Yes	No	</=BKG
Barium	7440-39-3	mg/kg	4 4 4	100	1 25E+02	1 50E+02	No	3 07E+02	No	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	4 4 4	100	5 63E 01	6 80E-01	No	9 02E-01	No	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	2 4 4	50	4 44E-01	7 60E-01	No	3 34E+00	No	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	4 4 4	100	5 60E+03	6 40E+03	Yes	9 74E+04	No	NA	--	No	EN
Chromium	7440-47-3	mg/kg	4 4 4	100	1 53E+01	1 70E+01	No	2 21E+01	No	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	4 4 4	100	9 25E+00	1 50E+01	No	9 40E+00	Yes	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	4 4 4	100	1 95E+01	2 50E+01	No	8 58E+01	No	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	4 4 4	100	1 68E+04	1 80E+04	Yes	2 31E+04	No	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	4 4 4	100	1 76E+01	3 30E+01	No	1 30E+02	No	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	4 4 4	100	4 33E+03	4 80E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	4 4 4	100	7 50E+02	1 20E+03	No	5 52E+02	Yes	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	4 4 4	100	5 90E-02	7 60E-02	No	1 31E-01	No	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	4 4 4	100	1 90E+01	2 10E+01	No	3 30E+01	No	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	4 4 4	100	8 73E+02	1 00E+03	Yes	3 0 E+03	No	NA	--	No	EN
Sodium	7440-23-5	mg/kg	4 4 4	100	1 02E+02	1 20E+02	Yes	1 58E+02	No	NA	--	No	EN
Vanadium	7440-62-2	mg/kg	4 4 4	100	3 00E+01	3 40E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	4 4 4	100	7 53E+01	1 20E+02	No	3 90E+02	No	3 10E+04	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Site S													
VOCs													
1,1-Dichloroethane	75-34-3	mg/kg	1 1 2	100	6 60E-04	6 60E-04	No	NA	--	1 70E+02	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	1 1 2	100	2 40E-03	2 40E-03	No	NA	--	2 70E+03	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	1 1 2	100	1 40E-02	1 40E-02	No	NA	--	6 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	1 1 2	100	4 70E-04	4 70E-04	No	NA	--	5 30E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	1 1 2	100	1 10E-03	1 10E-03	No	1 07E-03	Yes	2 00E+01	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	mg/kg	1 1 2	100	3 70E-04	3 70E-04	No	4 47E-03	No	1 80E+03	No	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	1 1 2	100	8 30E-04	8 30E-04	No	8 80E-04	No	3 40E+00	No	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	1 1 2	100	4 70E-04	4 70E-04	No	NA	--	1 10E-01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	1 1 2	100	4 20E 03	4 20E-03	No	1 61E-03	Yes	9 00E+01	No	No	</=Screening Level
SVOCs													
1,2,4-Trichlorobenzene	120-82-1	mg/kg	1 2 2	50	1 81E+01	3 60E+01	No	NA	--	5 60E+02	No	No	</=Screening Level
1,2-Dichlorobenzene	95-50-1	mg/kg	1 2 2	50	1 86E+01	3 70E+01	No	NA	--	4 10E+02	No	No	</=Screening Level
1,3-Dichlorobenzene	541-73-1	mg/kg	1 2 2	50	5 93E-01	1 00E+00	No	NA	--	6 30E+00	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	mg/kg	1 2 2	50	3 84E+00	7 50E+00	No	NA	--	7 90E+00	No	No	</=Screening Level
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 2 2	50	6 43E-01	1 10E+00	No	NA	--	6 20E+03	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	mg/kg	1 2 2	50	4 19E+00	8 20E+00	No	NA	--	6 20E+00	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83-2	mg/kg	1 2 2	50	1 24E+00	2 30E+00	No	NA	--	1 80E+02	No	No	</=Screening Level
2-Methylnaphthalene	91-57-6	mg/kg	1 2 2	50	5 59E+00	1 10E+01	No	NA	--	1 90E+01	No	No	</=Screening Level
2-Nitroaniline	88-74-4	mg/kg	1 2 2	50	2 77E+00	4 60E+00	No	NA	--	1 80E+00	Yes	Yes	>Screening Level
4-Nitroaniline	100-01-6	mg/kg	1 2 2	50	2 90E+01	5 70E+01	No	NA	--	1 80E+00	Yes	Yes	>Screening Level
Acenaphthene	83-32-9	mg/kg	1 2 2	50	6 93E-01	1 20E+00	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	2 2 2	100	4 05E+00	8 00E+00	No	2 76E-01	Yes	2 10E+00	Yes	Yes	>Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	2 2 2	100	2 77E+00	5 40E+00	No	4 06E-01	Yes	2 10E-01	Yes	Yes	>Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	2 2 2	100	3 42E+00	6 60E+00	No	3 66E-01	Yes	2 10E+00	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	2 2 2	100	2 16E+00	4 20E+00	No	4 11E-01	Yes	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	1 2 2	50	3 29E+00	6 40E+00	No	2 83E-01	Yes	2 10E+01	No	No	</=Screening Level
Benzyl Butyl Phthalate	85-68-7	mg/kg	1 2 2	50	6 01E+01	1 20E+02	No	NA	--	1 20E+04	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	2 2 2	100	2 75E+00	3 90E+00	No	3 53E-01	Yes	1 20E+02	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Chrysene	218-01-9	mg/kg	2 2 2	100	1 01E+01	2 00E+01	No	2 99E-01	Yes	2 10E+02	No	No	</=Screening Level
Di-n-butylphthalate	84-74-2	mg/kg	1 1 2	100	4 10E-02	4 10E-02	No	NA	--	6 20E+03	No	No	</=Screening Level
Di-n-octylphthalate	117-84-0	mg/kg	2 2 2	100	6 64E-01	1 30E+00	No	NA	--	2 50E+03	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1 2 2	50	9 93E-01	1 80E+00	No	1 20E-01	Yes	2 10E-01	Yes	Yes	>Screening Level
Dinoseb	88-85-7	mg/kg	1 2 2	50	9 43E-01	1 70E+00	No	NA	--	6 20E+01	No	No	</=Screening Level
Fluoranthene	206-44-0	mg/kg	2 2 2	100	2 18E+00	4 20E+00	No	4 50E-01	Yes	2 20E+03	No	No	</=Screening Level
Fluorene	86-73-7	mg/kg	1 2 2	50	6 93E-01	1 20E+00	No	NA	--	2 60E+03	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	2 2 2	100	7 05E-01	1 30E+00	No	NA	--	2 10E+00	No	No	</=Screening Level
Naphthalene	91-20-3	mg/kg	1 2 2	50	1 14E+00	2 10E+00	No	NA	--	1 90E+01	No	No	</=Screening Level
Phenanthrene	85-01-8	mg/kg	2 2 2	100	4 63E+00	9 20E+00	No	3 31E-01	Yes	2 40E+04	No	No	</=Screening Level
Pyrene	129-00-0	mg/kg	2 2 2	100	1 41E+01	2 80E+01	No	4 30E 01	Yes	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDD	72-54-8	mg/kg	2 2 2	100	8 51E-01	1 70E+00	No	7 04E 03	Yes	1 00E+01	No	No	</=Screening Level
4 4'-DDE	72 55-9	mg/kg	2 2 2	100	1 65E+00	3 30E+00	No	1 23E-02	Yes	7 00E+00	No	No	</=Screening Level
4,4'-DDT	50-29-3	mg/kg	2 2 2	100	8 01E+00	1 60E+01	No	4 04E-02	Yes	7 00E+00	Yes	Yes	>Screening Level
beta-BHC	319-85-7	mg/kg	2 2 2	100	1 30E+01	2 60E+01	No	NA	--	1 30E+00	Yes	Yes	>Screening Level
delta-BHC	319-86-8	mg/kg	1 2 2	50	3 70E-01	7 40E-01	No	1 52E 02	Yes	1 70E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	1 1 2	100	1 40E-02	1 40E-02	No	1 13E-02	Yes	1 10E-01	No	No	</=Screening Level
Endosulfan II	33213-65-9	mg/kg	2 2 2	100	2 70E+00	5 40E+00	No	1 13E-03	Yes	3 70E+02	No	No	</=Screening Level
Endrin	72-20-8	mg/kg	2 2 2	100	5 00E+00	1 00E+01	No	5 02E-03	Yes	1 80E+01	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	mg/kg	1 1 2	100	7 40E-03	7 40E-03	No	5 88E-03	Yes	1 80E+01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	mg/kg	1 2 2	50	3 75E+00	7 50E+00	No	NA	--	1 70E+00	Yes	Yes	>Screening Level
gamma-Chlordane	5103-74-2	mg/kg	2 2 2	100	1 35E+00	2 70E+00	No	4 11E-02	Yes	6 50E+00	No	No	</=Screening Level
Heptachlor	76-44-8	mg/kg	1 2 2	50	7 50E-01	1 50E+00	No	3 12E-02	Yes	3 80E-01	Yes	Yes	>Screening Level
Herbicide													
2,4,5-TP (Silvex)	93-72-1	mg/kg	1 2 2	50	1 27E-01	2 50E-01	No	NA	--	4 90E+02	No	No	</=Screening Level
2,4-D	94-75-7	mg/kg	1 2 2	50	1 65E+00	3 30E+00	No	9 93E 03	Yes	7 70E+02	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	2 2 2	100	2 20E+02	4 40E+02	No	4 57E-03	Yes	9 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	2 2 2	100	5 04E+02	1 01E+03	No	1 85E-01	Yes	1 00E+00	Yes	Yes	>Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	2 2 2	100	8 22E-05	1 60E-04	No	1 69E-05	Yes	1 00E-03	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	2 2 2	100	6 30E+03	7 30E+03	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Antimony	7440-36-0	mg/kg	2 2 2	100	6 90E-01	8 00E-01	No	2 33E+00	No	4 10E+01	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	2 2 2	100	5 80E+00	5 80E+00	No	1 24E+01	No	1 60E+00	Yes	No	</=BKG
Barium	7440-39-3	mg/kg	2 2 2	100	1 02E+02	1 20E+02	No	3 0 E+02	No	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	2 2 2	100	4 00E-01	4 60E-01	No	9 02E-01	No	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	2 2 2	100	1 23E+00	1 60E+00	No	3 34E+00	No	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	2 2 2	100	1 02E+05	2 00E+05	Yes	9 74E+04	Yes	NA	--	No	EN
Chromium	7440-47-3	mg/kg	2 2 2	100	2 25E+01	2 30E+01	No	2 2 E+01	Yes	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	2 2 2	100	6 75E+00	9 40E+00	No	9 40E+00	No	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	2 2 2	100	3 45E+01	4 60E+01	No	8 58E+01	No	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	2 2 2	100	1 12E+04	1 30E+04	Yes	2 33E+04	No	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	2 2 2	100	6 90E+01	7 50E+01	No	1 30E+02	No	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	2 2 2	100	5 75E+03	8 90E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	2 2 2	100	4 85E+02	6 70E+02	No	5 5 E+02	Yes	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	2 2 2	100	1 22E-01	1 70E-01	No	1 3 E-01	Yes	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	2 2 2	100	1 65E+01	2 00E+01	No	3 30E+01	No	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	2 2 2	100	8 90E+02	9 10E+02	Yes	3 0 E+03	No	NA	--	No	EN
Sodium	7440-23-5	mg/kg	2 2 2	100	1 25E+02	1 70E+02	Yes	1 56E+02	Yes	NA	--	No	EN
Vanadium	7440-62-2	mg/kg	2 2 2	100	2 05E+01	2 40E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	2 2 2	100	1 65E+02	2 20E+02	No	3 90E+02	No	3 10E+04	No	No	</=Screening Level

TABLE B-3
SURFACE SOIL SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Soil Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason

Notes

BKG Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
EN - Essential nutrient
FOD - Frequency of detection
NA - Not available
MCPP - 2 (2-Methyl-4-chlorophenoxy) propionic acid
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo p dioxin Toxic Equivalent Concentration
USEPA - United States Environmental Protection Agency
VOC Volatile Organic Compound
- Not applicable
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as COPCs
(c) The arithmetic mean concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one half the detection limit was greater than the maximum detected concentration, the non-detect was not used) A proxy concentration of half the detection limit was used for non-detected results
(d) The maximum detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non detected values were excluded (If one half the detection limit was greater than the maximum detected concentration, the non-detect was not used)
(e) Equal to two times the average concentration for the constituent in surface soil in off-site sampling locations
(f) USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for industrial soil PRGs for noncarcinogenic constituents were adjusted for a hazard index of 0 1 to account for cumulative effects
(g) For all constituents with the exception of lead, the maximum detected concentration is compared to the screening level For lead, the mean concentration was compared to the screening level
(h) A constituent is identified as a COPC if it is detected in greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient, if the maximum detected concentration is greater than the background concentration and if the maximum detected concentration is greater than the surface soil screening level

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site O															
VOCs															
1,1,1-Trichloroethane	71-55-6	mg/kg	4 6 6	67	3 15E+00	1 70E+01	No	NA	-	6 90E+02	No	No	</=Screening Level	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	3 4 6	75	1 76E-02	2 30E-02	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	1 4 6	25	6 94E-02	2 21E-01	No	2 00E-03	Yes	2 80E+02	No	No	</=Screening Level	No	</=Screening Level
Acetone	67-64-1	mg/kg	3 4 6	75	3 37E-01	1 15E+00	No	NA	--	6 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	4 6 6	67	9 64E+01	5 00E+02	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Chlorobenzene	108-90-7	mg/kg	4 6 6	67	2 20E+02	7 60E+02	No	NA	--	5 30E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Chloroform	67-66-3	mg/kg	2 4 6	50	3 90E-03	4 90E-03	No	NA	--	1 20E+00	No	No	</=Screening Level	No	</=Screening Level
Chloromethane	74-87-3	mg/kg	1 5 6	20	3 66E-01	1 80E+00	No	9 00E-04	Yes	2 60E+00	No	No	</=Screening Level	No	</=Screening Level
Dichloromethane	75-09-2	mg/kg	2 6 6	33	3 87E+00	1 40E+01	No	5 73E-03	Yes	2 10E+01	No	No	</=Screening Level	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	5 6 6	83	4 85E+02	2 80E+03	No	9 52E-04	Yes	2 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Tetrachloroethene	127-18-4	mg/kg	3 6 6	50	9 02E-01	3 00E+00	No	9 50E-04	Yes	3 40E+00	No	No	</=Screening Level	No	</=Screening Level
Toluene	108-88-3	mg/kg	4 6 6	67	6 95E+01	3 90E+02	No	NA	--	2.20E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Trichloroethylene	79-01-6	mg/kg	1 1 6	100	5 80E-04	5 80E-04	No	NA	--	1 10E-01	No	No	</=Screening Level	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	5 6 6	83	2 46E+03	1 40E+04	No	1 54E-03	Yes	9 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
1,2,4-Trichlorobenzene	120-82-1	mg/kg	2 5 6	40	9 12E+00	2 30E+01	No	NA	--	5 60E+02	No	No	</=Screening Level	No	Not Volatile
1,2-Dichlorobenzene	95-50-1	mg/kg	3 5 6	60	3 10E+01	7 85E+01	No	NA	--	4 10E+02	No	No	</=Screening Level	No	Not Volatile
1,3-Dichlorobenzene	541-73-1	mg/kg	2 5 6	40	1 76E+00	5 20E+00	No	NA	--	6 30E+00	No	No	</=Screening Level	No	Not Volatile
1,4-Dichlorobenzene	106-46-7	mg/kg	2 5 6	40	1 87E+01	4 70E+01	No	NA	--	7 90E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 4 6	25	2 71E-01	5 00E-01	No	NA	-	6 20E+03	No	No	</=Screening Level	No	Not Volatile
2,4,6-Trichlorophenol	88-06-2	mg/kg	2 5 6	40	2 58E+00	6 90E+00	No	NA	--	6 20E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dichlorophenol	120-83-2	mg/kg	3 5 6	60	3 15E+00	8 10E+00	No	NA	--	1 80E+02	No	No	</=Screening Level	No	Not Volatile
2-Chlorophenol	95-57-8	mg/kg	2 5 6	40	3 00E+00	9 60E+00	No	NA	--	2 40E+01	No	No	</=Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	3 5 6	60	7 21E+00	1 80E+01	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
2-Nitroaniline	88-74-4	mg/kg	2 4 6	50	1 13E+00	2 50E+00	No	NA	--	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
3-Methylphenol/4-Methylphenol	106-44 5	mg/kg	1 4 6	25	3 39E-01	7 70E-01	No	NA	-	3 10E+02	No	No	</=Screening Level	No	Not Volatile
4-Nitroaniline	100-01-6	mg/kg	1 4 6	25	1 19E+00	1 80E+00	No	NA	--	1 80E+00	No	No	</=Screening Level	No	Not Volatile
Acenaphthene	83-32-9	mg/kg	1 4 6	25	3 89E-01	9 70E-01	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Anthracene	120-12-7	mg/kg	1 4 6	25	5 21E-01	1 50E+00	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Benzo(a)anthracene	56-55-3	mg/kg	4 5 6	80	4 61E+00	1 20E+01	No	3 25E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	3 5 6	60	2 88E+00	7 10E+00	No	3 90E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(b)fluoranthene	205-99-2	mg/kg	5 5 6	100	3 17E+00	7 90E+00	No	3 70E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	4 5 6	80	2 51E+00	6 00E+00	No	3 94E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08-9	mg/kg	1 1 6	100	1 00E-01	1 00E-01	No	3 28E-01	No	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85-68-7	mg/kg	2 4 6	50	3 21E-01	8 60E-01	No	NA	-	1 20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	4 4 6	100	4 38E-01	1 60E+00	No	3 35E-01	Yes	1 20E+02	No	No	</=Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	4 5 6	80	9 57E+00	2 40E+01	No	3 36E-01	Yes	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-butylphthalate	84-74-2	mg/kg	1 1 6	100	4 90E-02	4 90E-02	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
Dibenzo(a,h)anthracene	53-70-3	mg/kg	3 4 6	75	8 52E-01	3 00E+00	No	1 20E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	3 5 6	60	1 47E+00	4 40E+00	No	4 11E-01	Yes	2 20E+03	No	No	</=Screening Level	No	Not Volatile
Fluorene	86-73-7	mg/kg	1 4 6	25	6 21E-01	1 90E+00	No	NA	--	2 60E+03	No	No	</=Screening Level	No	Not Volatile
Hexachlorobenzene	118-74-1	mg/kg	2 4 6	50	3 75E-01	1 00E+00	No	NA	--	1 10E+00	No	No	</=Screening Level	No	Not Volatile
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	1 4 6	25	5 21E-01	1 50E+00	No	NA	-	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	2 5 6	40	2 82E+00	7 70E+00	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
Nitrobenzene	98-95-3	mg/kg	1 4 6	25	5 46E-01	1 60E+00	No	NA	--	1 00E+01	No	No	</=Screening Level	No	Not Volatile
Phenanthrene	85-01-8	mg/kg	4 5 6	80	5 79E+00	1 54E+01	No	3 52E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	2 5 6	40	2 84E+00	7 90E+00	No	NA		3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	4 5 6	80	8 46E+00	2 10E+01	No	4 01E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4 4'-DDD	72-54-8	mg/kg	2 4 6	50	2 56E-02	8 60E-02	No	5 39E-03	Yes	1 00E+01	No	No	</=Screening Level	No	Not Volatile
4,4'-DDE	72-55-9	mg/kg	2 6 6	33	1 63E-01	6 90E-01	No	8 02E-03	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
4,4'-DDT	50-29-3	mg/kg	6 6 6	100	9 63E-01	3 02E+00	No	2 18E-02	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
Aldrin	309-00-2	mg/kg	2 6 6	33	1 46E-01	7 20E-01	No	2 75E-03	Yes	1 00E-01	Yes	Yes	>Screening Level	No	Not Volatile
alpha-Chlordane	5103-71-9	mg/kg	1 4 6	25	4 08E-03	9 40E-03	No	4 04E-03	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
beta-BHC	319-85-7	mg/kg	2 6 6	33	1 71E-01	8 94E-01	No	NA	--	1 30E+00	No	No	</=Screening Level	No	Not Volatile
delta-BHC	319-86-8	mg/kg	4 6 6	67	9 17E-01	2 85E+00	No	8 57E-03	Yes	1 70E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dieldrin	60-57-1	mg/kg	5 6 6	83	1 27E+00	3 80E+00	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Endosulfan II	33213-65-	mg/kg	3 6 6	50	1 15E-01	4 20E-01	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Endosulfan Sulfate	1031-07-8	mg/kg	3 6 6	50	8 40E-02	2 20E-01	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endrin Aldehyde	7421-93-4	mg/kg	2 6 6	33	1 81E-01	8 50E-01	No	4 81E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Ketone	53494-70-	mg/kg	2 4 6	50	8 75E-03	2 20E-02	No	NA	--	1 80E+01	No	No	</=Screening Level	No	Not Volatile
gamma-BHC (Lindane)	58-89-9	mg/kg	3 6 6	50	5 06E-01	2 88E+00	No	NA	--	1 70E+00	Yes	Yes	>Screening Level	No	Not Volatile
gamma-Chlordane	5103-74-2	mg/kg	1 6 6	17	5 70E-02	1 80E-01	No	2 13E-02	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Heptachlor	76-44-8	mg/kg	5 6 6	83	7 86E-01	2 77E+00	No	1 66E-02	Yes	3 80E-01	Yes	Yes	>Screening Level	No	Not Volatile
Heptachlor Epoxide	1024-57-3	mg/kg	2 6 6	33	1 46E-01	4 70E-01	No	6 10E-03	Yes	1 90E-01	Yes	Yes	>Screening Level	No	Not Volatile
Methoxychlor	72-43-5	mg/kg	1 1 6	100	8 80E-04	8 80E-04	No	3 31E-03	No	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	4 5 6	80	6 55E-01	3 10E+00	No	NA	--	6.20E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	5 6 6	83	8 23E+00	2 70E+01	No	9 66E-03	Yes	7 70E+02	No	No	</=Screening Level	No	Not Volatile
2,4-DB	94-82-6	mg/kg	2 2 6	100	1 60E-02	1 90E-02	No	NA	--	4 90E+02	No	No	</=Screening Level	No	Not Volatile
Dicamba	1918-00-9	mg/kg	1 1 6	100	2 40E-03	2 40E-03	No	NA	--	1 80E+03	No	No	</=Screening Level	No	Not Volatile
Dichlorprop	120-36-5	mg/kg	2 2 6	100	2 35E-02	3 70E-02	No	1 03E-01	No	4 92E+02	No	No	</=Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	3 3 6	100	8 93E+00	1 20E+01	No	2 92E+00	Yes	6 20E+01	No	No	</=Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	2 3 6	67	1 11E+00	2 00E+00	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	6 6 6	100	6 97E+01	2 98E+02	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	6 6 6	100	6 41E-03	3 04E-02	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	6 6 6	100	8 08E+03	9 30E+03	No	1 09E+04	No	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	1 1 6	100	7 40E-01	7 40E-01	No	2 05E+00	No	4 10E+01	No	No	</=Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	6 6 6	100	5 93E+00	7 30E+00	No	1 08E+01	No	1 60E+00	Yes	No	</=BKG	No	Not Volatile
Barium	7440-39-3	mg/kg	6 6 6	100	1 28E+02	1 85E+02	No	3 17E+02	No	6 70E+03	No	No	</=Screening Level	No	Not Volatile
Beryllium	7440-41-7	mg/kg	6 6 6	100	5 37E-01	6 50E-01	No	7 65E-01	No	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	6 6 6	100	1 01E+00	1 70E+00	No	1 81E+00	No	4 50E+01	No	No	</=Screening Level	No	Not Volatile
Calcium	7440-70-2	mg/kg	6 6 6	100	1 13E+04	2 60E+04	Yes	6 11E+04	No	NA	--	No	EN	No	Not Volatile
Chromium	7440-47-3	mg/kg	6 6 6	100	1 48E+01	1 75E+01	No	1 89E+01	No	4 50E+02	No	No	</=Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	6 6 6	100	7 17E+00	1 00E+01	No	9 27E+00	Yes	1 30E+03	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Backgro ind?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Copper	7440-50-8	mg/kg	6 6 6	100	2 44E+01	4 00E+01	No	4 96E+01	No	4 10E+03	No	No	</=Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	6 6 6	100	1 54E+04	1 70E+04	Yes	2 10E+04	No	3 10E+04	No	No	EN	No	Not Volatile
Lead	7439-92-1	mg/kg	6 6 6	100	1 56E+01	2 10E+01	No	7 18E+01	No	7 50E+02	No	No	</=Screening Level	No	Not Volatile
Magnesium	7439-95-4	mg/kg	6 6 6	100	5 30E+03	8 50E+03	Yes	1 13E+04	No	NA	--	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	6 6 6	100	5 12E+02	7 30E+02	No	5 01E+02	Yes	1 90E+03	No	No	</=Screening Level	No	Not Volatile
Mercury	7439-97-6	mg/kg	6 6 6	100	2 46E+00	1 00E+01	No	7 72E-02	Yes	3 10E+01	No	No	</=Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	6 6 6	100	1 83E+01	2 10E+01	No	2 83E+01	No	2 00E+03	No	No	</=Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	6 6 6	100	9 10E+02	1 30E+03	Yes	2 38E+03	No	NA	--	No	EN	No	Not Volatile
Sodium	7440-23-5	mg/kg	5 6 6	83	1 27E+02	2 35E+02	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Vanadium	7440-62-2	mg/kg	6 6 6	100	2 67E+01	2 80E+01	No	3 44E+01	No	7 20E+02	No	No	</=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	6 6 6	100	8 74E+01	1 30E+02	No	2 24E+02	No	3 10E+04	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site O North															
VOCs															
1,1,1-Trichloroethane	71-55-6	mg/kg	1 2 3	50	2 15E+00	4 10E+00	No	NA	--	6 90E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	3 3 3	100	4 35E+01	6 90E+01	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Carbon Disulfide	75-15-0	mg/kg	2 2 3	100	1 19E+00	2 20E+00	No	NA	--	1 20E+02	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	3 3 3	100	3 22E+02	4 80E+02	No	NA	--	5 30E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Dichloromethane	75-09-2	mg/kg	2 3 3	67	3 67E+01	8 70E+01	No	5 73E-03	Yes	2 10E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Ethylbenzene	100-41-4	mg/kg	3 3 3	100	5 05E+02	7 60E+02	No	9 52E-04	Yes	2 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Tetrachloroethene	127-18-4	mg/kg	2 2 3	100	3 54E+00	6 80E+00	No	9 50E-04	Yes	3 40E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Toluene	108-88-3	mg/kg	3 3 3	100	6 00E+01	9 00E+01	No	NA	--	2.20E+02	No	No	</=Screening Level	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	3 3 3	100	2 59E+03	3 90E+03	No	1 54E-03	Yes	9 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
1,2,4-Trichlorobenzene	120-82-1	mg/kg	2 3 3	67	1 25E+02	2 90E+02	No	NA	--	5 60E+02	No	No	</=Screening Level	No	Not Volatile
1,2-Dichlorobenzene	95-50-1	mg/kg	3 3 3	100	2 47E+02	5 20E+02	No	NA	--	4 10E+02	Yes	Yes	>Screening Level	No	Not Volatile
1,3-Dichlorobenzene	541-73-1	mg/kg	2 3 3	67	5 92E+00	1 20E+01	No	NA	--	6 30E+00	Yes	Yes	>Screening Level	No	Not Volatile
1,4-Dichlorobenzene	106-46-7	mg/kg	2 3 3	67	6 37E+01	1 20E+02	No	NA	--	7 90E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 3 3	33	2 93E+00	8 10E+00	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
2,4,6-Trichlorophenol	88-06-2	mg/kg	2 3 3	67	2 41E+01	6 10E+01	No	NA	--	6 20E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dichlorophenol	120-83-2	mg/kg	2 3 3	67	1 47E+01	3 30E+01	No	NA	--	1 80E+02	No	No	</=Screening Level	No	Not Volatile
2-Chlorophenol	95-57-8	mg/kg	2 3 3	67	3 13E+00	6 20E+00	No	NA	--	2 40E+01	No	No	</=Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	2 3 3	67	8 27E+01	2 00E+02	No	NA	--	1 90E+01	Yes	Yes	>Screening Level	No	Not Volatile
2-Methylphenol	95-48-7	mg/kg	1 3 3	33	1 78E+00	4 00E+00	No	NA	--	3 10E+03	No	No	</=Screening Level	No	Not Volatile
2-Nitroaniline	88-74-4	mg/kg	1 3 3	33	2 30E+01	6 20E+01	No	NA	--	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
2-Nitrophenol	88-75-5	mg/kg	2 3 3	67	4 79E+00	1 20E+01	No	NA	--	NA	--	No	Screening Level NA	No	Not Volatile
3-Methylphenol/4-Methylphenol	106-44-5	mg/kg	2 3 3	67	5 79E+00	1 40E+01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
4-Nitroaniline	100-01-6	mg/kg	2 3 3	67	3 43E+02	1 00E+03	No	NA	--	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
Acenaphthene	83-32-9	mg/kg	2 3 3	67	4 66E+00	1 20E+01	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Anthracene	120-12-7	mg/kg	2 3 3	67	1 27E+01	2 80E+01	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Benzo(a)anthracene	56-55-3	mg/kg	3 3 3	100	1 53E+01	3 60E+01	No	3 25E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	3 3 3	100	6 52E+00	1 10E+01	No	3 90E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Benzo(b)fluoranthene	205-99-2	mg/kg	3 3 3	100	6 13E+00	1 20E+01	No	3 70E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	3 3 3	100	2 45E+00	4 70E+00	No	3 94E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08-9	mg/kg	1 3 3	33	1 71E+00	3 80E+00	No	3 28E-01	Yes	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85-68-7	mg/kg	2 3 3	67	2 44E+01	3 80E+01	No	NA	--	1 20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Chloroethyl)ether	111-44-4	mg/kg	1 3 3	33	1 14E+00	2 10E+00	No	NA	--	5 50E-01	Yes	Yes	>Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	2 3 3	67	2 96E+00	8 20E+00	No	3 35E-01	Yes	1 20E+02	No	No	</=Screening Level	No	Not Volatile
Carbazole	86-74-8	mg/kg	1 3 3	33	2 08E+00	4 90E+00	No	NA	-	8 60E+01	No	No	</=Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	3 3 3	100	3 07E+01	6 90E+01	No	3 36E-01	Yes	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-octylphthalate	117-84-0	mg/kg	1 3 3	33	1 58E+00	3 40E+00	No	NA	--	2 50E+03	No	No	</=Screening Level	No	Not Volatile
Dibenzo(a,h)anthracene	53-70-3	mg/kg	2 3 3	67	2 12E+00	4 60E+00	No	1 20E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	3 3 3	100	5 49E+00	1 30E+01	No	4 11E-01	Yes	2 20E+03	No	No	</=Screening Level	No	Not Volatile
Fluorene	86-73-7	mg/kg	2 3 3	67	7 86E+00	2 00E+01	No	NA	--	2 60E+03	No	No	</=Screening Level	No	Not Volatile
Hexachlorobenzene	118-74-1	mg/kg	1 3 3	33	1 94E+00	4 50E+00	No	NA	--	1 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	2 2 3	100	3 26E-01	6 20E-01	No	NA	--	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	2 3 3	67	1 84E+01	4 10E+01	No	NA	--	1 90E+01	Yes	Yes	>Screening Level	No	Not Volatile
Nitrobenzene	98-95-3	mg/kg	1 3 3	33	4 11E+00	1 10E+01	No	NA	--	1 00E+01	Yes	Yes	>Screening Level	No	Not Volatile
Phenanthrene	85-01-8	mg/kg	3 3 3	100	3 87E+01	9 30E+01	No	3 52E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	2 3 3	67	9 96E+00	2 20E+01	No	NA	--	3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	3 3 3	100	4 87E+01	1 20E+02	No	4 01E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4,4'-DDE	72-55-9	mg/kg	2 3 3	67	1 70E+01	3 30E+01	No	8 02E-03	Yes	7 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
4,4'-DDT	50-29-3	mg/kg	2 3 3	67	2 04E+01	5 80E+01	No	2 18E-02	Yes	7 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Aldrin	309-00-2	mg/kg	2 3 3	67	2 20E+00	4 50E+00	No	2 75E-03	Yes	1 00E-01	Yes	Yes	>Screening Level	No	Not Volatile
alpha-BHC	319-84-6	mg/kg	1 3 3	33	5 99E-01	1 50E+00	No	2 58E-02	Yes	3 60E-01	Yes	Yes	>Screening Level	No	Not Volatile
beta BHC	319-85-7	mg/kg	2 3 3	67	7.26E+00	2 10E+01	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dieldrin	60-57-1	mg/kg	3 3 3	100	1 95E+01	5 00E+01	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Endosulfan II	33213-65-	mg/kg	2 3 3	67	5 33E+00	9 60E+00	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endosulfan Sulfate	1031-07-8	mg/kg	2 3 3	67	1 50E+01	2 40E+01	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
gamma-Chlordane	5103-74-2	mg/kg	1 1 3	100	3 30E-04	3 30E-04	No	2 13E-02	No	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Heptachlor	76-44-8	mg/kg	1 3 3	33	3 40E+00	9 90E+00	No	1 66E-02	Yes	3 80E-01	Yes	Yes	>Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Heptachlor Epoxide	1024-57-3	mg/kg	1 3 3	33	1 25E+00	2 70E+00	No	6 10E-03	Yes	1 90E-01	Yes	Yes	>Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	2 3 3	67	8 24E+00	1 70E+01	No	NA	--	6 20E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	2 3 3	67	2 20E+01	4 60E+01	No	9 66E-03	Yes	7 70E+02	No	No	</=Screening Level	No	Not Volatile
Dichlorprop	120-36-5	mg/kg	1 1 3	100	1 10E-02	1 10E-02	No	1 03E-01	No	4 92E+02	No	No	</=Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	1 1 3	100	4 30E+01	4 30E+01	No	2 92E+00	Yes	6 20E+01	No	No	</=Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	1 1 3	100	6 10E-02	6 10E-02	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	3 3 3	100	1 78E+03	3 03E+03	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2,3,7 8-TCDD-TEQ	1746-01-6	mg/kg	3 3 3	100	3 25E-01	4 97E-01	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	3 3 3	100	5 47E+03	9 70E+03	No	1 09E+04	No	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	3 3 3	100	1 25E+00	2 40E+00	No	2 05E+00	Yes	4 10E+01	No	No	</=Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	3 3 3	100	2 00E+01	3 70E+01	No	1 08E+01	Yes	1 60E+00	Yes	Yes	>Screening Level	No	Not Volatile
Barium	7440-39-3	mg/kg	3 3 3	100	6 63E+02	1 20E+03	No	3 17E+02	Yes	6 70E+03	No	No	</=Screening Level	No	Not Volatile
Beryllium	7440-41-7	mg/kg	3 3 3	100	4 00E-01	6 70E-01	No	7 65E-01	No	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	3 3 3	100	3 93E+01	8 60E+01	No	1 81E+00	Yes	4 50E+01	Yes	Yes	>Screening Level	No	Not Volatile
Calcium	7440-70-2	mg/kg	3 3 3	100	1 09E+04	2 00E+04	Yes	6 11E+04	No	NA	--	No	EN	No	Not Volatile
Chromium	7440-47-3	mg/kg	3 3 3	100	3 33E+01	6 20E+01	No	1 89E+01	Yes	4 50E+02	No	No	</=Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	3 3 3	100	5 63E+00	6 90E+00	No	9 27E+00	No	1 30E+03	No	No	</=Screening Level	No	Not Volatile
Copper	7440-50-8	mg/kg	3 3 3	100	9 57E+02	1 50E+03	No	4 96E+01	Yes	4 10E+03	No	No	</=Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	3 3 3	100	1 18E+04	1 60E+04	Yes	2 10E+04	No	3 10E+04	No	No	EN	No	Not Volatile
Lead	7439-92-1	mg/kg	3 3 3	100	5 03E+02	1 20E+03	No	7 18E+01	Yes	7 50E+02	No	No	</=Screening Level	No	Not Volatile
Magnesium	7439-95-4	mg/kg	3 3 3	100	2 72E+03	4 90E+03	Yes	1 13E+04	No	NA	--	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	3 3 3	100	1 06E+03	1 80E+03	No	5 01E+02	Yes	1 90E+03	No	No	</=Screening Level	No	Not Volatile
Mercury	7439-97-6	mg/kg	3 3 3	100	1 65E+02	3 60E+02	No	7 72E-02	Yes	3 10E+01	Yes	Yes	>Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	3 3 3	100	2 57E+01	2 80E+01	No	2 83E+01	No	2 00E+03	No	No	</=Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	3 3 3	100	1 05E+03	2 00E+03	Yes	2 38E+03	No	NA	--	No	EN	No	Not Volatile
Selenium	7782-49-2	mg/kg	2 3 3	67	1 01E+01	2 40E+01	No	1 07E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Silver	7440-22-4	mg/kg	3 3 3	100	7 23E+00	1 50E+01	No	1 02E+00	Yes	5 10E+02	No	No	<=Screening Level	No	Not Volatile
Sodium	7440-23-5	mg/kg	3 3 3	100	1 62E+02	2.20E+02	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Vanadium	7440-62-2	mg/kg	3 3 3	100	1 93E+01	2 80E+01	No	3 44E+01	No	7 20E+02	No	No	<=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	3 3 3	100	1 88E+03	3 90E+03	No	2 24E+02	Yes	3 10E+04	No	No	<=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site P															
VOCs															
1,1-Dichloroethane	75-34-3	mg/kg	1 1 11	100	2 40E-03	2 40E-03	No	NA	--	1 70E+02	No	No	</=Screening Level	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	mg/kg	2 10 11	20	2 18E-01	7 50E-01	No	NA	--	1 50E+01	No	No	</=Screening Level	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	6 11 11	55	7 49E-01	2 50E+00	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	6 9 11	67	4 27E-01	1 20E+00	No	2 00E-03	Yes	2 80E+02	No	No	</=Screening Level	No	</=Screening Level
Acetone	67-64-1	mg/kg	6 10 11	60	1 39E+00	4 30E+00	No	NA	--	6 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	8 11 11	73	6 62E-01	2 30E+00	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Carbon Disulfide	75-15-0	mg/kg	3 11 11	27	3 22E-01	2 00E+00	No	NA	--	1 20E+02	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	6 11 11	55	9 66E-01	3 50E+00	No	NA	--	5 30E+01	No	No	</=Screening Level	No	</=Screening Level
Chloroform	67-66-3	mg/kg	1 1 11	100	2 00E-03	2 00E-03	No	NA	--	1 20E+00	No	No	</=Screening Level	No	</=Screening Level
Dichloromethane	75-09-2	mg/kg	2 11 11	18	4 05E-01	2 30E+00	No	5 73E-03	Yes	2 10E+01	No	No	</=Screening Level	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	9 11 11	82	8 69E+00	7 80E+01	No	9 52E-04	Yes	2 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Methyl N-Butyl Ketone	591-78-6	mg/kg	2 5 11	40	2 61E-02	4 80E-02	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
Styrene (Monomer)	100-42-5	mg/kg	1 1 11	100	3 40E-04	3 40E-04	No	4 10E-03	No	1 80E+03	No	No	</=Screening Level	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	9 11 11	82	1 31E+01	1 40E+02	No	9 50E-04	Yes	3 40E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Toluene	108-88-3	mg/kg	8 11 11	73	7 31E+00	3 30E+01	No	NA	--	2 20E+02	No	No	</=Screening Level	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	6 11 11	55	2 01E-01	9 90E-01	No	NA	--	1 10E-01	Yes	Yes	>Screening Level	Yes	>Screening Level
Xylenes, Total	1330-20-7	mg/kg	8 11 11	73	4 02E+01	3 80E+02	No	1 54E-03	Yes	9 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
1 2,4-Trichlorobenzene	120-82-1	mg/kg	1 1 12	100	1 00E-01	1 00E-01	No	NA	--	5 60E+02	No	No	</=Screening Level	No	Not Volatile
1,2-Dichlorobenzene	95-50-1	mg/kg	5 11 12	45	2 76E+00	1 40E+01	No	NA	--	4 10E+02	No	No	</=Screening Level	No	Not Volatile
1,3-Dichlorobenzene	541-73-1	mg/kg	1 4 12	25	2 65E-01	4 60E-01	No	NA	--	6 30E+00	No	No	</=Screening Level	No	Not Volatile
1,4 Dichlorobenzene	106-46-7	mg/kg	5 12 12	42	2 44E+01	1 60E+02	No	NA	--	7 90E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dichlorophenol	120-83-2	mg/kg	2 11 12	18	2 51E+00	1 60E+01	No	NA	--	1 80E+02	No	No	</=Screening Level	No	Not Volatile
2-Chlorophenol	95-57-8	mg/kg	1 4 12	25	2 58E-01	4 30E-01	No	NA	-	2 40E+01	No	No	</=Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	1 4 12	25	2 67E-01	4 70E-01	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
4-Chloroaniline	106-47-8	mg/kg	2 11 12	18	3 45E+00	1 50E+01	No	NA	--	2 50E+02	No	No	</=Screening Level	No	Not Volatile
Acenaphthene	83-32-9	mg/kg	2 4 12	50	2 97E-01	7 20E-01	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Anthracene	120-12-7	mg/kg	2 4 12	50	2 41E-01	3 40E-01	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Benzo(a)anthracene	56-55-3	mg/kg	4 5 12	80	3 10E-01	6 80E-01	No	3 25E-01	Yes	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	3 4 12	75	2 63E-01	6 70E-01	No	3 90E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(b)fluoranthene	205-99-2	mg/kg	4 5 12	80	3 34E-01	6 80E-01	No	3 70E-01	Yes	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	4 5 12	80	2 02E-01	3 20E-01	No	3 94E-01	No	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08-9	mg/kg	4 5 12	80	2 78E-01	5 70E-01	No	3 28E-01	Yes	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85-68-7	mg/kg	2 10 12	20	1 13E+00	3 60E+00	No	NA	-	1 20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	7 10 12	70	9 41E-01	2 40E+00	No	3 35E-01	Yes	1 20E+02	No	No	</=Screening Level	No	Not Volatile
Carbazole	86-74-8	mg/kg	1 1 12	100	7 30E-02	7 30E-02	No	NA	-	8 60E+01	No	No	</=Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	4 5 12	80	4 13E-01	7 70E-01	No	3 36E-01	Yes	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-butylphthalate	84-74-2	mg/kg	1 1 12	100	1 70E-01	1 70E-01	No	NA	-	6 20E+03	No	No	</=Screening Level	No	Not Volatile
Di-n-octylphthalate	117-84-0	mg/kg	1 4 12	25	2 97E-01	5 90E-01	No	NA	--	2 50E+03	No	No	</=Screening Level	No	Not Volatile
Dibenzo(a,h)anthracene	53-70-3	mg/kg	2 2 12	100	8 45E-02	1 10E-01	No	1 20E-01	No	2 10E-01	No	No	</=Screening Level	No	Not Volatile
Dibenzofuran	132-64-9	mg/kg	4 7 12	57	4 58E-01	9 80E-01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Diethyl Phthalate	84-66-2	mg/kg	1 11 12	9	2 72E+00	1 60E+01	No	NA	-	4 90E+04	No	No	</=Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	4 8 12	50	8 51E-01	1 70E+00	No	4 11E-01	Yes	2.20E+03	No	No	</=Screening Level	No	Not Volatile
Fluorene	86-73-7	mg/kg	2 4 12	50	2 72E-01	6 30E-01	No	NA	-	2 60E+03	No	No	</=Screening Level	No	Not Volatile
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	2 3 12	67	1 65E-01	2 40E-01	No	NA	--	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	2 11 12	18	1 80E+00	8 00E+00	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
Phenanthrene	85-01-8	mg/kg	8 10 12	80	6 94E-01	1 80E+00	No	3 52E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	5 10 12	50	1 07E+00	3 20E+00	No	NA		3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	5 8 12	63	7 96E-01	1 80E+00	No	4 01E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4,4'-DDD	72-54-8	mg/kg	1 5 12	20	1 36E-02	1 90E-02	No	5 39E-03	Yes	1 00E+01	No	No	</=Screening Level	No	Not Volatile
4,4'-DDE	72-55-9	mg/kg	5 11 12	45	9 00E-02	4 10E-01	No	8 02E-03	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
4,4'-DDT	50-29-3	mg/kg	7 12 12	58	3 47E-01	1 70E+00	No	2 18E-02	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
Aldrin	309-00-2	mg/kg	1 11 12	9	2 71E-02	8 90E-02	No	2 75E-03	Yes	1 00E-01	No	No	</=Screening Level	No	Not Volatile
alpha-BHC	319-84-6	mg/kg	4 9 12	44	1 55E-02	3 30E-02	No	2 58E-02	Yes	3 60E-01	No	No	</=Screening Level	No	Not Volatile
alpha Chlordane	5103-71-9	mg/kg	4 6 12	67	1 58E-02	2 80E-02	No	4 04E-03	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
beta-BHC	319-85-7	mg/kg	5 12 12	42	6 18E-02	2 60E-01	No	NA	--	1 30E+00	No	No	</=Screening Level	No	Not Volatile
Dieldrin	60-57-1	mg/kg	8 12 12	67	1 26E-01	5 60E-01	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Endosulfan I	959-98-8	mg/kg	3 11 12	27	2 62E-02	1 00E-01	No	2 14E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endosulfan Sulfate	1031-07-8	mg/kg	5 11 12	45	4 18E-02	9 50E-02	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endrin	72-20-8	mg/kg	1 9 12	11	3 20E-02	6 80E-02	No	4 38E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Aldehyde	7421-93-4	mg/kg	2 11 12	18	5 15E-02	1 40E-01	No	4 81E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Ketone	53494-70-	mg/kg	2 5 12	40	1 21E-02	2 10E-02	No	NA	--	1 80E+01	No	No	</=Screening Level	No	Not Volatile
gamma-BHC (Lindane)	58-89-9	mg/kg	3 12 12	25	3 12E-02	8 40E-02	No	NA	--	1 70E+00	No	No	</=Screening Level	No	Not Volatile
gamma-Chlordane	5103-74-2	mg/kg	6 12 12	50	7 51E-02	2 30E-01	No	2 13E-02	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Heptachlor Epoxide	1024-57-3	mg/kg	1 5 12	20	7 99E-03	1 50E-02	No	6 10E-03	Yes	1 90E-01	No	No	</=Screening Level	No	Not Volatile
Methoxychlor	72-43-5	mg/kg	2 5 12	40	7 01E-02	1 00E-01	No	3 31E-03	Yes	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	4 10 12	40	1 73E-02	8 80E-02	No	NA	--	6 20E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	6 10 12	60	2 09E-02	5 50E-02	No	9 66E-03	Yes	7 70E+02	No	No	</=Screening Level	No	Not Volatile
Dalapon	75-99-0	mg/kg	4 4 12	100	6 90E-03	8 30E-03	No	NA	--	1 80E+03	No	No	</=Screening Level	No	Not Volatile
Dicamba	1918-00-9	mg/kg	2 2 12	100	3 20E-03	3 30E-03	No	NA	--	1 80E+03	No	No	</=Screening Level	No	Not Volatile
Dichlorprop	120-36-5	mg/kg	4 4 12	100	3 55E-03	9 50E-03	No	1 03E-01	No	4 92E+02	No	No	</=Screening Level	No	Not Volatile
MCPA	94-74-6	mg/kg	1 12 12	8	2 16E+01	2 10E+02	No	NA	--	3 10E+01	Yes	Yes	>Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	4 9 12	44	2 27E+00	1 00E+01	No	2 92E+00	Yes	6 20E+01	No	No	</=Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	12 12 12	100	7 30E-01	3 20E+00	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	10 12 12	83	4 44E+00	2 68E+01	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	11 12 12	92	2 83E-04	1 26E-03	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	12 12 12	100	4 90E+03	8 80E+03	No	1 09E+04	No	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	9 12 12	75	1 14E+00	2 10E+00	No	2 05E+00	Yes	4 10E+01	No	No	</=Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	12 12 12	100	1 29E+01	2 70E+01	No	1 08E+01	Yes	1 60E+00	Yes	Yes	>Screening Level	No	Not Volatile
Barium	7440-39-3	mg/kg	12 12 12	100	1 19E+02	1 90E+02	No	3 17E+02	No	6 70E+03	No	No	</=Screening Level	No	Not Volatile
Beryllium	7440-41-7	mg/kg	12 12 12	100	7 67E-01	1 80E+00	No	7 65E-01	Yes	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	12 12 12	100	1 07E+01	9 30E+01	No	1 81E+00	Yes	4 50E+01	Yes	Yes	>Screening Level	No	Not Volatile
Calcium	7440-70-2	mg/kg	12 12 12	100	6 87E+04	3 00E+05	Yes	6 11E+04	Yes	NA	--	No	EN	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Chromium	7440-47-3	mg/kg	12 12 12	100	1 96E+01	3 90E+01	No	1 89E+01	Yes	4 50E+02	No	No	</=Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	12 12 12	100	6 72E+00	1 30E+01	No	9 27E+00	Yes	1 30E+03	No	No	</=Screening Level	No	Not Volatile
Copper	7440-50-8	mg/kg	12 12 12	100	7 61E+01	2 70E+02	No	4 96E+01	Yes	4 10E+03	No	No	</=Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	12 12 12	100	1 42E+04	4 20E+04	Yes	2 10E+04	Yes	3 10E+04	Yes	No	EN	No	Not Volatile
Lead	7439-92-1	mg/kg	12 12 12	100	9 70E+01	2 50E+02	No	7 18E+01	Yes	7 50E+02	No	No	</=Screening Level	No	Not Volatile
Magnesium	7439-95-4	mg/kg	12 12 12	100	4 90E+03	2 20E+04	Yes	1 13E+04	Yes	NA	--	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	12 12 12	100	2 42E+02	5 30E+02	No	5 01E+02	Yes	1 90E+03	No	No	</=Screening Level	No	Not Volatile
Mercury	7439-97-6	mg/kg	12 12 12	100	4 03E+00	1 90E+01	No	7 72E-02	Yes	3 10E+01	No	No	</=Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	12 12 12	100	2 43E+01	4 70E+01	No	2 83E+01	Yes	2 00E+03	No	No	</=Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	12 12 12	100	1 11E+03	2 50E+03	Yes	2 38E+03	Yes	NA	--	No	EN	No	Not Volatile
Selenium	7782-49-2	mg/kg	8 12 12	67	2 04E+00	7 00E+00	No	1 07E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Silver	7440-22-4	mg/kg	9 12 12	75	5 70E-01	2 10E+00	No	1 02E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Sodium	7440-23-5	mg/kg	11 12 12	92	1 73E+03	1 00E+04	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Thallium	7440-28-0	mg/kg	3 12 12	25	7 04E-01	1 50E+00	No	NA	--	6 70E+00	No	No	</=Screening Level	No	Not Volatile
Vanadium	7440-62-2	mg/kg	12 12 12	100	2 44E+01	4 40E+01	No	3 44E+01	Yes	7 20E+02	No	No	</=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	12 12 12	100	9 46E+02	4 70E+03	No	2 24E+02	Yes	3 10E+04	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site Q Central															
VOCs															
1,2-Dichloroethene (total)	540-59-0	mg/kg	2 8 9	25	2 31E-02	1 20E-01	No	NA	--	1 50E+01	No	No	</=Screening Level	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	7 8 9	88	2 12E-02	3 85E-02	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	2 8 9	25	2 12E-02	4 30E-02	No	2 00E-03	Yes	2 80E+02	No	No	</=Screening Level	No	</=Screening Level
Acetone	67-64-1	mg/kg	8 9 9	89	2 97E-01	1 55E+00	No	NA	--	6 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	7 9 9	78	9 92E-02	3 35E-01	No	NA	--	1 30E+00	No	No	</=Screening Level	No	</=Screening Level
Carbon Disulfide	75-15-0	mg/kg	9 9 9	100	3 11E-02	1 95E-01	No	NA	--	1 20E+02	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	9 9 9	100	5 19E+00	4 00E+01	No	NA	--	5 30E+01	No	No	</=Screening Level	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	9 9 9	100	2 62E-01	1 40E+00	No	9 52E-04	Yes	2 00E+01	No	No	</=Screening Level	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	7 8 9	88	3 40E-03	1 50E-02	No	9 50E-04	Yes	3 40E+00	No	No	</=Screening Level	No	</=Screening Level
Toluene	108-88-3	mg/kg	4 9 9	44	1 38E+00	6 30E+00	No	NA	--	2 20E+02	No	No	</=Screening Level	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	7 8 9	88	5 07E-03	2 90E-02	No	NA	--	1 10E-01	No	No	</=Screening Level	No	</=Screening Level
Vinyl chloride	75-01-4	mg/kg	1 1 9	100	3 10E-03	3 10E-03	No	NA	--	7 50E-01	No	No	</=Screening Level	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	9 9 9	100	2 74E+00	1 00E+01	No	1 54E-03	Yes	9 00E+01	No	No	</=Screening Level	No	</=Screening Level
SVOCs															
1,2,4-Trichlorobenzene	120-82-1	mg/kg	1 1 9	100	2 70E-02	2 70E-02	No	NA	--	5 60E+02	No	No	</=Screening Level	No	Not Volatile
1 2-Dichlorobenzene	95-50-1	mg/kg	1 8 9	13	2 04E-01	2 20E-01	No	NA	--	4 10E+02	No	No	</=Screening Level	No	Not Volatile
1,4-Dichlorobenzene	106-46-7	mg/kg	9 9 9	100	1 07E+00	5 80E+00	No	NA	--	7 90E+00	No	No	</=Screening Level	No	Not Volatile
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 1 9	100	1 34E-01	1 34E-01	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
2 4,6-Trichlorophenol	88-06-2	mg/kg	1 7 9	14	3 53E-01	1 17E+00	No	NA	--	6 20E+00	No	No	</=Screening Level	No	Not Volatile
2,4-Dichlorophenol	120-83 2	mg/kg	1 7 9	14	2 34E-01	3 40E-01	No	NA	--	1 80E+02	No	No	</=Screening Level	No	Not Volatile
2-Chlorophenol	95-57-8	mg/kg	1 1 9	100	3 40E-02	3 40E-02	No	NA	--	2 40E+01	No	No	</=Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	8 9 9	89	4 13E-01	1 30E+00	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
3-Methylphenol/4-Methylphenol	106-44-5	mg/kg	3 8 9	38	2.28E-01	5 50E-01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Acenaphthene	83-32-9	mg/kg	5 9 9	56	6 55E-01	2 00E+00	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Acenaphthylene	208-96-8	mg/kg	1 2 9	50	1 75E-01	1 70E-01	No	NA	-	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Anthracene	120-12-7	mg/kg	4 9 9	44	8 85E-01	3 20E+00	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Benzo(a)anthracene	56-55-3	mg/kg	8 9 9	89	6 07E-01	3 15E+00	No	3 25E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	7 9 9	78	6 42E-01	2 65E+00	No	3 90E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Benzo(b)fluoranthene	205-99-2	mg/kg	6 9 9	67	7 82E-01	2 45E+00	No	3 70E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	6 9 9	67	3 20E-01	1 18E+00	No	3 94E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08-9	mg/kg	5 9 9	56	8 75E-01	2 65E+00	No	3 28E-01	Yes	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85-68-7	mg/kg	6 9 9	67	8.25E-01	3 05E+00	No	NA	--	1 20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	9 9 9	100	5 48E+00	2 20E+01	No	3 35E-01	Yes	1 20E+02	No	No	</=Screening Level	No	Not Volatile
Carbazole	86-74-8	mg/kg	2 9 9	22	8 19E-01	2 30E+00	No	NA	--	8 60E+01	No	No	</=Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	9 9 9	100	6 28E-01	3 00E+00	No	3 36E-01	Yes	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-butylphthalate	84-74-2	mg/kg	4 9 9	44	5 28E-01	2 60E+00	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
Di-n-octylphthalate	117-84-0	mg/kg	1 8 9	13	2 56E-01	5 50E-01	No	NA	--	2 50E+03	No	No	</=Screening Level	No	Not Volatile
Dibenzo(a,h)anthracene	53-70-3	mg/kg	2 2 9	100	6 35E-02	7 20E-02	No	1 20E-01	No	2 10E-01	No	No	</=Screening Level	No	Not Volatile
Dibenzofuran	132-64-9	mg/kg	6 9 9	67	5 02E-01	1 65E+00	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Dinoseb	88-85-7	mg/kg	1 1 9	100	8 80E-02	8 80E-02	No	NA	--	6 20E+01	No	No	</=Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	9 9 9	100	1 18E+00	7 25E+00	No	4 11E-01	Yes	2 20E+03	No	No	</=Screening Level	No	Not Volatile
Fluorene	86-73-7	mg/kg	6 9 9	67	7 34E-01	2 80E+00	No	NA	--	2 60E+03	No	No	</=Screening Level	No	Not Volatile
Hexachlorobenzene	118-74-1	mg/kg	1 1 9	100	2 90E-02	2 90E-02	No	NA	--	1 10E+00	No	No	</=Screening Level	No	Not Volatile
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	4 7 9	57	2 53E-01	8 05E-01	No	NA	--	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	8 9 9	89	8 19E-01	4 35E+00	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
Phenanthrene	85-01-8	mg/kg	9 9 9	100	1 90E+00	1 35E+01	No	3 52E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	2 8 9	25	2 26E-01	4 30E-01	No	NA	--	3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	9 9 9	100	1 47E+00	8 75E+00	No	4 01E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4,4'-DDD	72-54-8	mg/kg	4 9 9	44	2 96E-02	8 90E-02	No	5 39E-03	Yes	1 00E+01	No	No	</=Screening Level	No	Not Volatile
4,4'-DDE	72-55-9	mg/kg	1 7 9	14	1 61E-02	4 90E-02	No	8 02E-03	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
4,4'-DDT	50-29-3	mg/kg	3 9 9	33	4 01E-02	1 05E-01	No	2 18E-02	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
Aldrin	309-00-2	mg/kg	2 9 9	22	1 89E-02	1 10E-01	No	2 75E-03	Yes	1 00E-01	Yes	Yes	>Screening Level	No	Not Volatile
alpha-BHC	319-84-6	mg/kg	2 9 9	22	1 88E-02	6 05E-02	No	2 58E-02	Yes	3 60E-01	No	No	</=Screening Level	No	Not Volatile
alpha-Chlordane	5103-71-9	mg/kg	6 9 9	67	8 31E-03	3 10E-02	No	4 04E-03	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
beta-BHC	319-85-7	mg/kg	1 7 9	14	4 54E-03	1 60E-02	No	NA	--	1 30E+00	No	No	</=Screening Level	No	Not Volatile
delta-BHC	319-86-8	mg/kg	1 8 9	13	7 09E-03	2 30E-02	No	8 57E-03	Yes	1 70E+00	No	No	</=Screening Level	No	Not Volatile
Dieldrin	60 57-1	mg/kg	6 9 9	67	7 01E-02	3 90E-01	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Endosulfan Sulfate	1031-07-8	mg/kg	3 8 9	38	1 15E-02	3 80E-02	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endrin Aldehyde	7421-93-4	mg/kg	3 8 9	38	1 51E-02	4 80E-02	No	4 81E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Ketone	53494-70-	mg/kg	4 8 9	50	1 78E-02	7 03E-02	No	NA	--	1 80E+01	No	No	</=Screening Level	No	Not Volatile
gamma-Chlordane	5103-74 2	mg/kg	2 8 9	25	9 39E-03	4 05E-02	No	2 13E-02	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Methoxychlor	72-43 5	mg/kg	1 7 9	14	3 04E-02	5 50E-02	No	3 31E-03	Yes	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	3 5 9	60	6 10E-03	9 10E-03	No	NA	--	6 20E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	3 5 9	60	5 27E-03	7 50E-03	No	9 66E-03	No	7 70E+02	No	No	</=Screening Level	No	Not Volatile
2,4-DB	94-82-6	mg/kg	1 6 9	17	9 62E-03	2 00E-02	No	NA	--	4 90E+02	No	No	</=Screening Level	No	Not Volatile
Dalapon	75-99-0	mg/kg	3 3 9	100	3 11E-02	6 80E-02	No	NA	--	1 80E+03	No	No	</=Screening Level	No	Not Volatile
Dicamba	1918-00-9	mg/kg	1 1 9	100	2 90E-03	2 90E-03	No	NA	--	1 80E+03	No	No	</=Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	1 1 9	100	1 10E+00	1 10E+00	No	2 92E+00	No	6 20E+01	No	No	</=Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	8 9 9	89	1 63E+00	1 02E+01	No	4 57E-03	Yes	9 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	8 9 9	89	2 40E+00	8 74E+00	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	8 9 9	89	2 42E-03	1 64E-02	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	9 9 9	100	5 90E+03	8 30E+03	No	1 09E+04	No	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	7 9 9	78	2 39E+00	5 80E+00	No	2 05E+00	Yes	4 10E+01	No	No	</=Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	9 9 9	100	1 47E+01	5 70E+01	No	1 08E+01	Yes	1 60E+00	Yes	Yes	>Screening Level	No	Not Volatile
Barium	7440-39-3	mg/kg	9 9 9	100	2 05E+02	3 95E+02	No	3 17E+02	Yes	6 70E+03	No	No	</=Screening Level	No	Not Volatile
Beryllium	7440-41-7	mg/kg	9 9 9	100	7 55E-01	2 60E+00	No	7 65E-01	Yes	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	9 9 9	100	2 35E+00	9 65E+00	No	1 81E+00	Yes	4 50E+01	No	No	</=Screening Level	No	Not Volatile
Calcium	7440-70-2	mg/kg	9 9 9	100	7 96E+04	2 40E+05	Yes	6 11E+04	Yes	NA	--	No	EN	No	Not Volatile
Chromium	7440-47-3	mg/kg	9 9 9	100	2 84E+01	9 75E+01	No	1 89E+01	Yes	4 50E+02	No	No	</=Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	9 9 9	100	6 84E+00	1 50E+01	No	9 27E+00	Yes	1 30E+03	No	No	</=Screening Level	No	Not Volatile
Copper	7440 50-8	mg/kg	9 9 9	100	2 29E+03	2 00E+04	No	4 96E+01	Yes	4 10E+03	Yes	Yes	>Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	9 9 9	100	2 01E+04	5 40E+04	Yes	2 10E+04	Yes	3 10E+04	Yes	No	EN	No	Not Volatile
Lead	7439-92-1	mg/kg	9 9 9	100	1 91E+02	5 80E+02	No	7 18E+01	Yes	7 50E+02	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Magnesium	7439-95-4	mg/kg	9 9 9	100	6 27E+03	1 70E+04	Yes	1 13E+04	Yes	NA	--	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	9 9 9	100	8 42E+02	5 45E+03	No	5 01E+02	Yes	1 90E+03	Yes	Yes	>Screening Level	No	Not Volatile
Mercury	7439-97-6	mg/kg	9 9 9	100	6 64E-01	1 80E+00	No	7 72E-02	Yes	3 10E+01	No	No	</=Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	9 9 9	100	3 98E+01	[illegible]	No	2 83E+01	Yes	2 00E+03	No	No	</=Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	9 9 9	100	1 03E+03	1 60E+03	Yes	2 38E+03	No	NA		No	EN	No	Not Volatile
Selenium	7782-49-2	mg/kg	2 9 9	22	1 44E+00	6 40E+00	No	1 07E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Silver	7440-22-4	mg/kg	9 9 9	100	8 59E-01	3 75E+00	No	1 02E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Sodium	7440 23-5	mg/kg	8 9 9	89	3 83E+02	1 35E+03	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Thallium	7440-28-0	mg/kg	1 9 9	11	1 16E+00	4 10E+00	No	NA		6 70E+00	No	No	</=Screening Level	No	Not Volatile
Vanadium	7440-62-2	mg/kg	9 9 9	100	2 37E+01	5 60E+01	No	3 44E+01	Yes	7 20E+02	No	No	</=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	9 9 9	100	3 74E+02	1 06E+03	No	2 24E+02	Yes	3 10E+04	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site Q North															
VOCs															
1,1,1-Trichloroethane	71-55-6	mg/kg	1 14 15	7	3 51E-02	2 50E-01	No	NA	--	6 90E+02	No	No	</=Screening Level	No	</=Screening Level
1,1-Dichloroethane	75-34-3	mg/kg	1 15 15	7	7 87E-02	6 60E-01	No	NA	--	1 70E+02	No	No	</=Screening Level	No	</=Screening Level
1,1-Dichloroethylene	75-35-4	mg/kg	1 15 15	7	6 94E-02	5 20E-01	No	NA	--	4 10E+01	No	No	</=Screening Level	No	</=Screening Level
1,2-Dichloroethane	107-06-2	mg/kg	1 15 15	7	3 23E-01	4 00E+00	No	NA	--	6 00E-01	Yes	Yes	>Screening Level	Yes	>Screening Level
1 2-Dichloroethene (total)	540-59-0	mg/kg	1 15 15	7	1 62E-01	1 40E+00	No	NA	-	1 50E+01	No	No	</=Screening Level	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	5 15 15	33	3 19E-01	2 00E+00	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	2 13 15	15	6 13E-02	5 80E-01	No	2 00E-03	Yes	2 80E+02	No	No	</=Screening Level	No	</=Screening Level
Acetone	67-64-1	mg/kg	6 14 15	43	4 37E-01	3 00E+00	No	NA	--	6 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	8 15 15	53	6 77E-01	8 80E+00	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Carbon Disulfide	75-15-0	mg/kg	9 15 15	60	9 87E-02	9 70E-01	No	NA	--	1.20E+02	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	6 15 15	40	4 68E+00	3 60E+01	No	NA	--	5 30E+01	No	No	</=Screening Level	No	</=Screening Level
Chloroform	67-66-3	mg/kg	1 1 15	100	9 00E-04	9 00E-04	No	NA	--	1 20E+00	No	No	</=Screening Level	No	</=Screening Level
Chloromethane	74-87-3	mg/kg	1 15 15	7	1 29E-01	9 00E-01	No	9 00E-04	Yes	2 60E+00	No	No	</=Screening Level	No	</=Screening Level
cis-1,3-Dichloropropene	10061-01-	mg/kg	1 15 15	7	5 87E-02	3 60E-01	No	NA	--	1 80E+00	No	No	</=Screening Level	No	</=Screening Level
Dichloromethane	75-09-2	mg/kg	1 12 15	8	4.20E-03	9 10E-03	No	5 73E-03	Yes	2 10E+01	No	No	</=Screening Level	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	8 15 15	53	3 47E+00	4 00E+01	No	9 52E-04	Yes	2 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Methyl N-Butyl Ketone	591-78-6	mg/kg	2 13 15	15	5 49E-02	5 00E-01	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
Styrene (Monomer)	100-42-5	mg/kg	2 2 15	100	5 40E-04	6 90E-04	No	4 10E-03	No	1 80E+03	No	No	</=Screening Level	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	13 15 15	87	1 95E+00	2 80E+01	No	9 50E-04	Yes	3 40E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Toluene	108-88-3	mg/kg	4 15 15	27	4.23E+00	4 70E+01	No	NA	--	2 20E+02	No	No	</=Screening Level	No	</=Screening Level
trans-1,3-Dichloropropene	10061-02-	mg/kg	1 15 15	7	5 54E-02	3 10E-01	No	NA	--	1 80E+00	No	No	</=Screening Level	No	</=Screening Level
Trichloroethylene	79-01-6	mg/kg	13 15 15	87	1 07E-01	7 30E-01	No	NA	--	1 10E-01	Yes	Yes	>Screening Level	Yes	>Screening Level
Vinyl chloride	75-01-4	mg/kg	1 15 15	7	1 09E-01	6 00E-01	No	NA	-	7 50E-01	No	No	</=Screening Level	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	10 15 15	67	2 55E+01	3 00E+02	No	1 54E-03	Yes	9 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
1,2,4-Trichlorobenzene	120-82-1	mg/kg	4 14 15	29	1 47E+00	1 00E+01	No	NA		5 60E+02	No	No	</=Screening Level	No	Not Volatile
1,2-Dichlorobenzene	95-50-1	mg/kg	3 14 15	21	1 17E+00	9 70E+00	No	NA	-	4 10E+02	No	No	</=Screening Level	No	Not Volatile
1 3-Dichlorobenzene	541-73-1	mg/kg	3 3 15	100	6 07E-02	1 10E-01	No	NA		6 30E+00	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
1,4-Dichlorobenzene	106-46-7	mg/kg	6 14 15	43	9 15E-01	3 20E+00	No	NA	--	7 90E+00	No	No	</=Screening Level	No	Not Volatile
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 2 15	50	1 77E-01	1 80E-01	No	NA	--	6.20E+03	No	No	</=Screening Level	No	Not Volatile
2,4,6-Trichlorophenol	88-06-2	mg/kg	2 14 15	14	3 90E+00	4 70E+01	No	NA	--	6 20E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dichlorophenol	120-83-2	mg/kg	5 15 15	33	2 29E+01	2 70E+02	No	NA	--	1 80E+02	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dimethylphenol	105-67-9	mg/kg	1 1 15	100	3 70E-02	3 70E-02	No	NA	--	1 20E+03	No	No	</=Screening Level	No	Not Volatile
2-Chlorophenol	95-57-8	mg/kg	2 14 15	14	6 83E-01	1 70E+00	No	NA	-	2 40E+01	No	No	</=Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	9 10 15	90	1 81E-01	5 90E-01	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
2 Nitroaniline	88-74-4	mg/kg	1 14 15	7	3 81E+00	2 00E+01	No	NA	--	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
3-Methylphenol/4-Methylphenol	106-44-5	mg/kg	1 1 15	100	1 70E-01	1 70E-01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
4-Chloroaniline	106-47-8	mg/kg	3 14 15	21	5 28E+00	3 00E+01	No	NA	-	2 50E+02	No	No	</=Screening Level	No	Not Volatile
Acenaphthene	83-32-9	mg/kg	10 12 15	83	2 22E-01	4 70E-01	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Acenaphthylene	208-96-8	mg/kg	1 1 15	100	6 90E-02	6 90E-02	No	NA	--	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Anthracene	120-12-7	mg/kg	11 13 15	85	5 45E-01	1 20E+00	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Benzo(a)anthracene	56-55-3	mg/kg	13 14 15	93	1.23E+00	2 90E+00	No	3 25E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	13 14 15	93	1 32E+00	2 70E+00	No	3 90E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(b)fluoranthene	205-99-2	mg/kg	14 14 15	100	1 18E+00	2 20E+00	No	3 70E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	13 13 15	100	6 49E-01	1 20E+00	No	3 94E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08-9	mg/kg	14 14 15	100	1 07E+00	2 20E+00	No	3 28E-01	Yes	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85 68-7	mg/kg	3 3 15	100	5 87E-02	1 20E-01	No	NA	--	1 20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Chloroethyl)ether	111-44-4	mg/kg	1 1 15	100	4 40E-02	4 40E-02	No	NA	--	5 50E-01	No	No	</=Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	10 14 15	71	1 44E+00	1 00E+01	No	3 35E-01	Yes	1 20E+02	No	No	</=Screening Level	No	Not Volatile
Carbazole	86-74-8	mg/kg	8 9 15	89	2 35E-01	5 50E-01	No	NA	--	8 60E+01	No	No	</=Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	13 14 15	93	1 38E+00	3 10E+00	No	3 36E-01	Yes	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-butylphthalate	84-74-2	mg/kg	1 1 15	100	3 60E-02	3 60E-02	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
Dibenzo(a,h)anthracene	53-70-3	mg/kg	8 9 15	89	2 11E-01	4 00E-01	No	1 20E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Dibenzofuran	132-64-9	mg/kg	8 10 15	80	1 98E-01	4 10E-01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Diethyl Phthalate	84-66-2	mg/kg	2 14 15	14	6 08E-01	1 60E+00	No	NA	--	4 90E+04	No	No	</=Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	14 14 15	100	2 36E+00	5 70E+00	No	4 11E-01	Yes	2 20E+03	No	No	</=Screening Level	No	Not Volatile
Fluorene	86-73-7	mg/kg	8 10 15	80	2 40E-01	4 90E-01	No	NA	-	2 60E+03	No	No	</=Screening Level	No	Not Volatile
Hexachlorobenzene	118-74-1	mg/kg	1 1 15	100	3 00E-02	3 00E-02	No	NA	-	1 10E+00	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	12 13 15	92	5 85E-01	1 20E+00	No	NA	--	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	6 14 15	43	8 09E-01	5 60E+00	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
Nitrobenzene	98-95-3	mg/kg	1 14 15	7	6 04E-01	1 90E+00	No	NA	--	1 00E+01	No	No	</=Screening Level	No	Not Volatile
Phenanthrene	85-01-8	mg/kg	14 14 15	100	2 05E+00	5 50E+00	No	3 52E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	6 15 15	40	2 40E+00	2 90E+01	No	NA	--	3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	13 14 15	93	2 76E+00	6 70E+00	No	4 01E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4,4'-DDD	72-54-8	mg/kg	3 11 15	27	1 85E-02	3 90E-02	No	5 39E-03	Yes	1 00E+01	No	No	</=Screening Level	No	Not Volatile
4,4'-DDE	72-55-9	mg/kg	7 11 15	64	4 76E-01	4 90E+00	No	8 02E-03	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
4,4'-DDT	50-29-3	mg/kg	12 15 15	80	4 87E-01	5 00E+00	No	2 18E-02	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
alpha-BHC	319-84-6	mg/kg	3 15 15	20	2 26E-02	9 00E-02	No	2 58E-02	Yes	3 60E-01	No	No	</=Screening Level	No	Not Volatile
alpha-Chlordane	5103-71-9	mg/kg	5 9 15	56	3 86E-02	2 00E-01	No	4 04E-03	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
beta-BHC	319-85-7	mg/kg	8 15 15	53	1 24E-01	1 30E+00	No	NA	--	1 30E+00	No	No	</=Screening Level	No	Not Volatile
delta-BHC	319-86-8	mg/kg	1 15 15	7	8 32E-02	6 60E-01	No	8 57E-03	Yes	1 70E+00	No	No	</=Screening Level	No	Not Volatile
Dieldrin	60-57-1	mg/kg	10 15 15	67	3 45E-01	3 20E+00	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile.
Endosulfan II	33213-65-	mg/kg	3 13 15	23	3 81E-02	2 20E-01	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endosulfan Sulfate	1031-07-8	mg/kg	2 15 15	13	1 22E-01	1 00E+00	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endrin	72-20-8	mg/kg	4 15 15	27	2 01E-01	1 70E+00	No	4 38E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Aldehyde	7421-93-4	mg/kg	4 15 15	27	1 24E-01	7 30E-01	No	4 81E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Ketone	53494-70-	mg/kg	6 15 15	40	9 35E-02	6 30E-01	No	NA	--	1 80E+01	No	No	</=Screening Level	No	Not Volatile
gamma-BHC (Lindane)	58-89-9	mg/kg	3 15 15	20	5 08E-02	3 10E-01	No	NA	--	1 70E+00	No	No	</=Screening Level	No	Not Volatile
gamma-Chlordane	5103-74-2	mg/kg	10 15 15	67	1 22E-01	1 20E+00	No	2 13E-02	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Heptachlor	76-44-8	mg/kg	3 10 15	30	6 07E-03	1 10E-02	No	1 66E-02	No	3 80E-01	No	No	</=Screening Level	No	Not Volatile
Heptachlor Epoxide	1024-57-3	mg/kg	3 13 15	23	3 20E-02	1 50E-01	No	6 10E-03	Yes	1 90E-01	No	No	</=Screening Level	No	Not Volatile
Methoxychlor	72-43-5	mg/kg	6 14 15	43	1 97E-01	1 80E+00	No	3 31E-03	Yes	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	3 12 15	25	4 93E-03	1 00E-02	No	NA	--	6 20E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	6 15 15	40	1 90E+01	1 70E+02	No	9 66E-03	Yes	7 70E+02	No	No	</=Screening Level	No	Not Volatile
Dalapon	75-99-0	mg/kg	1 1 15	100	9 20E-03	9 20E-03	No	NA	--	1 80E+03	No	No	</=Screening Level	No	Not Volatile
Dichlorprop	120-36-5	mg/kg	1 1 15	100	2 70E-03	2 70E-03	No	1 03E-01	No	4 92E+02	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for GW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
MCPA	94-74-6	mg/kg	1 1 15	100	2 50E-01	2 50E-01	No	NA	--	3 10E+01	No	No	</=Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	3 12 15	25	1 31E+00	3 60E+00	No	2 92E+00	Yes	6.20E+01	No	No	</=Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	13 15 15	87	6 54E+01	5 10E+02	No	4 57E-03	Yes	9 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	13 15 15	87	2 93E+01	1 90E+02	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	13 15 15	87	5 24E-03	5 51E-02	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	15 15 15	100	5 52E+03	1 10E+04	No	1 09E+04	Yes	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	13 15 15	87	7 77E+00	8 40E+01	No	2 05E+00	Yes	4 10E+01	Yes	Yes	>Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	15 15 15	100	1 18E+01	4 00E+01	No	1 08E+01	Yes	1 60E+00	Yes	Yes	>Screening Level	No	Not Volatile
Barium	7440-39-3	mg/kg	15 15 15	100	1 38E+03	7 20E+03	No	3 17E+02	Yes	6 70E+03	Yes	Yes	>Screening Level	No	Not Volatile
Beryllium	7440-41-7	mg/kg	15 15 15	100	7 08E-01	1 60E+00	No	7 65E-01	Yes	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	15 15 15	100	1 23E+01	9 20E+01	No	1 81E+00	Yes	4 50E+01	Yes	Yes	>Screening Level	No	Not Volatile
Calcium	7440-70-2	mg/kg	15 15 15	100	5 51E+04	2 30E+05	Yes	6 11E+04	Yes	NA	--	No	EN	No	Not Volatile
Chromium	7440-47-3	mg/kg	15 15 15	100	3 26E+01	1 40E+02	No	1 89E+01	Yes	4 50E+02	No	No	</=Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	15 15 15	100	8 90E+00	2 10E+01	No	9 27E+00	Yes	1 30E+03	No	No	</=Screening Level	No	Not Volatile
Copper	7440-50-8	mg/kg	15 15 15	100	3 78E+02	3 80E+03	No	4 96E+01	Yes	4 10E+03	No	No	</=Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	15 15 15	100	2 95E+04	8 30E+04	Yes	2 10E+04	Yes	3 10E+04	Yes	No	EN	No	Not Volatile
Lead	7439-92-1	mg/kg	14 15 15	93	1 96E+03	2 40E+04	No	7 18E+01	Yes	7 50E+02	Yes	Yes	>Screening Level	No	Not Volatile
Magnesium	7439-95-4	mg/kg	15 15 15	100	4 11E+03	9 70E+03	Yes	1 13E+04	No	NA	--	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	15 15 15	100	3 51E+02	6 60E+02	No	5 01E+02	Yes	1 90E+03	No	No	</=Screening Level	No	Not Volatile
Mercury	7439-97-6	mg/kg	15 15 15	100	1 57E+00	1 50E+01	No	7 72E-02	Yes	3 10E+01	No	No	</=Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	15 15 15	100	3 31E+01	1 10E+02	No	2 83E+01	Yes	2 00E+03	No	No	</=Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	15 15 15	100	8 51E+02	2 30E+03	Yes	2 38E+03	No	NA	--	No	EN	No	Not Volatile
Selenium	7782-49-2	mg/kg	2 15 15	13	6 00E-01	1 10E+00	No	1 07E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Silver	7440-22-4	mg/kg	10 15 15	67	1 21E+00	5 20E+00	No	1 02E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Sodium	7440-23-5	mg/kg	14 15 15	93	4 28E+02	1 40E+03	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Vanadium	7440-62-2	mg/kg	15 15 15	100	4 09E+01	2 80E+02	No	3 44E+01	Yes	7 20E+02	No	No	</=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	15 15 15	100	1 77E+03	1 10E+04	No	2 24E+02	Yes	3 10E+04	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site Q South															
VOCs															
1,1,1-Trichloroethane	71-55-6	mg/kg	1 20 20	5	2 80E-02	4 70E-01	No	NA	--	6 90E+02	No	No	</=Screening Level	No	</=Screening Level
1,1-Dichloroethane	75-34-3	mg/kg	2 20 20	10	4 22E-02	7 60E-01	No	NA	--	1 70E+02	No	No	</=Screening Level	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	mg/kg	3 20 20	15	4 33E-01	8 50E+00	No	NA	--	1 50E+01	No	No	</=Screening Level	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	11 19 20	58	2 00E-02	7 10E-02	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	4 4 20	100	6 06E-03	7 50E-03	No	2 00E-03	Yes	2 80E+02	No	No	</=Screening Level	No	</=Screening Level
Acetone	67-64-1	mg/kg	9 19 20	47	8 45E-02	2 60E-01	No	NA	--	6 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	12 20 20	60	1 34E-01	2 00E+00	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Carbon Disulfide	75-15-0	mg/kg	9 19 20	47	4 01E-03	7 80E-03	No	NA	-	1.20E+02	No	No	</=Screening Level	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	10 20 20	50	2 95E-01	3 50E+00	No	NA	--	5 30E+01	No	No	</=Screening Level	No	</=Screening Level
Chloroethane	75-00-3	mg/kg	3 20 20	15	1 94E-02	1 90E-01	No	NA	--	6 50E+00	No	No	</=Screening Level	No	</=Screening Level
Chloroform	67-66-3	mg/kg	2 2 20	100	1 55E-03	1 80E-03	No	NA	--	1 20E+00	No	No	</=Screening Level	No	</=Screening Level
Dichloromethane	75-09-2	mg/kg	1 10 20	10	3 27E-03	3 60E-03	No	5 73E-03	No	2 10E+01	No	No	</=Screening Level	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	16 20 20	80	1 36E+01	2 70E+02	No	9 52E-04	Yes	2 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Methyl N-Butyl Ketone	591-78-6	mg/kg	6 19 20	32	4 54E-02	1 90E-01	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
Styrene (Monomer)	100-42-5	mg/kg	3 3 20	100	9 78E-04	1 13E-03	No	4 10E-03	No	1 80E+03	No	No	</=Screening Level	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	10 20 20	50	5 13E-02	9 60E-01	No	9 50E-04	Yes	3 40E+00	No	No	</=Screening Level	No	</=Screening Level
Toluene	108-88-3	mg/kg	12 20 20	60	6 50E+01	1 30E+03	No	NA	--	2 20E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Trichloroethylene	79-01-6	mg/kg	10 20 20	50	2 18E-02	3 80E-01	No	NA	--	1 10E-01	Yes	Yes	>Screening Level	Yes	>Screening Level
Xylenes, Total	1330-20-7	mg/kg	18 20 20	90	9 53E+01	1 90E+03	No	1 54E-03	Yes	9 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
1,2,4-Trichlorobenzene	120-82-1	mg/kg	3 3 20	100	7 67E-02	1 05E-01	No	NA	-	5 60E+02	No	No	</=Screening Level	No	Not Volatile
1,2-Dichlorobenzene	95-50-1	mg/kg	1 1 20	100	3 10E-02	3 10E-02	No	NA	--	4 10E+02	No	No	</=Screening Level	No	Not Volatile
1,4-Dichlorobenzene	106-46-7	mg/kg	3 18 20	17	2 66E-01	1 20E+00	No	NA	--	7 90E+00	No	No	</=Screening Level	No	Not Volatile
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 18 20	6	2 66E-01	1 10E+00	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	3 18 20	17	2 37E-01	5 40E-01	No	NA	-	1 90E+01	No	No	</=Screening Level	No	Not Volatile
3-Methylphenol/4-Methylphenol	106-44-5	mg/kg	1 17 20	6	2 26E-01	3 80E-01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
4 Chloroaniline	106-47-8	mg/kg	1 1 20	100	1 60E-01	1 60E-01	No	NA	--	2 50E+02	No	No	</=Screening Level	No	Not Volatile
Acenaphthene	83-32-9	mg/kg	5 19 20	26	2 74E-01	1 30E+00	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Anthracene	120-12-7	mg/kg	9 19 20	47	3 69E-01	2 00E+00	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Benzo(a)anthracene	56-55-3	mg/kg	17 20 20	85	5 92E-01	2 52E+00	No	3 25E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	14 20 20	70	6 83E-01	2 98E+00	No	3 90E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(b)fluoranthene	205-99-2	mg/kg	13 20 20	65	7 09E-01	3 30E+00	No	3 70E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	11 20 20	55	4 74E-01	2 09E+00	No	3 94E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08 9	mg/kg	16 20 20	80	4 95E-01	2 50E+00	No	3 28E-01	Yes	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85-68-7	mg/kg	10 20 20	50	1 25E+00	1 00E+01	No	NA	--	1 20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	17 20 20	85	2 66E+00	1 80E+01	No	3 35E-01	Yes	1 20E+02	No	No	</=Screening Level	No	Not Volatile
Carbazole	86-74-8	mg/kg	3 17 20	18	2 16E-01	3 76E-01	No	NA	--	8 60E+01	No	No	</=Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	19 20 20	95	6 68E-01	2 85E+00	No	3 36E-01	Yes	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-butylphthalate	84-74-2	mg/kg	9 20 20	45	4 41E-01	2 30E+00	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1 17 20	6	2 14E-01	1 83E-01	No	1 20E-01	Yes	2 10E-01	No	No	</=Screening Level	No	Not Volatile
Dibenzofuran	132-64-9	mg/kg	4 18 20	22	2 22E-01	8 20E-01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Diethyl Phthalate	84-66-2	mg/kg	2 2 20	100	5 45E-02	7 80E-02	No	NA	--	4 90E+04	No	No	</=Screening Level	No	Not Volatile
Dimethyl Phthalate	131-11-3	mg/kg	1 1 20	100	2 60E-02	2 60E-02	No	NA	--	6.20E+05	No	No	</=Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	17 20 20	85	1 13E+00	4 50E+00	No	4 11E-01	Yes	2 20E+03	No	No	</=Screening Level	No	Not Volatile
Fluorene	86-73-7	mg/kg	6 19 20	32	2 83E-01	1 40E+00	No	NA	--	2 60E+03	No	No	</=Screening Level	No	Not Volatile
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	4 17 20	24	1 98E-01	3 10E-01	No	NA	--	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	3 19 20	16	7 35E-01	5 20E+00	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
Phenanthrene	85 01 8	mg/kg	17 20 20	85	9 82E-01	6 10E+00	No	3 52E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	2 18 20	11	2 59E-01	1 00E+00	No	NA	--	3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	14 20 20	70	1 28E+00	5 20E+00	No	4 01E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4,4'-DDD	72-54-8	mg/kg	5 20 20	25	9 66E-02	1 40E+00	No	5 39E-03	Yes	1 00E+01	No	No	</=Screening Level	No	Not Volatile
4,4'-DDE	72-55-9	mg/kg	11 17 20	65	1 43E-01	1 20E+00	No	8 02E-03	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
4,4'-DDT	50-29-3	mg/kg	18 20 20	90	6 62E-01	3 75E+00	No	2 18E-02	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
Aldrin	309-00-2	mg/kg	3 20 20	15	3 92E-02	3 00E-01	No	2 75E-03	Yes	1 00E-01	Yes	Yes	>Screening Level	No	Not Volatile
alpha-BHC	319-84-6	mg/kg	4 20 20	20	2 28E-02	1 85E-01	No	2 58E-02	Yes	3 60E-01	No	No	</=Screening Level	No	Not Volatile
alpha-Chlordane	5103-71-9	mg/kg	13 19 20	68	2 12E-02	1 11E-01	No	4 04E-03	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
beta-BHC	319-85-7	mg/kg	2 11 20	18	3 26E-03	1 10E-02	No	NA	--	1 30E+00	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
delta-BHC	319-86-8	mg/kg	2 20 20	10	2 52E-02	2 40E-01	No	8 57E-03	Yes	1 70E+00	No	No	</=Screening Level	No	Not Volatile
Dieldrin	60-57-1	mg/kg	16 20 20	80	1 33E-01	8 25E-01	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Endosulfan I	959-98-8	mg/kg	2 20 20	10	2 53E-02	2 25E-01	No	2 14E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endosulfan II	33213-65-	mg/kg	7 20 20	35	4 01E-02	3 55E-01	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endosulfan Sulfate	1031-07-8	mg/kg	7 20 20	35	7 06E-02	9 55E-01	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endrin	72-20-8	mg/kg	6 20 20	30	5 33E-02	3 45E-01	No	4 38E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Aldehyde	7421-93-4	mg/kg	8 20 20	40	2 29E-01	2 60E+00	No	4 81E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Ketone	53494-70-	mg/kg	8 20 20	40	6 33E-02	4 15E-01	No	NA	--	1 80E+01	No	No	</=Screening Level	No	Not Volatile
gamma-BHC (Lindane)	58-89-9	mg/kg	4 20 20	20	1 65E-02	9 60E-02	No	NA	--	1 70E+00	No	No	</=Screening Level	No	Not Volatile
gamma-Chlordane	5103-74-2	mg/kg	11 20 20	55	1 06E-01	7 40E-01	No	2 13E-02	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Heptachlor	76-44-8	mg/kg	1 10 20	10	2 01E-03	5 80E-03	No	1 66E-02	No	3 80E-01	No	No	</=Screening Level	No	Not Volatile
Heptachlor Epoxide	1024-57-3	mg/kg	11 20 20	55	3 76E-02	2 30E-01	No	6 10E-03	Yes	1 90E-01	Yes	Yes	>Screening Level	No	Not Volatile
Methoxychlor	72-43-5	mg/kg	2 6 20	33	2 51E-02	9 20E-02	No	3 31E-03	Yes	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	2 17 20	12	5 38E-03	7 40E-03	No	NA	--	6 20E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	13 18 20	72	9 12E-03	1 84E-02	No	9 66E-03	Yes	7 70E+02	No	No	</=Screening Level	No	Not Volatile
2,4-DB	94-82-6	mg/kg	1 18 20	6	6 97E-03	1 65E-02	No	NA	--	4 90E+02	No	No	</=Screening Level	No	Not Volatile
Dichlorprop	120-36-5	mg/kg	4 4 20	100	4 38E-03	6 20E-03	No	1 03E-01	No	4 92E+02	No	No	</=Screening Level	No	Not Volatile
MCPA	94-74-6	mg/kg	8 17 20	47	1 37E+00	3 70E+00	No	NA	--	3 10E+01	No	No	</=Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	11 17 20	65	1 70E+00	5 20E+00	No	2 92E+00	Yes	6 20E+01	No	No	</=Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	14 20 20	70	3 57E+01	4 70E+02	No	4 57E-03	Yes	9 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	16 20 20	80	5 66E+00	3 21E+01	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	20 20 20	100	2 15E-03	2 87E-02	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	20 20 20	100	9 71E+03	1 70E+04	No	1 09E+04	Yes	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	10 20 20	50	1 15E+01	4 70E+01	No	2 05E+00	Yes	4 10E+01	Yes	Yes	>Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	20 20 20	100	1 31E+01	3 30E+01	No	1 08E+01	Yes	1 60E+00	Yes	Yes	>Screening Level	No	Not Volatile
Barium	7440-39-3	mg/kg	20 20 20	100	7 03E+02	2 80E+03	No	3 17E+02	Yes	6 70E+03	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Beryllium	7440-41-7	mg/kg	20 20 20	100	5 56E-01	9 90E-01	No	7 65E-01	Yes	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	20 20 20	100	1 10E+01	4 30E+01	No	1 81E+00	Yes	4 50E+01	No	No	</=Screening Level	No	Not Volatile
Calcium	7440-70-2	mg/kg	20 20 20	100	1 70E+04	7 15E+04	Yes	6 11E+04	Yes	NA	--	No	EN	No	Not Volatile
Chromium	7440-47-3	mg/kg	20 20 20	100	8 82E+01	6 60E+02	No	1 89E+01	Yes	4 50E+02	Yes	Yes	>Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	20 20 20	100	1 38E+01	4 20E+01	No	9 27E+00	Yes	1 30E+03	No	No	</=Screening Level	No	Not Volatile
Copper	7440-50-8	mg/kg	20 20 20	100	5 84E+02	3 70E+03	No	4 96E+01	Yes	4 10E+03	No	No	</=Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	20 20 20	100	5 67E+04	2 10E+05	Yes	2 10E+04	Yes	3 10E+04	Yes	No	EN	No	Not Volatile
Lead	7439 92-1	mg/kg	20 20 20	100	8 28E+02	3 10E+03	No	7 18E+01	Yes	7 50E+02	Yes	Yes	>Screening Level	No	Not Volatile
Magnesium	7439-95-4	mg/kg	20 20 20	100	3 73E+03	6 70E+03	Yes	1 13E+04	No	NA	--	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	20 20 20	100	7 01E+02	2 10E+03	No	5 01E+02	Yes	1 90E+03	Yes	Yes	>Screening Level	No	Not Volatile
Mercury	7439-97-6	mg/kg	20 20 20	100	2 58E+00	3 60E+01	No	7 72E-02	Yes	3 10E+01	Yes	Yes	>Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	20 20 20	100	2 14E+02	2 73E+03	No	2 83E+01	Yes	2 00E+03	Yes	Yes	>Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	20 20 20	100	1 22E+03	2 30E+03	Yes	2 38E+03	No	NA	--	No	EN	No	Not Volatile
Selenium	7782-49-2	mg/kg	5 20 20	25	1 12E+00	3 70E+00	No	1 07E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Silver	7440-22-4	mg/kg	12 20 20	60	4 41E+00	2 70E+01	No	1 02E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Sodium	7440-23-5	mg/kg	7 20 20	35	2 87E+02	2 25E+03	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Thallium	7440-28-0	mg/kg	4 19 20	21	8 49E-01	1 90E+00	No	NA	-	6 70E+00	No	No	</=Screening Level	No	Not Volatile
Vanadium	7440-62-2	mg/kg	20 20 20	100	2 33E+01	3 60E+01	No	3 44E+01	Yes	7 20E+02	No	No	</=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	20 20 20	100	1 45E+03	6 40E+03	No	2 24E+02	Yes	3 10E+04	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site R															
VOCs															
1,1,2-Trichloroethane	79-00-5	mg/kg	1 12 12	8	1 69E+00	9 50E+00	No	NA	--	1 60E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
1,1-Dichloroethane	75-34-3	mg/kg	1 12 12	8	1 81E+00	1 10E+01	No	NA	--	1 70E+02	No	No	</=Screening Level	No	</=Screening Level
1,1-Dichloroethylene	75-35-4	mg/kg	1 11 12	9	9 29E-01	3 90E+00	No	NA	--	4 10E+01	No	No	</=Screening Level	No	</=Screening Level
1,2-Dichloroethane	107-06-2	mg/kg	7 12 12	58	1 68E+01	8 70E+01	No	NA	--	6 00E-01	Yes	Yes	>Screening Level	Yes	>Screening Level
1,2-Dichloroethene (total)	540-59-0	mg/kg	5 12 12	42	6 18E+00	5 10E+01	No	NA	--	1 50E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	11 12 12	92	1 06E+01	8 40E+01	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	4 12 12	33	7 54E+00	4 30E+01	No	2 00E-03	Yes	2 80E+02	No	No	</=Screening Level	No	</=Screening Level
Acetone	67-64-1	mg/kg	9 10 12	90	2 50E+01	1 80E+02	No	NA	--	6 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	12 12 12	100	2 62E+01	1 50E+02	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Chlorobenzene	108-90-7	mg/kg	11 12 12	92	2 33E+02	2 40E+03	No	NA	--	5 30E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Chloroform	67-66-3	mg/kg	5 12 12	42	2 79E+00	1 10E+01	No	NA	--	1 20E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Ethylbenzene	100-41-4	mg/kg	12 12 12	100	9 04E+00	4 20E+01	No	9 52E-04	Yes	2 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Tetrachloroethene	127-18-4	mg/kg	10 12 12	83	2 25E+02	1 20E+03	No	9 50E-04	Yes	3 40E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Toluene	108-88-3	mg/kg	8 12 12	67	1 78E+02	8 30E+02	No	NA	--	2 20E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Trichloroethylene	79-01-6	mg/kg	9 12 12	75	2 53E+02	2 20E+03	No	NA	--	1 10E-01	Yes	Yes	>Screening Level	Yes	>Screening Level
Xylenes, Total	1330-20-7	mg/kg	11 12 12	92	4 53E+01	2 80E+02	No	1 54E-03	Yes	9 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
1,2,4-Trichlorobenzene	120-82-1	mg/kg	3 12 12	25	1 20E+01	1 20E+02	No	NA	--	5 60E+02	No	No	</=Screening Level	No	Not Volatile
1,2-Dichlorobenzene	95-50-1	mg/kg	5 12 12	42	1 43E+01	1 20E+02	No	NA	--	4 10E+02	No	No	</=Screening Level	No	Not Volatile
1,4-Dichlorobenzene	106-46-7	mg/kg	3 11 12	27	2 51E+00	2 40E+01	No	NA	--	7 90E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 9 12	11	3 64E-01	1 80E+00	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
2,4,6-Trichlorophenol	88-06-2	mg/kg	5 12 12	42	7 34E+01	6 50E+02	No	NA	-	6.20E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dichlorophenol	120-83-2	mg/kg	6 12 12	50	3 27E+02	3 50E+03	No	NA	--	1 80E+02	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dimethylphenol	105-67-9	mg/kg	1 1 12	100	1 00E-01	1 00E-01	No	NA	-	1 20E+03	No	No	</=Screening Level	No	Not Volatile
2-Chlorophenol	95-57-8	mg/kg	4 12 12	33	3 73E+01	3 90E+02	No	NA	--	2 40E+01	Yes	Yes	>Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	1 9 12	11	1 04E+00	7 90E+00	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
2-Nitroaniline	88-74-4	mg/kg	2 9 12	22	1 52E+00	7 00E+00	No	NA	-	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
3-Methylphenol/4 Methylphenol	106-44-5	mg/kg	5 12 12	42	2 52E+00	2 10E+01	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile

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HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
4-Chloroaniline	106-47-8	mg/kg	6 12 12	50	7 31E+00	3 60E+01	No	NA	--	2 50E+02	No	No	</=Screening Level	No	Not Volatile
4-Nitroaniline	100-01-6	mg/kg	1 10 12	10	4 12E+00	2 30E+01	No	NA	--	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(a)anthracene	56-55-3	mg/kg	2 2 12	100	3 15E-02	3 30E-02	No	3 25E-01	No	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	2 2 12	100	2 95E-02	3 30E-02	No	3 90E-01	No	2 10E-01	No	No	</=Screening Level	No	Not Volatile
Benzo(b)fluoranthene	205-99-2	mg/kg	2 2 12	100	3 10E-02	3.20E-02	No	3 70E-01	No	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	3 10 12	30	5 20E-01	2 00E+00	No	3 94E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08 9	mg/kg	2 2 12	100	3 05E-02	3 50E-02	No	3 28E-01	No	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85-68-7	mg/kg	2 10 12	20	9 33E-01	6 00E+00	No	NA	--	1 20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	7 12 12	58	3 20E+00	2 30E+01	No	3 35E-01	Yes	1 20E+02	No	No	</=Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	4 9 12	44	1 51E-01	3 20E-01	No	3 36E-01	No	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-butylphthalate	84-74-2	mg/kg	2 10 12	20	9 54E-01	6 20E+00	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
Diethyl Phthalate	84-66-2	mg/kg	2 11 12	18	3 13E+00	2 00E+01	No	NA	--	4 90E+04	No	No	</=Screening Level	No	Not Volatile
Dimethyl Phthalate	131-11-3	mg/kg	2 10 12	20	9 52E-01	6 20E+00	No	NA	-	6 20E+05	No	No	</=Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	1 1 12	100	3 90E-02	3 90E-02	No	4 11E-01	No	2 20E+03	No	No	</=Screening Level	No	Not Volatile
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	2 10 12	20	5 35E-01	2 00E+00	No	NA	--	2 10E+00	No	No	</=Screening Level	No	Not Volatile
N-Nitrosodiphenylamine	86-30-6	mg/kg	1 9 12	11	4 64E-01	2 70E+00	No	NA	--	3 50E+02	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	4 12 12	33	1 17E+01	1 20E+02	No	NA	--	1 90E+01	Yes	Yes	>Screening Level	No	Not Volatile
Nitrobenzene	98-95-3	mg/kg	3 12 12	25	6 63E+00	4 80E+01	No	NA	--	1 00E+01	Yes	Yes	>Screening Level	No	Not Volatile
Phenanthrene	85-01-8	mg/kg	2 2 12	100	2 55E-02	3 00E-02	No	3 52E-01	No	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	4 12 12	33	9 15E+01	8 00E+02	No	NA		3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	1 1 12	100	4 80E-02	4 80E-02	No	4 01E-01	No	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4,4' DDE	72-55-9	mg/kg	2 2 12	100	1 13E-03	1 60E-03	No	8 02E-03	No	7 00E+00	No	No	</=Screening Level	No	Not Volatile
4,4'-DDT	50-29-3	mg/kg	2 7 12	29	3 42E-03	1 20E-02	No	2 18E-02	No	7 00E+00	No	No	</=Screening Level	No	Not Volatile
Aldrin	309-00-2	mg/kg	1 7 12	14	1 79E-03	6 00E-03	No	2 75E-03	Yes	1 00E-01	No	No	</=Screening Level	No	Not Volatile
alpha-BHC	319-84-6	mg/kg	1 1 12	100	6 10E-04	6 10E-04	No	2 58E-02	No	3 60E-01	No	No	</=Screening Level	No	Not Volatile
alpha-Chlordane	5103-71-9	mg/kg	3 8 12	38	1 44E-03	5 50E-03	No	4 04E-03	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
beta-BHC	319-85-7	mg/kg	2 11 12	18	3 49E-01	2 20E+00	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dieldrin	60-57-1	mg/kg	7 11 12	64	3 41E-01	1 80E+00	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Endosulfan I	959-98-8	mg/kg	2 11 12	18	2 05E-01	1 80E+00	No	2 14E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile

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COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Endosulfan II	33213-65-	mg/kg	1 8 12	13	2 52E-02	1 70E-01	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endosulfan Sulfate	1031-07-8	mg/kg	2 11 12	18	2 57E-01	2 00E+00	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endrin	72-20-8	mg/kg	1 4 12	25	1 82E-03	1 90E-03	No	4 38E-03	No	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Aldehyde	7421-93-4	mg/kg	1 7 12	14	4 11E-03	1 60E-02	No	4 81E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Ketone	53494-70-	mg/kg	2 12 12	17	4 72E-01	4 80E+00	No	NA	--	1 80E+01	No	No	</=Screening Level	No	Not Volatile
gamma-BHC (Lindane)	58-89-9	mg/kg	2 11 12	18	1 16E-01	6 80E-01	No	NA	--	1 70E+00	No	No	</=Screening Level	No	Not Volatile
gamma-Chlordane	5103-74-2	mg/kg	5 11 12	45	9 76E-02	5 30E-01	No	2 13E-02	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Heptachlor	76-44-8	mg/kg	1 11 12	9	1 86E-01	1 60E+00	No	1 66E-02	Yes	3 80E-01	Yes	Yes	>Screening Level	No	Not Volatile
Heptachlor Epoxide	1024-57-3	mg/kg	3 8 12	38	5 51E-03	3 60E-02	No	6 10E-03	Yes	1 90E-01	No	No	</=Screening Level	No	Not Volatile
Methoxychlor	72-43-5	mg/kg	1 1 12	100	7 20E-03	7 20E-03	No	3 31E-03	Yes	3 10E+02	No	No	</=Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	1 2 12	50	6 05E-03	7 60E-03	No	NA	--	6 20E+02	No	No	</=Screening Level	No	Not Volatile
2,4,5-TP (Silvex)	93-72-1	mg/kg	1 1 12	100	9 30E-03	9 30E-03	No	NA	--	4 90E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	8 12 12	67	6 76E+01	5 80E+02	No	9 66E-03	Yes	7 70E+02	No	No	</=Screening Level	No	Not Volatile
2,4-DB	94-82-6	mg/kg	5 8 12	63	3 46E-02	6 00E-02	No	NA	--	4 90E+02	No	No	</=Screening Level	No	Not Volatile
Dichlorprop	120-36-5	mg/kg	12 12 12	100	3 85E+00	3 90E+01	No	1 03E-01	Yes	4 92E+02	No	No	</=Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	8 9 12	89	4 67E+01	8 50E+01	No	2 92E+00	Yes	6 20E+01	Yes	Yes	>Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	2 9 12	22	4 19E-01	3 30E+00	No	4 57E-03	Yes	9 00E+00	No	No	</=Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	8 12 12	67	4 12E+01	2 65E+02	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	5 12 12	42	1 31E-03	1 22E-02	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	12 12 12	100	7 20E+03	1 00E+04	No	1 09E+04	No	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	2 12 12	17	1 29E+00	4 00E+00	No	2 05E+00	Yes	4 10E+01	No	No	</=Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	12 12 12	100	6 12E+00	1.20E+01	No	1 08E+01	Yes	1 60E+00	Yes	Yes	>Screening Level	No	Not Volatile
Barium	7440-39-3	mg/kg	12 12 12	100	1 44E+02	2 20E+02	No	3 17E+02	No	6 70E+03	No	No	</=Screening Level	No	Not Volatile
Beryllium	7440-41 7	mg/kg	12 12 12	100	5 52E-01	7 80E-01	No	7 65E-01	Yes	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	9 12 12	75	7 77E-01	3 80E+00	No	1 81E+00	Yes	4 50E+01	No	No	</=Screening Level	No	Not Volatile
Calcium	7440 70-2	mg/kg	12 12 12	100	9 53E+03	3 80E+04	Yes	6 11E+04	No	NA	--	No	EN	No	Not Volatile

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SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Chromium	7440-47-3	mg/kg	12 12 12	100	3 91E+01	2 60E+02	No	1 89E+01	Yes	4 50E+02	No	No	</=Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	12 12 12	100	2 20E+01	7 80E+01	No	9 27E+00	Yes	1 30E+03	No	No	</=Screening Level	No	Not Volatile
Copper	7440-50-8	mg/kg	12 12 12	100	3 70E+01	1 30E+02	No	4 96E+01	Yes	4 10E+03	No	No	</=Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	12 12 12	100	1 68E+04	3 90E+04	Yes	2 10E+04	Yes	3 10E+04	Yes	No	EN	No	Not Volatile
Lead	7439-92-1	mg/kg	12 12 12	100	2 26E+01	1 10E+02	No	7 18E+01	Yes	7 50E+02	No	No	</=Screening Level	No	Not Volatile
Magnesium	7439-95-4	mg/kg	12 12 12	100	3 69E+03	5 50E+03	Yes	1 13E+04	No	NA	-	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	12 12 12	100	4 70E+02	1 20E+03	No	5 01E+02	Yes	1 90E+03	No	No	</=Screening Level	No	Not Volatile
Mercury	7439 97-6	mg/kg	12 12 12	100	2 51E+02	3 00E+03	No	7 72E-02	Yes	3 10E+01	Yes	Yes	>Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	12 12 12	100	3 20E+01	1 50E+02	No	2 83E+01	Yes	2 00E+03	No	No	</=Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	12 12 12	100	9 31E+02	2 20E+03	Yes	2 38E+03	No	NA	--	No	EN	No	Not Volatile
Silver	7440-22-4	mg/kg	1 12 12	8	5 89E-01	1 10E+00	No	1 02E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Sodium	7440-23-5	mg/kg	12 12 12	100	4 42E+02	1 70E+03	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Vanadium	7440-62-2	mg/kg	12 12 12	100	2 62E+01	3 60E+01	No	3 44E+01	Yes	7 20E+02	No	No	</=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	12 12 12	100	6 32E+02	5 90E+03	No	2 24E+02	Yes	3 10E+04	No	No	</=Screening Level	No	Not Volatile

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Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Site S															
VOCs															
1,1,1-Trichloroethane	71-55-6	mg/kg	4 6 6	67	4 83E+01	2 20E+02	No	NA	--	6 90E+02	No	No	</=Screening Level	No	</=Screening Level
1,1-Dichloroethane	75-34-3	mg/kg	3 6 6	50	2 16E+00	6 60E+00	No	NA	--	1 70E+02	No	No	</=Screening Level	No	</=Screening Level
1,1-Dichloroethylene	75-35-4	mg/kg	1 6 6	17	1 41E+00	4 80E+00	No	NA	--	4 10E+01	No	No	</=Screening Level	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	mg/kg	3 5 6	60	1 34E+00	3 10E+00	No	NA	--	1 50E+01	No	No	</=Screening Level	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	4 6 6	67	9 67E+01	2 90E+02	No	NA	--	2 70E+03	No	No	</=Screening Level	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	mg/kg	3 6 6	50	1 03E+02	4 00E+02	No	2 00E-03	Yes	2 80E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Acetone	67-64-1	mg/kg	4 5 6	80	5 40E+01	1 50E+02	No	NA	--	6 00E+02	No	No	</=Screening Level	No	</=Screening Level
Benzene	71-43-2	mg/kg	2 6 6	33	1 18E+01	3 50E+01	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Chlorobenzene	108-90-7	mg/kg	4 6 6	67	2 65E+02	1 20E+03	No	NA	--	5 30E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Dichloromethane	75-09-2	mg/kg	4 6 6	67	1 64E+01	5 70E+01	No	5 73E-03	Yes	2 10E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Ethylbenzene	100-41-4	mg/kg	5 6 6	83	3 01E+02	1 10E+03	No	9 52E-04	Yes	2 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
Styrene (Monomer)	100-42-5	mg/kg	1 1 6	100	3 70E-04	3 70E-04	No	4 10E-03	No	1 80E+03	No	No	</=Screening Level	No	</=Screening Level
Tetrachloroethene	127-18-4	mg/kg	5 6 6	83	1 30E+01	3 30E+01	No	9 50E-04	Yes	3 40E+00	Yes	Yes	>Screening Level	Yes	>Screening Level
Toluene	108-88-3	mg/kg	4 6 6	67	1 35E+03	6 00E+03	No	NA	--	2 20E+02	Yes	Yes	>Screening Level	Yes	>Screening Level
Trichloroethylene	79-01-6	mg/kg	5 6 6	83	5 41E+01	2 40E+02	No	NA	--	1 10E-01	Yes	Yes	>Screening Level	Yes	>Screening Level
Xylenes, Total	1330-20-7	mg/kg	5 6 6	83	1 77E+03	7 30E+03	No	1 54E-03	Yes	9 00E+01	Yes	Yes	>Screening Level	Yes	>Screening Level
SVOCs															
1,2,4-Trichlorobenzene	120-82-1	mg/kg	2 6 6	33	1 12E+01	3 60E+01	No	NA	--	5 60E+02	No	No	</=Screening Level	No	Not Volatile
1,2-Dichlorobenzene	95-50-1	mg/kg	3 6 6	50	2 87E+01	1 10E+02	No	NA	--	4 10E+02	No	No	</=Screening Level	No	Not Volatile
1,3-Dichlorobenzene	541-73-1	mg/kg	2 5 6	40	3 39E+00	1 20E+01	No	NA	--	6 30E+00	Yes	Yes	>Screening Level	No	Not Volatile
1,4-Dichlorobenzene	106-46-7	mg/kg	3 6 6	50	3 90E+01	2 00E+02	No	NA	--	7 90E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4,5-Trichlorophenol	95-95-4	mg/kg	1 2 6	50	6 43E-01	1 10E+00	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
2,4,6-Trichlorophenol	88-06-2	mg/kg	1 4 6	25	3 03E+00	8 20E+00	No	NA	--	6.20E+00	Yes	Yes	>Screening Level	No	Not Volatile
2,4-Dichlorophenol	120-83-2	mg/kg	1 4 6	25	1 56E+00	2 30E+00	No	NA	--	1 80E+02	No	No	</=Screening Level	No	Not Volatile
2-Methylnaphthalene	91-57-6	mg/kg	5 6 6	83	5 78E+00	1 10E+01	No	NA	--	1 90E+01	No	No	</=Screening Level	No	Not Volatile
2-Methylphenol	95-48-7	mg/kg	2 3 6	67	7 42E-01	1 60E+00	No	NA	--	3 10E+03	No	No	</=Screening Level	No	Not Volatile
2-Nitroaniline	88-74-4	mg/kg	2 3 6	67	2 16E+00	4 60E+00	No	NA	--	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
3-Methylphenol/4-Methylphenol	106-44-5	mg/kg	2 3 6	67	1 50E+00	2 50E+00	No	NA	--	3 10E+02	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
4-Chloroaniline	106-47-8	mg/kg	2 6 6	33	2.27E+01	7 00E+01	No	NA	--	2 50E+02	No	No	</=Screening Level	No	Not Volatile
4-Nitroaniline	100-01-6	mg/kg	1 4 6	25	1 94E+01	5 70E+01	No	NA	--	1 80E+00	Yes	Yes	>Screening Level	No	Not Volatile
Acenaphthene	83-32-9	mg/kg	1 2 6	50	6 93E-01	1 20E+00	No	4 20E-02	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Anthracene	120-12-7	mg/kg	1 2 6	50	6 43E-01	1 10E+00	No	1 20E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Benzo(a)anthracene	56-55-3	mg/kg	2 4 6	50	2 96E+00	8 00E+00	No	3 25E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(a)pyrene	50-32-8	mg/kg	2 4 6	50	2 32E+00	5 40E+00	No	3 90E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(b)fluoranthene	205-99-2	mg/kg	2 4 6	50	2 65E+00	6 60E+00	No	3 70E-01	Yes	2 10E+00	Yes	Yes	>Screening Level	No	Not Volatile
Benzo(g,h,i)perylene	191-24-2	mg/kg	2 4 6	50	2 02E+00	4 20E+00	No	3 94E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Benzo(k)fluoranthene	207-08-9	mg/kg	1 4 6	25	2 58E+00	6 40E+00	No	3.28E-01	Yes	2 10E+01	No	No	</=Screening Level	No	Not Volatile
Benzyl Butyl Phthalate	85-68-7	mg/kg	3 6 6	50	2 76E+01	1 20E+02	No	NA	-	1.20E+04	No	No	</=Screening Level	No	Not Volatile
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	6 6 6	100	5 03E+01	1 30E+02	No	3 35E-01	Yes	1 20E+02	Yes	Yes	>Screening Level	No	Not Volatile
Chrysene	218-01-9	mg/kg	2 5 6	40	8 78E+00	2 00E+01	No	3 36E-01	Yes	2 10E+02	No	No	</=Screening Level	No	Not Volatile
Di-n-butylphthalate	84-74-2	mg/kg	4 6 6	67	1 18E+01	2 30E+01	No	NA	--	6 20E+03	No	No	</=Screening Level	No	Not Volatile
Di-n-octylphthalate	117-84-0	mg/kg	3 4 6	75	1 28E+00	1 90E+00	No	NA	--	2 50E+03	No	No	</=Screening Level	No	Not Volatile
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1 2 6	50	9 93E-01	1 80E+00	No	1 20E-01	Yes	2 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Diethyl Phthalate	84-66-2	mg/kg	1 2 6	50	4 58E-01	7 30E-01	No	NA	--	4 90E+04	No	No	</=Screening Level	No	Not Volatile
Dinoseb	88-85-7	mg/kg	1 2 6	50	9 43E-01	1 70E+00	No	NA	--	6 20E+01	No	No	</=Screening Level	No	Not Volatile
Fluoranthene	206-44-0	mg/kg	2 4 6	50	2 03E+00	4 20E+00	No	4 11E-01	Yes	2 20E+03	No	No	</=Screening Level	No	Not Volatile
Fluorene	86-73 7	mg/kg	1 2 6	50	6 93E-01	1 20E+00	No	NA	-	2 60E+03	No	No	</=Screening Level	No	Not Volatile
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	2 2 6	100	7 05E-01	1 30E+00	No	NA	-	2 10E+00	No	No	</=Screening Level	No	Not Volatile
Isophorone	78-59-1	mg/kg	4 6 6	67	1 97E+01	7 10E+01	No	NA	--	1 80E+03	No	No	</=Screening Level	No	Not Volatile
N-Nitrosodiphenylamine	86-30-6	mg/kg	1 2 6	50	3 33E-01	4 80E-01	No	NA	--	3 50E+02	No	No	</=Screening Level	No	Not Volatile
Naphthalene	91-20-3	mg/kg	5 6 6	83	2 10E+01	4.80E+01	No	NA	--	1 90E+01	Yes	Yes	>Screening Level	No	Not Volatile
Phenanthrene	85-01-8	mg/kg	4 4 6	100	2 67E+00	9 20E+00	No	3 52E-01	Yes	2 40E+04	No	No	</=Screening Level	No	Not Volatile
Phenol	108-95-2	mg/kg	2 3 6	67	1 20E+00	1 80E+00	No	NA	--	3 70E+04	No	No	</=Screening Level	No	Not Volatile
Pyrene	129-00-0	mg/kg	3 6 6	50	1 21E+01	2 80E+01	No	4 01E-01	Yes	2 90E+03	No	No	</=Screening Level	No	Not Volatile
Pesticide															
4,4'-DDD	72-54 8	mg/kg	3 6 6	50	3 12E-01	1 70E+00	No	5 39E-03	Yes	1 00E+01	No	No	</=Screening Level	No	Not Volatile
4,4'-DDE	72-55-9	mg/kg	4 6 6	67	5 95E-01	3 30E+00	No	8 02E-03	Yes	7 00E+00	No	No	</=Screening Level	No	Not Volatile
4 4'-DDT	50-29-3	mg/kg	5 6 6	83	2 83E+00	1 60E+01	No	2 18E-02	Yes	7 00E+00	Yes	Yes	>Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Aldrin	309-00-2	mg/kg	2 5 6	40	6 05E-02	1 90E-01	No	2 75E-03	Yes	1 00E-01	Yes	Yes	>Screening Level	No	Not Volatile
alpha-BHC	319-84-6	mg/kg	1 3 6	33	4 25E-03	6 80E-03	No	2 58E-02	No	3 60E-01	No	No	</=Screening Level	No	Not Volatile
beta-BHC	319-85-7	mg/kg	4 6 6	67	4 38E+00	2 60E+01	No	NA	--	1 30E+00	Yes	Yes	>Screening Level	No	Not Volatile
delta-BHC	319-86 8	mg/kg	5 6 6	83	1 87E-01	7 40E-01	No	8 57E-03	Yes	1 70E+00	No	No	</=Screening Level	No	Not Volatile
Dieldrin	60-57-1	mg/kg	4 5 6	80	1 13E-01	3 80E-01	No	7 51E-03	Yes	1 10E-01	Yes	Yes	>Screening Level	No	Not Volatile
Endosulfan II	33213-65-	mg/kg	4 6 6	67	9 38E-01	5 40E+00	No	1 16E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endosulfan Sulfate	1031-07-8	mg/kg	1 5 6	20	1 26E-01	4 90E-01	No	1 81E-03	Yes	3 70E+02	No	No	</=Screening Level	No	Not Volatile
Endrin	72-20-8	mg/kg	2 6 6	33	1 69E+00	1 00E+01	No	4 38E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
Endrin Aldehyde	7421-93-4	mg/kg	1 1 6	100	7 40E-03	7 40E-03	No	4 81E-03	Yes	1 80E+01	No	No	</=Screening Level	No	Not Volatile
gamma-BHC (Lindane)	58-89-9	mg/kg	2 6 6	33	1 27E+00	7 50E+00	No	NA	--	1 70E+00	Yes	Yes	>Screening Level	No	Not Volatile
gamma-Chlordane	5103-74-2	mg/kg	5 6 6	83	4 79E-01	2 70E+00	No	2 13E-02	Yes	6 50E+00	No	No	</=Screening Level	No	Not Volatile
Heptachlor	76-44-8	mg/kg	4 6 6	67	2 73E-01	1 50E+00	No	1 66E-02	Yes	3 80E-01	Yes	Yes	>Screening Level	No	Not Volatile
Heptachlor Epoxide	1024-57-3	mg/kg	3 5 6	60	4 84E-02	1 20E-01	No	6 10E-03	Yes	1 90E-01	No	No	</=Screening Level	No	Not Volatile
Herbicide															
2,4,5-T	93-76-5	mg/kg	3 5 6	60	9 85E-01	2 50E+00	No	NA	--	6 20E+02	No	No	</=Screening Level	No	Not Volatile
2,4,5-TP (Silvex)	93-72-1	mg/kg	2 5 6	40	1 24E-01	3 50E-01	No	NA	--	4 90E+02	No	No	</=Screening Level	No	Not Volatile
2,4-D	94-75-7	mg/kg	3 6 6	50	1 25E+00	3 30E+00	No	9 66E-03	Yes	7 70E+02	No	No	</=Screening Level	No	Not Volatile
MCPP	93-65-2	mg/kg	1 1 6	100	2 40E-01	2 40E-01	No	2 92E+00	No	6.20E+01	No	No	</=Screening Level	No	Not Volatile
Pentachlorophenol	87-86-5	mg/kg	2 6 6	33	1 15E+02	4 40E+02	No	4 57E-03	Yes	9 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
PCBs															
Total PCBs	1336-36-3	mg/kg	6 6 6	100	1 76E+02	1 01E+03	No	1 28E-01	Yes	1 00E+00	Yes	Yes	>Screening Level	No	Not Volatile
Dioxin															
2 3,7,8-TCDD-TEQ	1746-01-6	mg/kg	6 6 6	100	4 67E-03	2 59E-02	No	8 93E-06	Yes	1 00E-03	Yes	Yes	>Screening Level	No	Not Volatile
Metals															
Aluminum	7429-90-5	mg/kg	6 6 6	100	4 45E+03	7 30E+03	No	1 09E+04	No	9 20E+04	No	No	</=Screening Level	No	Not Volatile
Antimony	7440-36-0	mg/kg	6 6 6	100	2 15E+00	4 10E+00	No	2 05E+00	Yes	4 10E+01	No	No	</=Screening Level	No	Not Volatile
Arsenic	7440-38-2	mg/kg	6 6 6	100	4 28E+00	5 80E+00	No	1 08E+01	No	1 60E+00	Yes	No	</=BKG	No	Not Volatile
Barium	7440-39-3	mg/kg	6 6 6	100	1 57E+02	2 90E+02	No	3 17E+02	No	6 70E+03	No	No	</=Screening Level	No	Not Volatile
Beryllium	7440-41-7	mg/kg	6 6 6	100	3 28E-01	4 60E-01	No	7 65E-01	No	1 90E+02	No	No	</=Screening Level	No	Not Volatile
Cadmium	7440-43-9	mg/kg	6 6 6	100	7 92E+00	3 20E+01	No	1 81E+00	Yes	4 50E+01	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason
Calcium	7440-70-2	mg/kg	6 6 6	100	1 66E+05	2 20E+05	Yes	6 11E+04	Yes	NA	--	No	EN	No	Not Volatile
Chromium	7440-47-3	mg/kg	6 6 6	100	1 79E+02	4 80E+02	No	1 89E+01	Yes	4 50E+02	Yes	Yes	>Screening Level	No	Not Volatile
Cobalt	7440-48-4	mg/kg	6 6 6	100	5 95E+00	9 40E+00	No	9 27E+00	Yes	1 30E+03	No	No	</=Screening Level	No	Not Volatile
Copper	7440-50-8	mg/kg	6 6 6	100	6 90E+01	2 00E+02	No	4 96E+01	Yes	4 10E+03	No	No	</=Screening Level	No	Not Volatile
Iron	7439-89-6	mg/kg	6 6 6	100	8 15E+03	1 30E+04	Yes	2 10E+04	No	3 10E+04	No	No	EN	No	Not Volatile
Lead	7439-92-1	mg/kg	6 6 6	100	8 38E+02	2 40E+03	No	7 18E+01	Yes	7 50E+02	Yes	Yes	>Screening Level	No	Not Volatile
Magnesium	7439-95-4	mg/kg	6 6 6	100	8 65E+03	1 60E+04	Yes	1 13E+04	Yes	NA	--	No	EN	No	Not Volatile
Manganese	7439-96-5	mg/kg	6 6 6	100	2 57E+02	6 70E+02	No	5 01E+02	Yes	1 90E+03	No	No	</=Screening Level	No	Not Volatile
Mercury	7439-97-6	mg/kg	6 6 6	100	6 87E-01	2 60E+00	No	7 72E-02	Yes	3 10E+01	No	No	</=Screening Level	No	Not Volatile
Nickel	7440-02-0	mg/kg	6 6 6	100	1 37E+01	2 00E+01	No	2 83E+01	No	2 00E+03	No	No	</=Screening Level	No	Not Volatile
Potassium	7440-09-7	mg/kg	6 6 6	100	8 28E+02	9 50E+02	Yes	2 38E+03	No	NA	--	No	EN	No	Not Volatile
Selenium	7782-49-2	mg/kg	4 6 6	67	8 51E-01	1 80E+00	No	1 07E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Silver	7440-22-4	mg/kg	1 6 6	17	9 16E-01	2 80E+00	No	1 02E+00	Yes	5 10E+02	No	No	</=Screening Level	No	Not Volatile
Sodium	7440-23-5	mg/kg	6 6 6	100	2 23E+02	3 40E+02	Yes	1 41E+02	Yes	NA	--	No	EN	No	Not Volatile
Vanadium	7440-62-2	mg/kg	6 6 6	100	1 42E+01	2 40E+01	No	3 44E+01	No	7 20E+02	No	No	</=Screening Level	No	Not Volatile
Zinc	7440-66-6	mg/kg	6 6 6	100	4 52E+02	1 80E+03	No	2 24E+02	Yes	3 10E+04	No	No	</=Screening Level	No	Not Volatile

TABLE B-4
COMBINED SOIL (SURFACE SOIL, SUBSURFACE SOIL, WASTE) SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Soil Screening Level (f)	Is Max Concentration > Screening Value?	COPC for CW Pathway ? (g)	Reason	COPC for Volatilization Pathway? (h)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
CW - Construction Worker
EN - Essential nutrient
FOD - Frequency of detection
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) propionic acid
NA - Not available
-- Not applicable
PCB - Polychlorinated Biphenyl
USEPA - United States Environmental Protection Agency
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
VOC - Volatile Organic Compound
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as COPCs
(c) The arithmetic mean concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used) A proxy concentration of half the detection limit was used for non-detected results
(d) The maximum detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used)
(e) Equal to two times the average concentration for the constituent in surface soil, subsurface soil, and waste combined in off-site sampling ocations
(f) USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for industrial soil PRGs for noncarcinogenic constituents were adjusted for a hazard index of 0 1 to account for cumulative effects
(g) A constituent is identified as a COPC for the construction worker pathway if it is detected in greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient, if the maximum detected concentration is greater than the background concentration and if the maximum detected concentration is greater than the soil screening level
(h) A constituent is identified as a COPC for the volatilization pathway if it is identified as a COPC (as described in (g)) and if it is volatile

TABLE B-5
SEDIMENT SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Sediment Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Pond (Site Q)													
VOCs													
2-Butanone (MEK)	78-93-3	mg/kg	1 1 1	100	1 47E-02	1 47E-02	No	NA	--	2 70E+03	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	1 1 1	100	1 46E+00	1 46E+00	No	NA	--	6 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	1 1 1	100	2 28E-03	2 28E-03	No	1 07E-03	Yes	2 00E+01	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	1 1 1	100	9 90E-03	9 90E-03	No	1 61E-03	Yes	9 00E+01	No	No	</=Screening Level
Pesticide													
4,4'-DDT	50-29-3	mg/kg	1 1 1	100	5 70E-02	5 70E-02	No	4 01E-02	Yes	7 00E+00	No	No	</=Screening Level
Herbicide													
Dichlorprop	120-36-5	mg/kg	1 1 1	100	3 70E-03	3 70E-03	No	1 11E-01	No	4 92E+02	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	1 1 1	100	6 30E-01	6 30E-01	No	3 60E+00	No	6 20E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	1 1 1	100	2 50E-03	2 50E-03	No	4 57E-03	No	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	1 1 1	100	6 75E-01	6 75E-01	No	1 8[illegible]E-01	Yes	1 00E+00	No	No	</=Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	1 1 1	100	8 91E-05	8 91E-05	No	1 6[illegible]E-05	Yes	1 00E-03	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	mg/kg	1 1 1	100	1 25E+04	1 25E+04	No	1 38E+04	No	9 20E+04	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	1 1 1	100	6 25E+00	6 25E+00	No	1 24E+01	No	1 60E+00	Yes	No	</=BKG
Barium	7440-39-3	mg/kg	1 1 1	100	2 30E+02	2 30E+02	No	3 0[illegible]E+02	No	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	1 1 1	100	8 50E-01	8 50E-01	No	9 02E-01	No	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	1 1 1	100	1 50E+00	1 50E+00	No	3 34E+00	No	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	1 1 1	100	1 45E+04	1 45E+04	Yes	9 74E+04	No	NA	--	No	EN
Chromium	7440-47-3	mg/kg	1 1 1	100	2 15E+01	2 15E+01	No	2 2[illegible]E+01	No	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	1 1 1	100	9 90E+00	9 90E+00	No	9 40E+00	Yes	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	1 1 1	100	3 45E+01	3 45E+01	No	8 58E+01	No	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	1 1 1	100	2 25E+04	2 25E+04	Yes	2 33E+04	No	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	1 1 1	100	4 80E+01	4 80E+01	No	1 30E+02	No	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	1 1 1	100	4 85E+03	4 85E+03	Yes	1 23E+04	No	NA	--	No	EN
Manganese	7439-96-5	mg/kg	1 1 1	100	6 90E+02	6 90E+02	No	5 52E+02	Yes	1 90E+03	No	No	</=Screening Level

TABLE B-5
SEDIMENT SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Sediment Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Mercury	7439-97-6	mg/kg	1 1 1	100	1 30E-01	1 30E-01	No	1 31E-01	No	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	1 1 1	100	2 45E+01	2 45E+01	No	3 30E+01	No	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	1 1 1	100	1 80E+03	1 80E+03	Yes	3 0 E+03	No	NA	--	No	EN
Sodium	7440-23-5	mg/kg	1 1 1	100	9 85E+01	9 85E+01	Yes	1 58E+02	No	NA	--	No	EN
Vanadium	7440-62-2	mg/kg	1 1 1	100	3 35E+01	3 35E+01	No	3 89E+01	No	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	1 1 1	100	2 15E+02	2 15E+02	No	3 90E+02	No	3 10E+04	No	No	</=Screening Level

TABLE B-5
SEDIMENT SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Sediment Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
River													
VOCs													
1,1-Dichloroethane	75-34-3	mg/kg	1 34 34	3	1 87E-03	8 00E-03	No	NA	--	1 70E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	mg/kg	1 4 34	25	1 39E-03	1 60E-03	No	NA	--	1 50E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	mg/kg	5 28 34	18	6 20E-03	7 50E-03	No	6 80E-03	Yes	2 70E+03	No	No	</=Screening Level
Acetone	67-64-1	mg/kg	28 34 34	82	2 48E-02	2 90E-01	No	7 20E-02	Yes	6 00E+02	No	No	</=Screening Level
Benzene	71-43-2	mg/kg	3 34 34	9	4 10E-03	4 90E-02	No	NA	--	1 30E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	mg/kg	7 34 34	21	5 11E-01	1 10E+01	No	NA	--	5 30E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	mg/kg	25 34 34	74	2 19E-03	1 50E-02	No	NA	--	2 00E+01	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	mg/kg	4 34 34	12	2 25E-03	2 10E-02	No	NA	--	1 80E+03	No	No	</=Screening Level
Toluene	108-88-3	mg/kg	11 34 34	32	2 36E-03	1 30E-02	No	NA	--	2 20E+02	No	No	</=Screening Level
Xylenes, Total	1330-20-7	mg/kg	31 34 34	91	1 07E-02	7 70E-02	No	5 68E-03	Yes	9 00E+01	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	mg/kg	3 31 34	10	2 08E-01	3 30E-01	No	NA	--	4 10E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	mg/kg	1 32 34	3	2 40E-01	7 40E-01	No	NA	--	7 90E+00	No	No	</=Screening Level
4-Chloroaniline	106-47-8	mg/kg	2 32 34	6	5 66E-01	3 00E+00	No	NA	--	2 50E+02	No	No	</=Screening Level
Anthracene	120-12-7	mg/kg	1 1 34	100	1 00E-01	1 00E 01	No	NA	--	2 40E+04	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	mg/kg	3 3 34	100	4 97E-02	9 10E-02	No	NA	--	2 10E+00	No	No	</=Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	6 6 34	100	5 60E-02	7 20E-02	No	NA	--	2 10E-01	No	No	</=Screening Level
Benzo(b)fluoranthene	205-99-2	mg/kg	3 3 34	100	5 80E-02	7 50E-02	No	NA	--	2 10E+00	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	mg/kg	5 5 34	100	4 30E-02	7 90E-02	No	NA	--	2 90E+03	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	mg/kg	6 6 34	100	5 98E-02	8 30E-02	No	NA	--	2 10E+01	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	5 5 34	100	5 79E-02	8 80E-02	No	NA	--	1 20E+02	No	No	</=Screening Level
Chrysene	218-01-9	mg/kg	7 7 34	100	4 07E-02	9 20E-02	No	6 20E-02	Yes	2 10E+02	No	No	</=Screening Level
Di-n-octylphthalate	117-84-0	mg/kg	1 1 34	100	4 10E-02	4 10E-02	No	NA	--	2 50E+03	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1 1 34	100	6 50E-02	6 50E-02	No	NA	--	2 10E-01	No	No	</=Screening Level
Fluoranthene	206-44-0	mg/kg	5 5 34	100	7 22E-02	1 60E-01	No	7 70E-02	Yes	2 20E+03	No	No	</=Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	mg/kg	1 1 34	100	2 90E-02	2 90E-02	No	NA	--	2 10E+00	No	No	</=Screening Level
Isophorone	78-59-1	mg/kg	1 32 34	3	2 34E-01	3 90E-01	No	NA	--	1 80E+03	No	No	</=Screening Level
Phenanthrene	85-01-8	mg/kg	3 3 34	100	4 67E-02	7 20E-02	No	7 20E-02	No	2 40E+04	No	No	</=Screening Level

TABLE B-5
SEDIMENT SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Sediment Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Pyrene	129-00-0	mg/kg	1 1 34	100	1 50E-01	1 50E-01	No	1 31E-01	Yes	2 90E+03	No	No	</=Screening Level
Pesticide													
4,4'-DDD	72-54-8	mg/kg	2 2 34	100	1 09E-03	1 20E-03	No	NA	--	1 00E+01	No	No	</=Screening Level
4,4'-DDE	72-55-9	mg/kg	9 33 34	27	1 86E-03	4 90E-03	No	NA	--	7 00E+00	No	No	</=Screening Level
4,4'-DDT	50-29-3	mg/kg	3 28 34	11	2 15E-03	3 30E 03	No	NA	--	7 00E+00	No	No	</=Screening Level
Aldrin	309-00-2	mg/kg	1 33 34	3	1 19E-03	2 00E-03	No	NA	--	1 00E-01	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	mg/kg	1 20 34	5	1 04E-03	1 10E-03	No	NA	--	6 50E+00	No	No	</=Screening Level
beta-BHC	319-85-7	mg/kg	2 2 34	100	4 65E-04	6 70E-04	No	NA	--	1 30E+00	No	No	</=Screening Level
delta-BHC	319-86-8	mg/kg	1 1 34	100	7 20E-04	7 20E-04	No	NA	--	1 70E+00	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	3 32 34	9	2 11E-03	2 90E-03	No	NA	--	1 10E-01	No	No	</=Screening Level
Endosulfan I	959-98-8	mg/kg	1 8 34	13	9 75E-04	1 00E-03	No	NA	--	3 70E+02	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	mg/kg	9 33 34	27	2 24E 03	4 10E-03	No	NA	--	1 80E+01	No	No	</=Screening Level
Endrin Ketone	53494-70-5	mg/kg	8 8 34	100	7 36E-04	1 20E-03	No	NA	--	1 80E+01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	mg/kg	1 1 34	100	1 80E-04	1 80E-04	No	NA	--	1 70E+00	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	mg/kg	7 33 34	21	1 12E-03	3 00E-03	No	NA	--	6 50E+00	No	No	</=Screening Level
Heptachlor	76-44-8	mg/kg	5 7 34	71	6 07E-04	9 80E-04	No	NA	--	3 80E-01	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	mg/kg	3 34 34	9	1 40E-03	1 10E-02	No	NA	--	1 90E-01	No	No	</=Screening Level
Methoxychlor	72-43-5	mg/kg	2 2 34	100	2 07E-03	3 30E-03	No	NA	--	3 10E+02	No	No	</=Screening Level
Herbicide													
2,4-D	94-75-7	mg/kg	5 33 34	15	6 64E-03	2 00E-02	No	1 01E-02	Yes	7 70E+02	No	No	</=Screening Level
Dalapon	75-99-0	mg/kg	2 2 34	100	7 30E-03	9 90E-03	No	NA	--	1 80E+03	No	No	</=Screening Level
Dichlorprop	120-36-5	mg/kg	2 2 34	100	4 95E-03	6 80E-03	No	3 50E-02	No	4 92E+02	No	No	</=Screening Level
MCPA	94-74-6	mg/kg	1 1 34	100	3 80E-01	3 80E-01	No	NA	--	3 10E+01	No	No	</=Screening Level
MCPP	93-65-2	mg/kg	2 31 34	6	1 38E+00	2 50E+00	No	8 30E 01	Yes	6 20E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	mg/kg	6 6 34	100	2 35E-03	3 60E-03	No	NA	--	9 00E+00	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	mg/kg	5 34 34	15	1 86E-02	6 94E-02	No	NA	--	1 00E+00	No	No	</=Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	5 5 5	100	2 97E-07	9 21E-07	No	4 70E-09	Yes	1 00E 03	No	No	</=Screening Level
Metals													

TABLE B-5
SEDIMENT SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Sediment Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason
Aluminum	7429-90-5	mg/kg	34 34 34	100	2 68E+03	8 30E+03	No	3 60E+03	Yes	9 20E+04	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	34 34 34	100	2 90E+00	7 50E+00	No	4 66E+00	Yes	1 60E+00	Yes	Yes	>Screening Level
Barium	7440-39-3	mg/kg	34 34 34	100	8 38E+01	3 00E+02	No	9 26E+01	Yes	6 70E+03	No	No	</=Screening Level
Beryllium	7440-41-7	mg/kg	25 34 34	74	2 32E-01	5 60E-01	No	5 23E-01	Yes	1 90E+02	No	No	</=Screening Level
Cadmium	7440-43-9	mg/kg	16 34 34	47	4 73E-01	1 40E+00	No	8 03E 01	Yes	4 50E+01	No	No	</=Screening Level
Calcium	7440-70-2	mg/kg	34 34 34	100	5 69E+03	1 55E+04	Yes	6 00E+03	Yes	NA	--	No	EN
Chromium	7440-47-3	mg/kg	34 34 34	100	6 50E+00	1 65E+01	No	9 66E+00	Yes	4 50E+02	No	No	</=Screening Level
Cobalt	7440-48-4	mg/kg	34 34 34	100	3 85E+00	8 65E+00	No	6 40E+00	Yes	1 30E+03	No	No	</=Screening Level
Copper	7440-50-8	mg/kg	29 34 34	85	5 68E+00	1 90E+01	No	6 19E+00	Yes	4 10E+03	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	34 34 34	100	7 88E+03	1 80E+04	Yes	1 07E+04	Yes	3 10E+04	No	No	EN
Lead	7439-92-1	mg/kg	34 34 34	100	1 64E+01	4 70E+01	No	9 46E+00	Yes	7 50E+02	No	No	</=Screening Level
Magnesium	7439-95-4	mg/kg	34 34 34	100	2 08E+03	5 50E+03	Yes	2 68E+03	Yes	NA		No	EN
Manganese	7439-96-5	mg/kg	34 34 34	100	2 56E+02	8 90E+02	No	3 78E+02	Yes	1 90E+03	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	23 34 34	68	1 81E 02	6 70E 02	No	6 74E-02	No	3 10E+01	No	No	</=Screening Level
Nickel	7440-02-0	mg/kg	34 34 34	100	8 54E+00	1 80E+01	No	1 49E+01	Yes	2 00E+03	No	No	</=Screening Level
Potassium	7440-09-7	mg/kg	34 34 34	100	4 21E+02	1 30E+03	Yes	5 58E+02	Yes	NA	--	No	EN
Silver	7440 22-4	mg/kg	1 1 34	100	1 30E-01	1 30E 01	No	NA		5 10E+02	No	No	</=Screening Level
Sodium	7440-23-5	mg/kg	19 34 34	56	7 77E+01	2 90E+02	Yes	8 30E+01	Yes	NA	--	No	EN
Thallium	7440 28 0	mg/kg	1 34 34	3	6 60E 01	1 30E+00	No	NA	--	6 70E+00	No	No	</=Screening Level
Vanadium	7440-62-2	mg/kg	34 34 34	100	9 35E+00	2 20E+01	No	1 37E+01	Yes	7 20E+02	No	No	</=Screening Level
Zinc	7440-66-6	mg/kg	33 34 34	97	8 97E+01	3 10E+02	No	4 59E+01	Yes	3 10E+04	No	No	</=Screening Level

TABLE B-5
SEDIMENT SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Sediment Screening Level (f)	Is Max Concentration > Screening Value? (g)	COPC? (h)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
EN - Essential nutrient
FOD - Frequency of detection
NA - Not available
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) propionic acid
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
USEPA - United States Environmental Protection Agency
VOC - Volatile Organic Compound
-- Not applicable
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as COPCs
(c) The arithmetic mean concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used) A proxy concentration of half the detection limit was used for non-detected results
(d) The maximum detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one half the detection limit was greater than the maximum detected concentration, the non-detect was not used)
(e) Equal to two times the average concentration for the constituent in sediment in upgradiente sampling locations for samples in the river Since the pond is dry, for samples in the pond, background is equal to two times the average concentration for the constituent in surface soil in off-site sampling locations
(f) USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for industrial soil PRGs for noncarcinogenic constituents were adjusted for a hazard index of 0 1 to account for cumulative effects
(g) For all constituents with the exception of lead, the maximum detected concentration is compared to the screening level For lead, the mean concentration was compared to the screening level The screening level for lead is based on an adult lead model (USEPA, 1996) which is based on average lead concentrations
(h) A constituent is identified as a COPC if it is detected in greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient, if the maximum detected concentration is greater than the background concentration and if the maximum detected concentration is greater than the sediment screening level

TABLE B-6
SURFACE WATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Ba .kground Concentration (e)	Is Max Concentration > Background?	Surface Water Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Pond (Site Q)													
Pesticide													
4,4'-DDT	50-29-3	ug/L	1 1 1	100	2 80E-02	2 80E-02	No	NA	--	6 00E+00	No	No	</=Screening Level
Dieldrin	60-57-1	ug/L	1 1 1	100	1 00E-02	1 00E-02	No	NA	--	9 00E+00	No	No	</=Screening Level
Dioxin													
2,3 7,8-TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	4 60E-06	4 60E-06	No	NA		3 00E-05	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	7 70E+03	7 70E+03	No	NA	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	5 40E+00	5 40E+00	No	NA	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 00E+02	2 00E+02	No	NA	--	2 00E+03	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	6 50E-01	6 50E-01	No	NA	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	5 70E+04	5 70E+04	Yes	NA	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 00E+01	1 00E+01	No	NA	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	3 60E+00	3 60E+00	No	NA	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 30E+01	1 30E+01	No	NA	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	8 90E+03	8 90E+03	Yes	NA	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 40E+01	1 40E+01	No	NA	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	1 50E+04	1 50E+04	Yes	NA	--	NA	--	No	EN
Manganese	7439 96-5	ug/L	1 1 1	100	4 60E+02	4 60E+02	No	NA	-	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	9 30E+00	9 30E+00	No	NA	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	5 60E+03	5 60E+03	Yes	NA	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	6 70E+03	6 70E+03	Yes	NA	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 30E+01	2 30E+01	No	NA	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	5 20E+01	5 20E+01	No	NA	--	5 00E+03	No	No	</=Screening Level

TABLE B-6
SURFACE WATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Water Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
River													
VOCs													
1,1-Dichloroethylene	75-35 4	ug/L	3 3 36	100	3 57E-01	4 20E-01	No	NA	--	7 00E+00	No	No	</=Screening Level
1,2-Dichloroethane	107-06-2	ug/L	11 36 36	31	4 48E-01	7 00E-01	No	NA	--	5 00E+00	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	3 3 36	100	2 73E-01	3 60E-01	No	NA	--	7 00E+01	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 36	100	3 80E+00	3 80E+00	No	NA	--	1 60E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 36 36	3	1 33E+01	4 00E+01	No	NA	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	13 36 36	36	5 57E-01	4 50E+00	No	NA	--	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	5 36 36	14	4 86E-01	6 90E-01	No	NA	--	7 00E+02	No	No	</=Screening Level
Carbon Tetrachloride	56-23-5	ug/L	1 1 36	100	1 70E-01	1 70E-01	No	NA	--	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	26 36 36	72	3 35E+00	5 60E+01	No	NA	--	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	5 36 36	14	5 03E-01	9 60E-01	No	9 29E-01	Yes	1 50E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 36 36	3	5 22E-01	1 30E+00	No	NA	--	7 00E+02	No	No	</=Screening Level
Methyl N-Butyl Ketone	591-78-6	ug/L	1 1 36	100	3 30E-01	3 30E-01	No	NA	--	1 60E+02	No	No	</=Screening Level
Tetrachloroethene	127-18-4	ug/L	1 1 36	100	4 50E-01	4 50E-01	No	NA	--	5 00E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/L	10 36 36	28	6 24E-01	4 50E+00	No	NA	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 36 36	3	5 02E-01	5 80E-01	No	NA	-	5 00E+00	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	3 36 36	8	1 03E+00	3 00E+00	No	NA	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	2 36 36	6	5 87E+00	4 00E+01	No	NA	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 36	100	3 90E+00	3 90E+00	No	NA	--	7 50E+01	No	No	</=Screening Level
2 4,6-Trichlorophenol	88-06-2	ug/L	1 36 36	3	5 33E+00	1 70E+01	No	NA	--	1 00E+01	Yes	No	<5%FOD
2,4-Dichlorophenol	120-83-2	ug/L	11 36 36	31	6 01E+00	6 90E+01	No	NA	--	2 10E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 36 36	3	5 09E+00	8 30E+00	No	NA	--	1 40E+02	No	No	</=Screening Level
2,6-Dinitrotoluene	606-20-2	ug/L	1 36 36	3	5 17E+00	1 10E+01	No	NA	--	3 10E-01	Yes	No	<5%FOD
2-Chlorophenol	95-57-8	ug/L	6 36 36	17	5 30E+00	3 10E+01	No	NA	--	3 50E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	2 36 36	6	5 51E+00	2 70E+01	No	NA	--	3 50E+02	No	No	</=Screening Level
4 Chloroaniline	106-47-8	ug/L	17 36 36	47	1 22E+01	1 60E+02	No	NA	-	2 80E+01	Yes	Yes	>Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 36	100	1 70E+00	1 70E+00	No	1 13E+01	No	6 00E+00	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 36 36	3	5 44E+00	2 10E+01	No	NA	--	1 40E+02	No	No	</=Screening Level

TABLE B-6
SURFACE WATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	Surface Water Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
EN - Essential nutrient
FOD - Frequency of detection
NA - Not available
- Not applicable
IEPA - Illinois Environmental Protection Agency
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) propionic acid
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
USEPA - United States Environmental Protection Agency
VOC - Volatile Organic Compound
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as COPCs
(c) The arithmetic mean concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used) A proxy concentration of half the detection limit was used for non-detected results
(d) The maximum detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used)
(e) Equal to two times the average concentration for the constituent in surface water in an upgradient sampling location for samples in the river There are no background concentrations available for the Pond
(f) Surface water screening levels were used according to the following hierarchy
Illinois Groundwater Quality Standards for Class I Potable Resource Groundwater 35 Ill Adm Code 620 410 February 2, 2002
USEPA, 2002 2002 Edition of the Drinking Water Standards and Health Advisories Office of Water EPA 822-R-02-038 Maximum Contaminant Levels Summer 2002
IEPA, 2002 Tiered Approach to Corrective Action Objectives Appendix B, Table E Tier 1 Groundwater Remediation Objectives for the Groundwater Component of the Groundwater Ingestion Route Class I values February 5, 2002
USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for Tap Water
(g) A constituent is identified as a COPC if it is detected in greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient, if the maximum detected concentration is greater than the background concentration and if the maximum detected concentration is greater than the surface water screening level

TABLE B-7
FISH TISSUE SCREEN (g)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Maximum Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Is Max Concentration > Background?	Fish Tissue Screening Level (e)	Is Max Concentration > Screening Value?	COPC? (f)	Reason
DDA (Buffalo Fillet)												
Pesticide												
4,4'-DDE	72-55-9	mg/kg	1 1 1	100	7 30E-03	No	NA	--	9 28E-03	No	No	</=Screening Level
Dioxin												
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	1 1 1	100	7 39E-07	No	NA	--	2 10E-08	Yes	Yes	>Screening Level

TABLE B-7
FISH TISSUE SCREEN (g)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Maximum Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Is Max Concentration > Background?	Fish Tissue Screening Level (e)	Is Max Concentration > Screening Value?	COPC? (f)	Reason
PDA (Buffalo Fillet)												
Pesticide												
4,4'-DDE	72-55-9	mg/kg	2 2 3	100	8 20E-03	No	NA	--	9 28E-03	No	No	</=Screening Level
Methoxychlor	72-43-5	mg/kg	1 1 3	100	4 40E-02	No	NA	--	6 76E-01	No	No	</=Screening Level
Herbicide												
2,4,5-T	93-76-5	mg/kg	1 3 3	33	4 80E 03	No	NA	--	1 35E+00	No	No	</=Screening Level
Dioxin												
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	3 3 3	100	6 25E-07	No	NA	--	2 10E-08	Yes	Yes	>Screening Level

TABLE B-7
FISH TISSUE SCREEN (g)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Maximum Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Is Max Concentration > Background?	Fish Tissue Screening Level (e)	Is Max Concentration > Screening Value?	COPC? (f)	Reason
Pond (Site Q) (Black Bullhead Fillet)												
Pesticide												
4,4'-DDT	50-29-3	mg/kg	1 1 1	100	3 60E-01	No	NA	--	9 28E-03	Yes	Yes	>Screening Level
alpha-Chlordane	5103-71-9	mg/kg	1 1 1	100	1 00E-02	No	NA	--	9 01E-03	Yes	Yes	>Screening Level
Dieldrin	60-57-1	mg/kg	1 1 1	100	1 00E-01	No	NA	--	1 97E-04	Yes	Yes	>Screening Level
PCBs												
Total PCBs	1336-36-3	mg/kg	1 1 1	100	3 87E+00	No	NA	--	1 58E-03	Yes	Yes	>Screening Level
Dioxin												
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	1 1 1	100	3 84E-06	No	NA	--	2 10E-08	Yes	Yes	>Screening Level
Metals												
Aluminum	7429-90-5	mg/kg	1 1 1	100	2 40E+01	No	NA	--	1 35E+02	No	No	</=Screening Level
Arsenic	7440-38-2	mg/kg	1 1 1	100	7 80E-01	No	NA	-	2 10E-03	Yes	Yes	>Screening Level
Calcium	7440-70-2	mg/kg	1 1 1	100	8 80E+01	Yes	NA	--	NA	--	No	EN
Copper	7440-50-8	mg/kg	1 1 1	100	2 40E-01	No	NA	--	5 41E+00	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	1 1 1	100	4 20E+00	Yes	NA	--	4 06E+01	No	No	EN
Magnesium	7439-95-4	mg/kg	1 1 1	100	2 20E+02	Yes	NA	--	NA	--	No	EN
Mercury	7439-97-6	mg/kg	1 1 1	100	2 50E-01	No	NA	--	1 35E-02	Yes	Yes	>Screening Level
Potassium	7440-09-7	mg/kg	1 1 1	100	4 00E+03	Yes	NA	--	NA	--	No	EN
Sodium	7440-23-5	mg/kg	1 1 1	100	3 90E+02	Yes	NA	-	NA	-	No	EN

TABLE B-7
FISH TISSUE SCREEN (g)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Maximum Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Is Max Concentration > Background?	Fish Tissue Screening Level (e)	Is Max Concentration > Screening Value?	COPC? (f)	Reason
Pond (Site Q) (Carp - Fillet)												
SVOCs												
Benzo(a)anthracene	56-55-3	mg/kg	1 1 1	100	1 40E-01	No	NA	--	4 32E-03	Yes	Yes	>Screening Level
Benzo(a)pyrene	50-32-8	mg/kg	1 1 1	100	1 80E-01	No	NA	--	4 32E-04	Yes	Yes	>Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	mg/kg	1 1 1	100	5 00E-01	No	NA	--	2 25E-01	Yes	Yes	>Screening Level
Chrysene	218-01-9	mg/kg	1 1 1	100	1 40E-01	No	NA	--	4 32E-01	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1 1 1	100	1 40E-01	No	NA	--	4 32E-04	Yes	Yes	>Screening Level
Fluoranthene	206-44-0	mg/kg	1 1 1	100	1 10E-01	No	NA	--	5 41E+00	No	No	</=Screening Level
Pesticide												
4,4'-DDT	50-29-3	mg/kg	1 1 1	100	3 30E-01	No	NA	--	9 28E-03	Yes	Yes	>Screening Level
alpha-Chlordane	5103-71-9	mg/kg	1 1 1	100	1 60E-02	No	NA	--	9 01E-03	Yes	Yes	>Screening Level
beta-BHC	319-85-7	mg/kg	1 1 1	100	1 70E-02	No	NA	--	1 75E-03	Yes	Yes	>Screening Level
Dieldrin	60-57-1	mg/kg	1 1 1	100	1 90E-01	No	NA	--	1 97E-04	Yes	Yes	>Screening Level
Methoxychlor	72-43-5	mg/kg	1 1 1	100	3 50E-02	No	NA	--	6 76E-01	No	No	</=Screening Level
Herbicide												
2,4-DB	94-82-6	mg/kg	1 1 1	100	2 50E-02	No	NA	--	1 08E+00	No	No	</=Screening Level
PCBs												
Total PCBs	1336-36-3	mg/kg	1 1 1	100	1 00E+01	No	NA	--	1 58E-03	Yes	Yes	>Screening Level
Dioxin												
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	1 1 1	100	1 84E-05	No	NA	--	2 10E-08	Yes	Yes	>Screening Level
Metals												
Arsenic	7440-38-2	mg/kg	1 1 1	100	8 20E-01	No	NA	--	2 10E-03	Yes	Yes	>Screening Level
Calcium	7440-70-2	mg/kg	1 1 1	100	2 20E+02	Yes	NA	--	NA	--	No	EN
Copper	7440-50-8	mg/kg	1 1 1	100	3 70E-01	No	NA	--	5 41E+00	No	No	</=Screening Level
Iron	7439-89-6	mg/kg	1 1 1	100	1 10E+01	Yes	NA	--	4 06E+01	No	No	EN
Magnesium	7439-95-4	mg/kg	1 1 1	100	2 10E+02	Yes	NA	--	NA	--	No	EN
Manganese	7439-96-5	mg/kg	1 1 1	100	2 00E-01	No	NA	--	1 90E+01	No	No	</=Screening Level
Mercury	7439-97-6	mg/kg	1 1 1	100	7 10E-02	No	NA	--	1 35E-02	Yes	Yes	>Screening Level
Potassium	7440-09-7	mg/kg	1 1 1	100	3 60E+03	Yes	NA		NA	--	No	EN
Sodium	7440-23-5	mg/kg	1 1 1	100	4 00E+02	Yes	NA	--	NA	--	No	EN

TABLE B-7
FISH TISSUE SCREEN (g)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Maximum Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Is Max Concentration > Background?	Fish Tissue Screening Level (e)	Is Max Concentration > Screening Value?	COPC? (f)	Reason
UDA (Buffalo Fillet)												
Pesticide												
4,4'-DDE	72-55-9	mg/kg	1 1 1	100	1 70E-02	No	NA	-	9 28E-03	Yes	Yes	>Screening Level
4,4'-DDT	50-29-3	mg/kg	1 1 1	100	8 60E-03	No	NA	--	9 28E-03	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	mg/kg	1 1 1	100	5 80E-03	No	NA	--	9 01E-03	No	No	</=Screening Level
Dieldrin	60-57-1	mg/kg	1 1 1	100	8 10E-03	No	NA	--	1 97E-04	Yes	Yes	>Screening Level
Endrin Aldehyde	7421-93-4	mg/kg	1 1 1	100	7 30E-03	No	NA	--	4 06E-02	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	mg/kg	1 1 1	100	1 20E-03	No	NA	--	2 43E-03	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	mg/kg	1 1 1	100	5 20E-03	No	NA	--	9 01E-03	No	No	</=Screening Level
Dioxin												
2,3,7,8-TCDD-TEQ	1746-01-6	mg/kg	1 1 1	100	4 57E-06	No	NA	--	2 10E-08	Yes	Yes	>Screening Level

TABLE B-7
FISH FILLET SCREEN (g)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Maximum Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Is Max Concentration > Background?	Fish Tissue Screening Level (e)	Is Max Concentration > Screening Value?	COPC? (f)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
DDA - Downstream Discharge Area (Mississippi River)
EN - Essential nutrient
FOD - Frequency of detection
NA - Not available
PCB - Polychlorinated Biphenyl
PDA - Plume Discharge Area (Mississippi River)
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
UDA - Upstream Discharge Area (Mississippi River)
USEPA - United States Environmental Protection Agency
VOC - Volatile Organic Compound
-- Not applicable
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as COPCs
(c) The maximum detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used)
(d) Background concentrations are not available for fish tissue
(e) USEPA, 2003 Region 3 Risk Based Concentration (RBC) Table April 25, 2003 Value for Fish
(f) A constituent is identified as a COPC if it is detected in greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient, if the detected concentration is greater than the background concentration and if the detected concentration is greater than the fish screening level

C

APPENDIX C

BACKGROUND CALCULATIONS

APPENDIX C
BACKGROUND CALCULATIONS

Table C-1 provides the background calculations for combined soil, surface soil, groundwater (shallow, mid, and deep), sediment, and surface water. Per the method identified in the USEPA-approved workplan, background concentrations are defined as two times the arithmetic mean concentration.

Table C-2 lists in the first column all the site groundwater locations for which constituents were detected. The second column lists the background location for the site location. Site groundwater concentrations were compared to the selected background location concentration.

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Combined Soil			
VOCs			
4-Methyl-2-pentanone (MIBK)	108-10-1	0.001	0.002
Chloromethane	74-87-3	0.00045	0.0009
Dichloromethane	75-09-2	0.002864286	0.005728571
Ethylbenzene	100-41-4	0.000475833	0.000951667
Styrene (Monomer)	100-42-5	0.00205	0.0041
Tetrachloroethene	127-18-4	0.000475	0.00095
Xylenes, Total	1330-20-7	0.000772143	0.001544286
SVOCs			
Acenaphthene	83-32-9	0.021	0.042
Anthracene	120-12-7	0.06	0.12
Benzo(a)anthracene	56-55-3	0.16225	0.3245
Benzo(a)pyrene	50-32-8	0.19475	0.3895
Benzo(b)fluoranthene	205-99-2	0.18475	0.3695
Benzo(g,h,i)perylene	191-24-2	0.19675	0.3935
Benzo(k)fluoranthene	207-08-9	0.1639	0.3278
bis(2-Ethylhexyl)phthalate	117-81-7	0.16725	0.3345
Chrysene	218-01-9	0.16795	0.3359
Dibenzo(a,h)anthracene	53-70-3	0.06	0.12
Fluoranthene	206-44-0	0.20575	0.4115
Phenanthrene	85-01-8	0.1761	0.3522
Pyrene	129-00-0	0.2007	0.4014
Pesticide			
4,4'-DDD	72-54-8	0.0026935	0.005387
4,4'-DDE	72-55-9	0.0040125	0.008025
4,4'-DDT	50-29-3	0.0108845	0.021769
Aldrin	309-00-2	0.001375	0.00275
alpha-BHC	319-84-6	0.012885	0.02577
alpha-Chlordane	5103-71-9	0.002022	0.004044
delta-BHC	319-86-8	0.004285	0.00857
Dieldrin	60-57-1	0.0037525	0.007505
Endosulfan I	959-98-8	0.001068889	0.002137778
Endosulfan II	33213-65-9	0.00058	0.00116
Endosulfan Sulfate	1031-07-8	0.000905	0.00181
Endrin	72-20-8	0.0021875	0.004375
Endrin Aldehyde	7421-93-4	0.0024025	0.004805
gamma-Chlordane	5103-74-2	0.010664	0.021328
Heptachlor	76-44-8	0.008285	0.01657
Heptachlor Epoxide	1024-57-3	0.0030505	0.006101
Methoxychlor	72-43-5	0.001655	0.00331
Herbicide			
2,4-D	94-75-7	0.00483	0.00966
Dichlorprop	120-36-5	0.05173	0.10346
MCPP	93-65-2	1.4625	2.925
Pentachlorophenol	87-86-5	0.002283333	0.004566667
PCBs			
Total PCBs	1336-36-3	0.06413	0.12826
Dioxin			
2,3,7,8-TCDD-TEQ	1746-01-6	4.46583E-06	8.93166E-06
Metals			
Aluminum	7429-90-5	5425	10850
Antimony	7440-36-0	1.027	2.054

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Arsenic	7440-38-2	5.41	10.82
Barium	7440-39-3	158.7	317.4
Beryllium	7440-41-7	0.3825	0.765
Cadmium	7440-43-9	0.9068	1.8136
Calcium	7440-70-2	30545	61090
Chromium	7440-47-3	9.45	18.9
Cobalt	7440-48-4	4.635	9.27
Copper	7440-50-8	24.815	49.63
Iron	7439-89-6	10520	21040
Lead	7439-92-1	35.885	71.77
Magnesium	7439-95-4	5625	11250
Manganese	7439-96-5	250.6	501.2
Mercury	7439-97-6	0.03858	0.07716
Nickel	7440-02-0	14.13	28.26
Potassium	7440-09-7	1190.5	2381
Selenium	7782-49-2	0.5345	1.069
Silver	7440-22-4	0.512	1.024
Sodium	7440-23-5	70.55	141.1
Vanadium	7440-62-2	17.18	34.36
Zinc	7440-66-6	112.2	224.4
Surface Soil			
VOCs			
Chloromethane	74-87-3	0.00045	0.0009
Ethylbenzene	100-41-4	0.000533333	0.001066667
Styrene (Monomer)	100-42-5	0.0022325	0.004465
Tetrachloroethene	127-18-4	0.00044	0.00088
Xylenes, Total	1330-20-7	0.000803333	0.001606667
SVOCs			
Acenaphthene	83-32-9	0.021	0.042
Anthracene	120-12-7	0.06	0.12
Benzo(a)anthracene	56-55-3	0.138	0.276
Benzo(a)pyrene	50-32-8	0.203	0.406
Benzo(b)fluoranthene	205-99-2	0.183	0.366
Benzo(g,h,i)perylene	191-24-2	0.207	0.414
Benzo(k)fluoranthene	207-08-9	0.1413	0.2826
bis(2-Ethylhexyl)phthalate	117-81-7	0.1766	0.3532
Chrysene	218-01-9	0.1494	0.2988
Dibenzo(a,h)anthracene	53-70-3	0.06	0.12
Fluoranthene	206-44-0	0.225	0.45
Phenanthrene	85-01-8	0.1657	0.3314
Pyrene	129-00-0	0.2149	0.4298
Pesticide			
4,4'-DDD	72-54-8	0.003522	0.007044
4,4'-DDE	72-55-9	0.00616	0.01232
4,4'-DDT	50-29-3	0.02018	0.04036
Aldrin	309-00-2	0.00178	0.00356
alpha-BHC	319-84-6	0.0248	0.0496
alpha-Chlordane	5103-71-9	0.003074	0.006148
delta-BHC	319-86-8	0.0076	0.0152
Dieldrin	60-57-1	0.00564	0.01128
Endosulfan I	959-98-8	0.0011925	0.002385
Endosulfan II	33213-65-9	0.00058	0.00116
Endosulfan Sulfate	1031-07-8	0.000905	0.00181

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Endrin	72-20-8	0.00251	0.00502
Endrin Aldehyde	7421-93-4	0.00294	0.00588
gamma-Chlordane	5103-74-2	0.020534	0.041068
Heptachlor	76-44-8	0.0156	0.0312
Heptachlor Epoxide	1024-57-3	0.005267	0.010534
Methoxychlor	72-43-5	0.0028	0.0056
Herbicide			
2,4-D	94-75-7	0.00498	0.00996
Dichlorprop	120-36-5	0.05688	0.11376
MCPP	93-65-2	1.8	3.6
Pentachlorophenol	87-86-5	0.002283333	0.004566667
PCBs			
Total PCBs	1336-36-3	0.09227	0.18454
Dioxin			
2,3,7,8-TCDD-TEQ	1746-01-6	0.000008432	0.000016864
Metals			
Aluminum	7429-90-5	6920	13840
Antimony	7440-36-0	1.166	2.332
Arsenic	7440-38-2	6.19	12.38
Barium	7440-39-3	153.4	306.8
Beryllium	7440-41-7	0.451	0.902
Cadmium	7440-43-9	1.668	3.336
Calcium	7440-70-2	48710	97420
Chromium	7440-47-3	11.06	22.12
Cobalt	7440-48-4	4.7	9.4
Copper	7440-50-8	42.9	85.8
Iron	7439-89-6	11660	23320
Lead	7439-92-1	65.1	130.2
Magnesium	7439-95-4	6140	12280
Manganese	7439-96-5	276.2	552.4
Mercury	7439-97-6	0.0668	0.1336
Nickel	7440-02-0	16.5	33
Potassium	7440-09-7	1506	3012
Selenium	7782-49-2	0.54	1.08
Silver	7440-22-4	0.495	0.99
Sodium	7440-23-5	78.75	157.5
Vanadium	7440-62-2	19.46	38.92
Zinc	7440-66-6	195	390
Shallow Groundwater			
OS - UAA-1/OS-1-20			
VOCs			
Methane	74-82-8	0.46	0.92
Metals			
Aluminum	7429-90-5	1400	2800
Barium	7440-39-3	300	600
Calcium	7440-70-2	190000	380000
Chromium	7440-47-3	7.1	14.2
Cobalt	7440-48-4	4.6	9.2
Iron	7439-89-6	4700	9400
Lead	7439-92-1	3	6
Magnesium	7439-95-4	43000	86000
Manganese	7439-96-5	1700	3400
Nickel	7440-02-0	21	42

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Potassium	7440-09-7	8600	17200
Sodium	7440-23-5	48000	96000
Zinc	7440-66-6	22	44
OS - UAA-2/OS-2-20			
VOCs			
Methane	74-82-8	11	22
Metals			
Aluminum	7429-90-5	8.1	16.2
Barium	7440-39-3	120	240
Calcium	7440-70-2	130000	260000
Iron	7439-89-6	1900	3800
Magnesium	7439-95-4	36000	72000
Manganese	7439-96-5	18	36
Nickel	7440-02-0	7.2	14.4
Potassium	7440-09-7	1300	2600
Sodium	7440-23-5	8100	16200
Zinc	7440-66-6	26	52
OS - UAA-4/OS-4-20			
VOCs			
Dichloromethane	75-09-2	1	2
Methane	74-82-8	19.95	39.9
Metals			
Aluminum	7429-90-5	345	690
Barium	7440-39-3	180	360
Calcium	7440-70-2	130000	260000
Cobalt	7440-48-4	2.4	4.8
Iron	7439-89-6	2300	4600
Magnesium	7439-95-4	29000	58000
Manganese	7439-96-5	1400	2800
Nickel	7440-02-0	12.5	25
Potassium	7440-09-7	5800	11600
Sodium	7440-23-5	11500	23000
Vanadium	7440-62-2	1.6	3.2
Mid Groundwater			
OS - UAA-2/OS-2-30			
VOCs			
1,1-Dichloroethane	75-34-3	4.85	9.7
1,1-Dichloroethylene	75-35-4	3.45	6.9
1,2-Dichloroethene (total)	540-59-0	17	34
Vinyl chloride	75-01-4	0.4	0.8
OS - UAA-3/OS-3-24			
VOCs			
Methane	74-82-8	2.2	4.4
Metals			
Barium	7440-39-3	180	360
Calcium	7440-70-2	100000	200000
Cobalt	7440-48-4	0.89	1.78
Copper	7440-50-8	1.9	3.8
Iron	7439-89-6	2000	4000
Magnesium	7439-95-4	32000	64000
Manganese	7439-96-5	92	184
Nickel	7440-02-0	7.2	14.4
Potassium	7440-09-7	44000	88000

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Selenium	7782-49-2	9.2	18.4
Sodium	7440-23-5	2400	4800
Thallium	7440-28-0	4.1	8.2
Vanadium	7440-62-2	2	4
Zinc	7440-66-6	9.4	18.8
OS - UAA-4/OS-4-30			
VOCs			
Dichloromethane	75-09-2	1.1	2.2
Deep Groundwater			
OS - UAA-1/OS-1-100			
VOCs			
1,2-Dichloroethene (total)	540-59-0	1.3	2.6
Benzene	71-43-2	2.5	5
Chlorobenzene	108-90-7	400	800
Ethylbenzene	100-41-4	0.31	0.62
Methane	74-82-8	960	1920
Toluene	108-88-3	0.31	0.62
SVOCs			
1,2-Dichlorobenzene	95-50-1	3.8	7.6
1,4-Dichlorobenzene	106-46-7	18	36
2-Chlorophenol	95-57-8	1.7	3.4
Benzo(g,h,i)perylene	191-24-2	0.84	1.68
Dibenzo(a,h)anthracene	53-70-3	0.68	1.36
Pesticide			
beta-BHC	319-85-7	0.02	0.04
Metals			
Aluminum	7429-90-5	520	1040
Arsenic	7440-38-2	18	36
Barium	7440-39-3	51	102
Cadmium	7440-43-9	1900	3800
Calcium	7440-70-2	670000	1340000
Chromium	7440-47-3	13	26
Cobalt	7440-48-4	200	400
Copper	7440-50-8	1.5	3
Iron	7439-89-6	81000	162000
Magnesium	7439-95-4	170000	340000
Manganese	7439-96-5	21000	42000
Nickel	7440-02-0	93	186
Potassium	7440-09-7	30000	60000
Sodium	7440-23-5	200000	400000
Zinc	7440-66-6	230000	460000
OS - UAA-1/OS-1-110			
VOCs			
Benzene	71-43-2	3.4	6.8
Chlorobenzene	108-90-7	710	1420
Ethylbenzene	100-41-4	0.38	0.76
Methane	74-82-8	940	1880
SVOCs			
1,2-Dichlorobenzene	95-50-1	6.3	12.6
1,4-Dichlorobenzene	106-46-7	36	72
2-Chlorophenol	95-57-8	6.4	12.8
Pesticide			
beta-BHC	319-85-7	0.0089	0.0178

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
gamma-BHC (Lindane)	58-89-9	0.0084	0.0168
Metals			
Aluminum	7429-90-5	6300	12600
Arsenic	7440-38-2	36	72
Barium	7440-39-3	150	300
Cadmium	7440-43-9	2700	5400
Calcium	7440-70-2	720000	1440000
Chromium	7440-47-3	120	240
Cobalt	7440-48-4	260	520
Copper	7440-50-8	38	76
Iron	7439-89-6	150000	300000
Lead	7439-92-1	5.2	10.4
Magnesium	7439-95-4	200000	400000
Manganese	7439-96-5	28000	56000
Nickel	7440-02-0	150	300
Potassium	7440-09-7	33000	66000
Sodium	7440-23-5	200000	400000
Vanadium	7440-62-2	18	36
Zinc	7440-66-6	300000	600000
OS - UAA-1/OS-1-50			
VOCs			
1,2-Dichloroethene (total)	540-59-0	0.82	1.64
Chlorobenzene	108-90-7	0.42	0.84
OS - UAA-1/OS-1-60			
VOCs			
1,2-Dichloroethene (total)	540-59-0	1.3	2.6
Chlorobenzene	108-90-7	2	4
Methane	74-82-8	9.1	18.2
Pesticide			
gamma-BHC (Lindane)	58-89-9	0.0085	0.017
Heptachlor Epoxide	1024-57-3	0.006	0.012
Herbicide			
Pentachlorophenol	87-86-5	0.05	0.1
Metals			
Aluminum	7429-90-5	950	1900
Arsenic	7440-38-2	4.7	9.4
Barium	7440-39-3	130	260
Cadmium	7440-43-9	1.2	2.4
Calcium	7440-70-2	330000	660000
Chromium	7440-47-3	6.8	13.6
Cobalt	7440-48-4	0.86	1.72
Iron	7439-89-6	59000	118000
Magnesium	7439-95-4	69000	138000
Manganese	7439-96-5	4200	8400
Nickel	7440-02-0	8.6	17.2
Potassium	7440-09-7	14000	28000
Sodium	7440-23-5	120000	240000
Zinc	7440-66-6	34	68
OS - UAA-1/OS-1-70			
VOCs			
1,2-Dichloroethene (total)	540-59-0	1.7	3.4
Chlorobenzene	108-90-7	2.4	4.8
OS - UAA-1/OS-1-80			

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
VOCs			
1,2-Dichloroethene (total)	540-59-0	1.4	2.8
Chlorobenzene	108-90-7	280	560
SVOCs			
1,4-Dichlorobenzene	106-46-7	1.8	3.6
2-Chlorophenol	95-57-8	3.3	6.6
OS - UAA-1/OS-1-90			
VOCs			
1,2-Dichloroethene (total)	540-59-0	1.5	3
Benzene	71-43-2	0.23	0.46
Chlorobenzene	108-90-7	450	900
SVOCs			
1,2-Dichlorobenzene	95-50-1	1.4	2.8
1,4-Dichlorobenzene	106-46-7	9.8	19.6
2-Chlorophenol	95-57-8	5.4	10.8
OS - UAA-2/OS-2-100			
VOCs			
1,2-Dichloroethene (total)	540-59-0	11	22
Benzene	71-43-2	20	40
Chlorobenzene	108-90-7	2600	5200
Methane	74-82-8	53	106
Vinyl chloride	75-01-4	7.2	14.4
SVOCs			
1,2-Dichlorobenzene	95-50-1	9.8	19.6
1,4-Dichlorobenzene	106-46-7	370	740
2,4-Dichlorophenol	120-83-2	8	16
2,4-Dimethylphenol	105-67-9	10	20
2-Chlorophenol	95-57-8	18	36
4-Chloroaniline	106-47-8	3.1	6.2
Pesticide			
beta-BHC	319-85-7	0.052	0.104
gamma-BHC (Lindane)	58-89-9	0.037	0.074
Herbicide			
2,4,5-TP (Silvex)	93-72-1	0.056	0.112
Dicamba	1918-00-9	0.16	0.32
Metals			
Aluminum	7429-90-5	520	1040
Barium	7440-39-3	120	240
Calcium	7440-70-2	260000	520000
Chromium	7440-47-3	15	30
Copper	7440-50-8	5.9	11.8
Iron	7439-89-6	28000	56000
Magnesium	7439-95-4	36000	72000
Manganese	7439-96-5	1600	3200
Potassium	7440-09-7	10000	20000
Sodium	7440-23-5	33000	66000
Vanadium	7440-62-2	1.6	3.2
Zinc	7440-66-6	54	108
OS - UAA-2/OS-2-110			
VOCs			
1,1-Dichloroethane	75-34-3	8	16
1,2-Dichloroethene (total)	540-59-0	17	34
Benzene	71-43-2	17	34

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Chlorobenzene	108-90-7	2500	5000
Chloromethane	74-87-3	9.3	18.6
Dichloromethane	75-09-2	19	38
Vinyl chloride	75-01-4	9.5	19
SVOCs			
1,2-Dichlorobenzene	95-50-1	16	32
1,3-Dichlorobenzene	541-73-1	49	98
1,4-Dichlorobenzene	106-46-7	1200	2400
2,4-Dichlorophenol	120-83-2	16	32
2,4-Dimethylphenol	105-67-9	14	28
2-Chlorophenol	95-57-8	32	64
4-Chloroaniline	106-47-8	9.7	19.4
OS - UAA-2/OS-2-120			
VOCs			
1,2-Dichloroethene (total)	540-59-0	5.3	10.6
Chlorobenzene	108-90-7	760	1520
SVOCs			
1,2-Dichlorobenzene	95-50-1	14	28
1,3-Dichlorobenzene	541-73-1	26	52
1,4-Dichlorobenzene	106-46-7	860	1720
2,4-Dichlorophenol	120-83-2	12	24
2,4-Dimethylphenol	105-67-9	12	24
2-Chlorophenol	95-57-8	9.6	19.2
4-Chloroaniline	106-47-8	2.8	5.6
OS - UAA-2/OS-2-124			
VOCs			
1,1-Dichloroethane	75-34-3	16	32
1,1-Dichloroethylene	75-35-4	17	34
1,2-Dichloroethene (total)	540-59-0	77	154
Benzene	71-43-2	24	48
Chlorobenzene	108-90-7	2000	4000
Chloromethane	74-87-3	9.7	19.4
Methane	74-82-8	100	200
Vinyl chloride	75-01-4	6.5	13
SVOCs			
1,2-Dichlorobenzene	95-50-1	7.4	14.8
1,3-Dichlorobenzene	541-73-1	32	64
1,4-Dichlorobenzene	106-46-7	410	820
2,4-Dichlorophenol	120-83-2	8.3	16.6
2-Chlorophenol	95-57-8	20	40
4-Chloroaniline	106-47-8	2.4	4.8
Fluorene	86-73-7	2.9	5.8
Naphthalene	91-20-3	12	24
Pesticide			
beta-BHC	319-85-7	0.17	0.34
Herbicide			
2,4-DB	94-82-6	0.18	0.36
MCPP	93-65-2	87	174
Metals			
Barium	7440-39-3	98	196
Calcium	7440-70-2	340000	680000
Iron	7439-89-6	37000	74000
Magnesium	7439-95-4	50000	100000

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Manganese	7439-96-5	1600	3200
Potassium	7440-09-7	11000	22000
Sodium	7440-23-5	37000	74000
Vanadium	7440-62-2	1.2	2.4
Zinc	7440-66-6	42	84
OS - UAA-2/OS-2-40			
VOCs			
1,1-Dichloroethane	75-34-3	24	48
1,1-Dichloroethylene	75-35-4	19	38
1,2-Dichloroethene (total)	540-59-0	81	162
Benzene	71-43-2	0.27	0.54
Vinyl chloride	75-01-4	2.1	4.2
OS - UAA-2/OS-2-50			
VOCs			
1,1-Dichloroethane	75-34-3	230	460
1,1-Dichloroethylene	75-35-4	250	500
1,2-Dichloroethene (total)	540-59-0	930	1860
Benzene	71-43-2	12	24
Chlorobenzene	108-90-7	52	104
Trichloroethylene	79-01-6	2.3	4.6
Vinyl chloride	75-01-4	29	58
OS - UAA-2/OS-2-60			
VOCs			
1,1-Dichloroethane	75-34-3	230	460
1,1-Dichloroethylene	75-35-4	290	580
1,2-Dichloroethene (total)	540-59-0	890	1780
Benzene	71-43-2	15	30
Chlorobenzene	108-90-7	79	158
Methane	74-82-8	980	1960
Vinyl chloride	75-01-4	32	64
SVOCs			
2-Chlorophenol	95-57-8	2.4	4.8
4-Chloroaniline	106-47-8	4.4	8.8
Metals			
Arsenic	7440-38-2	5.9	11.8
Barium	7440-39-3	350	700
Calcium	7440-70-2	230000	460000
Iron	7439-89-6	30000	60000
Magnesium	7439-95-4	55000	110000
Manganese	7439-96-5	2200	4400
Potassium	7440-09-7	10000	20000
Sodium	7440-23-5	100000	200000
Zinc	7440-66-6	14	28
OS - UAA-2/OS-2-70			
VOCs			
1,1-Dichloroethane	75-34-3	300	600
1,1-Dichloroethylene	75-35-4	410	820
1,2-Dichloroethene (total)	540-59-0	1400	2800
Benzene	71-43-2	24	48
Chlorobenzene	108-90-7	81	162
Vinyl chloride	75-01-4	46	92
SVOCs			
2,4-Dimethylphenol	105-67-9	2.2	4.4

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
2-Chlorophenol	95-57-8	1.6	3.2
4-Chloroaniline	106-47-8	3.7	7.4
OS - UAA-2/OS-2-80			
VOCs			
1,1-Dichloroethane	75-34-3	330	660
1,1-Dichloroethylene	75-35-4	440	880
1,2-Dichloroethene (total)	540-59-0	1800	3600
Benzene	71-43-2	55	110
Chlorobenzene	108-90-7	62	124
Vinyl chloride	75-01-4	52	104
SVOCs			
2,4-Dimethylphenol	105-67-9	9.6	19.2
4-Chloroaniline	106-47-8	6	12
OS - UAA-2/OS-2-90			
VOCs			
1,1-Dichloroethane	75-34-3	13	26
1,2-Dichloroethene (total)	540-59-0	57	114
Benzene	71-43-2	13	26
Chlorobenzene	108-90-7	1800	3600
Trichloroethylene	79-01-6	17	34
Vinyl chloride	75-01-4	10	20
SVOCs			
1,2-Dichlorobenzene	95-50-1	7.3	14.6
1,3-Dichlorobenzene	541-73-1	16	32
1,4-Dichlorobenzene	106-46-7	240	480
2,4-Dichlorophenol	120-83-2	8.7	17.4
2,4-Dimethylphenol	105-67-9	9.5	19
2-Chlorophenol	95-57-8	24	48
4-Chloroaniline	106-47-8	8.6	17.2
OS - UAA-3/OS-3-104			
VOCs			
Benzene	71-43-2	24	48
Chlorobenzene	108-90-7	2100	4200
Methane	74-82-8	170	340
SVOCs			
1,2-Dichlorobenzene	95-50-1	25	50
1,3-Dichlorobenzene	541-73-1	28	56
1,4-Dichlorobenzene	106-46-7	2200	4400
2,4,6-Trichlorophenol	88-06-2	7.8	15.6
2,4-Dichlorophenol	120-83-2	52	104
2-Chlorophenol	95-57-8	14	28
4-Chloroaniline	106-47-8	2100	4200
4-Nitroaniline	100-01-6	1.5	3
Benzo(a)pyrene	50-32-8	1.4	2.8
Benzo(b)fluoranthene	205-99-2	1.3	2.6
Benzo(g,h,i)perylene	191-24-2	1.6	3.2
Chrysene	218-01-9	0.69	1.38
Dibenzo(a,h)anthracene	53-70-3	1.5	3
Diethyl Phthalate	84-66-2	3.2	6.4
Pesticide			
gamma-BHC (Lindane)	58-89-9	0.039	0.078
Heptachlor	76-44-8	0.029	0.058
Herbicide			

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
2,4,5-TP (Silvex)	93-72-1	0.07	0.14
2,4-D	94-75-7	0.63	1.26
2,4-DB	94-82-6	0.6	1.2
Metals			
Aluminum	7429-90-5	3100	6200
Barium	7440-39-3	1000	2000
Cadmium	7440-43-9	0.74	1.48
Calcium	7440-70-2	260000	520000
Chromium	7440-47-3	74	148
Cobalt	7440-48-4	3.3	6.6
Copper	7440-50-8	55	110
Iron	7439-89-6	25000	50000
Lead	7439-92-1	3.1	6.2
Magnesium	7439-95-4	74000	148000
Manganese	7439-96-5	1100	2200
Nickel	7440-02-0	27	54
Potassium	7440-09-7	12000	24000
Sodium	7440-23-5	80000	160000
Zinc	7440-66-6	360	720
OS - UAA-3/OS-3-114			
VOCs			
Benzene	71-43-2	4.3	8.6
Chlorobenzene	108-90-7	570	1140
SVOCs			
1,2-Dichlorobenzene	95-50-1	23	46
1,3-Dichlorobenzene	541-73-1	18	36
1,4-Dichlorobenzene	106-46-7	1800	3600
2,4,6-Trichlorophenol	88-06-2	1	2
2,4-Dichlorophenol	120-83-2	59	118
2-Chlorophenol	95-57-8	17	34
Dibenzo(a,h)anthracene	53-70-3	0.67	1.34
OS - UAA-3/OS-3-116			
VOCs			
Benzene	71-43-2	1.8	3.6
Chlorobenzene	108-90-7	360	720
Methane	74-82-8	14	28
SVOCs			
1,2-Dichlorobenzene	95-50-1	16	32
1,3-Dichlorobenzene	541-73-1	13	26
1,4-Dichlorobenzene	106-46-7	1500	3000
2,4,6-Trichlorophenol	88-06-2	1.5	3
2,4-Dichlorophenol	120-83-2	53	106
2-Chlorophenol	95-57-8	9.7	19.4
4-Chloroaniline	106-47-8	9.8	19.6
Benzo(g,h,i)perylene	191-24-2	0.69	1.38
Pesticide			
Aldrin	309-00-2	0.018	0.036
beta-BHC	319-85-7	0.016	0.032
Herbicide			
2,4,5-TP (Silvex)	93-72-1	0.086	0.172
PCBs			
Total PCBs	1336-36-3	0.06	0.12
Metals			

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
Aluminum	7429-90-5	1200	2400
Barium	7440-39-3	150	300
Cadmium	7440-43-9	2	4
Calcium	7440-70-2	340000	680000
Chromium	7440-47-3	38	76
Cobalt	7440-48-4	1.5	3
Copper	7440-50-8	25	50
Iron	7439-89-6	61000	122000
Magnesium	7439-95-4	120000	240000
Manganese	7439-96-5	1200	2400
Nickel	7440-02-0	11	22
Potassium	7440-09-7	11000	22000
Sodium	7440-23-5	61000	122000
Zinc	7440-66-6	230	460
OS - UAA-3/OS-3-44			
VOCs			
1,1-Dichloroethylene	75-35-4	0.22	0.44
1,2-Dichloroethene (total)	540-59-0	1.3	2.6
Benzene	71-43-2	3.6	7.2
Chlorobenzene	108-90-7	160	320
OS - UAA-3/OS-3-54			
VOCs			
1,1-Dichloroethane	75-34-3	0.52	1.04
1,1-Dichloroethylene	75-35-4	0.22	0.44
1,2-Dichloroethene (total)	540-59-0	1.4	2.8
Benzene	71-43-2	1.2	2.4
Chlorobenzene	108-90-7	160	320
OS - UAA-3/OS-3-64			
VOCs			
1,2-Dichloroethene (total)	540-59-0	1.3	2.6
Benzene	71-43-2	0.14	0.28
Carbon Disulfide	75-15-0	0.35	0.7
Chlorobenzene	108-90-7	31	62
Methane	74-82-8	170	340
Vinyl chloride	75-01-4	0.31	0.62
Herbicide			
2,4-D	94-75-7	0.23	0.46
PCBs			
Total PCBs	1336-36-3	0.08	0.16
Metals			
Aluminum	7429-90-5	250	500
Barium	7440-39-3	100	200
Calcium	7440-70-2	220000	440000
Chromium	7440-47-3	8.2	16.4
Cobalt	7440-48-4	5.4	10.8
Iron	7439-89-6	9800	19600
Magnesium	7439-95-4	63000	126000
Manganese	7439-96-5	4100	8200
Nickel	7440-02-0	13	26
Potassium	7440-09-7	50000	100000
Sodium	7440-23-5	88000	176000
Zinc	7440-66-6	45	90
OS - UAA-3/OS-3-74			

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
VOCs			
1,1-Dichloroethane	75-34-3	0.44	0.88
1,1-Dichloroethylene	75-35-4	0.42	0.84
1,2-Dichloroethene (total)	540-59-0	3.5	7
Benzene	71-43-2	7.4	14.8
Chlorobenzene	108-90-7	150	300
Toluene	108-88-3	0.3	0.6
Vinyl chloride	75-01-4	0.97	1.94
OS - UAA-3/OS-3-84			
VOCs			
Benzene	71-43-2	63	126
Chlorobenzene	108-90-7	1300	2600
SVOCs			
1,2-Dichlorobenzene	95-50-1	5	10
1,4-Dichlorobenzene	106-46-7	170	340
2,4-Dichlorophenol	120-83-2	2.2	4.4
2-Chlorophenol	95-57-8	14	28
4-Chloroaniline	106-47-8	470	940
OS - UAA-3/OS-3-94			
VOCs			
Benzene	71-43-2	55	110
Chlorobenzene	108-90-7	2100	4200
SVOCs			
1,2-Dichlorobenzene	95-50-1	17	34
1,3-Dichlorobenzene	541-73-1	20	40
1,4-Dichlorobenzene	106-46-7	1000	2000
2,4-Dichlorophenol	120-83-2	9.4	18.8
2-Chlorophenol	95-57-8	9.5	19
4-Chloroaniline	106-47-8	800	1600
Diethyl Phthalate	84-66-2	17	34
OS - UAA-4/OS-4-100			
VOCs			
Chloromethane	74-87-3	0.38	0.76
Methane	74-82-8	13	26
PCBs			
Total PCBs	1336-36-3	0.038	0.076
Metals			
Aluminum	7429-90-5	2100	4200
Arsenic	7440-38-2	4.9	9.8
Barium	7440-39-3	340	680
Calcium	7440-70-2	150000	300000
Chromium	7440-47-3	19	38
Cobalt	7440-48-4	1.9	3.8
Copper	7440-50-8	6.8	13.6
Iron	7439-89-6	20000	40000
Lead	7439-92-1	3.4	6.8
Magnesium	7439-95-4	39000	78000
Manganese	7439-96-5	770	1540
Nickel	7440-02-0	9	18
Potassium	7440-09-7	6200	12400
Sodium	7440-23-5	18000	36000
Vanadium	7440-62-2	6.7	13.4
Zinc	7440-66-6	23	46

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
OS - UAA-4/OS-4-110			
VOCs			
Carbon Disulfide	75-15-0	0.32	0.64
Chloromethane	74-87-3	0.59	1.18
Ethylbenzene	100-41-4	0.92	1.84
Toluene	108-88-3	0.36	0.72
OS - UAA-4/OS-4-113			
VOCs			
1,2-Dichloroethene (total)	540-59-0	0.24	0.48
Carbon Disulfide	75-15-0	0.72	1.44
Ethylbenzene	100-41-4	0.9	1.8
Methane	74-82-8	11	22
Toluene	108-88-3	0.29	0.58
Metals			
Aluminum	7429-90-5	8300	16600
Arsenic	7440-38-2	17	34
Barium	7440-39-3	500	1000
Beryllium	7440-41-7	0.67	1.34
Calcium	7440-70-2	160000	320000
Chromium	7440-47-3	230	460
Cobalt	7440-48-4	16	32
Copper	7440-50-8	94	188
Iron	7439-89-6	86000	172000
Lead	7439-92-1	22	44
Magnesium	7439-95-4	42000	84000
Manganese	7439-96-5	3600	7200
Nickel	7440-02-0	73	146
Potassium	7440-09-7	7900	15800
Sodium	7440-23-5	16000	32000
Vanadium	7440-62-2	26	52
Zinc	7440-66-6	310	620
OS - UAA-4/OS-4-40			
VOCs			
Dichloromethane	75-09-2	1.2	2.4
OS - UAA-4/OS-4-50			
VOCs			
Ethylbenzene	100-41-4	0.89	1.78
Toluene	108-88-3	0.45	0.9
Xylenes, Total	1330-20-7	2	4
OS - UAA-4/OS-4-60			
VOCs			
Methane	74-82-8	440	880
Toluene	108-88-3	0.36	0.72
SVOCs			
Benzo(a)pyrene	50-32-8	1.5	3
Benzo(b)fluoranthene	205-99-2	1.3	2.6
Benzo(k)fluoranthene	207-08-9	1.3	2.6
Chrysene	218-01-9	0.65	1.3
Metals			
Aluminum	7429-90-5	690	1380
Barium	7440-39-3	570	1140
Calcium	7440-70-2	130000	260000
Chromium	7440-47-3	7.8	15.6

Constituent	CAS	Average	2xAverage
Iron	7439-89-6	21000	42000
Magnesium	7439-95-4	39000	78000
Manganese	7439-96-5	1900	3800
Nickel	7440-02-0	13	26
Potassium	7440-09-7	7000	14000
Sodium	7440-23-5	14000	28000
Vanadium	7440-62-2	1.2	2.4
OS - UAA-4/OS-4-80			
VOCs			
Carbon Disulfide	75-15-0	0.6	1.2
OS - UAA-4/OS-4-90			
VOCs			
Carbon Disulfide	75-15-0	0.5	1
Sediment			
VOCs			
2-Butanone (MEK)	78-93-3	0.0034	0.0068
Acetone	67-64-1	0.036007143	0.072014286
Xylenes, Total	1330-20-7	0.0028375	0.005675
SVOCs			
Chrysene	218-01-9	0.031	0.062
Fluoranthene	206-44-0	0.0385	0.077
Phenanthrene	85-01-8	0.036	0.072
Pyrene	129-00-0	0.067	0.134
Herbicide			
2,4-D	94-75-7	0.0052	0.0104
Dichlorprop	120-36-5	0.0175	0.035
MCPP	93-65-2	0.415	0.83
Dioxin			
2,3,7,8-TCDD-TEQ	1746-01-6	2.35E-09	4.7E-09
Metals			
Aluminum	7429-90-5	1800.714286	3601.428571
Arsenic	7440-38-2	2.328571429	4.657142857
Barium	7440-39-3	46.28571429	92.57142857
Beryllium	7440-41-7	0.264285714	0.528571429
Cadmium	7440-43-9	0.401428571	0.802857143
Calcium	7440-70-2	3038.571429	6077.142857
Chromium	7440-47-3	4.828571429	9.657142857
Cobalt	7440-48-4	3.2	6.4
Copper	7440-50-8	3.094285714	6.188571429
Iron	7439-89-6	5357.142857	10714.28571
Lead	7439-92-1	4.728571429	9.457142857
Magnesium	7439-95-4	1338.571429	2677.142857
Manganese	7439-96-5	189	378
Mercury	7439-97-6	0.033714286	0.067428571
Nickel	7440-02-0	7.471428571	14.94285714
Potassium	7440-09-7	278.7857143	557.5714286
Sodium	7440-23-5	41.5	83
Vanadium	7440-62-2	6.828571429	13.65714286
Zinc	7440-66-6	22.95714286	45.91428571
Surface Water			
VOCs			
Chloromethane	74-87-3	0.464285714	0.928571429
SVOCs			

TABLE C-1
CALCULATION OF BACKGROUND CONCENTRATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Average	2xAverage
bis(2-Ethylhexyl)phthalate	117-81-7	5.642857143	11.28571429
Pesticide			
Endrin Ketone	53494-70-5	0.0187	0.0374
Herbicide			
Pentachlorophenol	87-86-5	0.3	0.6
Aluminum	7429-90-5	704.2857143	1408.571429
Barium	7440-39-3	58.71428571	117.4285714
Calcium	7440-70-2	51071 42857	102142.8571
Cobalt	7440-48-4	1.1	2.2
Iron	7439-89-6	969.2857143	1938.571429
Magnesium	7439-95-4	20571.42857	41142.85714
Manganese	7439-96-5	81.21428571	162.4285714
Potassium	7440-09-7	3364.285714	6728.571429
Sodium	7440-23-5	18428.57143	36857.14286
Thallium	7440-28-0	5.028571429	10.05714286
Vanadium	7440-62-2	3.3	6.6
Zinc	7440-66-6	4.6	9.2

Notes:
CAS - Chemical Abstract Service.
NA - Not available.
PCB - Polychlorinated Biphenyl.
SVOC - Semivolatile Organic Compound.
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalence Concentration.

TABLE C-2
MATCHING OF SITE GROUNDWATER LOCATIONS TO BACKGROUND GROUNDWATER LOCATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site Location	Corresponding Background Location	Medium
S - BDRK-S-1-165	OS - UAA-3/OS-3-116	Deep Groundwater
S - AA-S-3-94	OS - UAA-3/OS-3-94	Deep Groundwater
S - AA-S-3-84	OS - UAA-3/OS-3-84	Deep Groundwater
S - AA-S-3-74	OS - UAA-3/OS-3-74	Deep Groundwater
S - AA-S-3-64	OS - UAA-3/OS-3-64	Deep Groundwater
S - AA-S-3-54	OS - UAA-3/OS-3-54	Deep Groundwater
S - AA-S-3-44	OS - UAA-3/OS-3-44	Deep Groundwater
S - AA-S-3-34	OS - UAA-3/OS-3-34	Deep Groundwater
S - AA-S-3-24	OS - UAA-3/OS-3-24	Mid Groundwater
S - AA-S-3-132	OS - UAA-3/OS-3-116	Deep Groundwater
S - AA-S-3-124	OS - UAA-3/OS-3-116	Deep Groundwater
S - AA-S-3-114	OS - UAA-3/OS-3-114	Deep Groundwater
S - AA-S-3-104	OS - UAA-3/OS-3-104	Deep Groundwater
S - AA-S-2-98	OS - UAA-3/OS-3-94	Deep Groundwater
S - AA-S-2-88	OS - UAA-3/OS-3-84	Deep Groundwater
S - AA-S-2-78	OS - UAA-3/OS-3-74	Deep Groundwater
S - AA-S-2-68	OS - UAA-3/OS-3-64	Deep Groundwater
S - AA-S-2-58	OS - UAA-3/OS-3-54	Deep Groundwater
S - AA-S-2-48	OS - UAA-3/OS-3-44	Deep Groundwater
S - AA-S-2-38	OS - UAA-3/OS-3-34	Deep Groundwater
S - AA-S-2-28	OS - UAA-3/OS-3-24	Mid Groundwater
S - AA-S-2-118 5	OS - UAA-3/OS-3-116	Deep Groundwater
S - AA-S-2-118	OS - UAA-3/OS-3-116	Deep Groundwater
S - AA-S-2-108	OS - UAA-3/OS-3-104	Deep Groundwater
S - AA-S-1-94	OS - UAA-3/OS-3-94	Deep Groundwater
S - AA-S-1-84	OS - UAA-3/OS-3-84	Deep Groundwater
S - AA-S-1-74	OS - UAA-3/OS-3-74	Deep Groundwater
S - AA-S-1-64	OS - UAA-3/OS-3-64	Deep Groundwater
S - AA-S-1-54	OS - UAA-3/OS-3-54	Deep Groundwater
S - AA-S-1-44	OS - UAA-3/OS-3-44	Deep Groundwater
S - AA-S-1-34	OS - UAA-3/OS-3-34	Deep Groundwater
S - AA-S-1-24	OS - UAA-3/OS-3-24	Mid Groundwater
S - AA-S-1-124	OS - UAA-3/OS-3-116	Deep Groundwater
S - AA-S-1-114	OS - UAA-3/OS-3-114	Deep Groundwater
S - AA-S-1-104	OS - UAA-3/OS-3-104	Deep Groundwater
R - BDRK-R-1-163	OS - UAA-2/OS-2-124	Deep Groundwater
R - AA-R-1-98	OS - UAA-2/OS-2-100	Deep Groundwater
R - AA-R-1-88	OS - UAA-2/OS-2-90	Deep Groundwater
R - AA-R-1-78	OS - UAA-2/OS-2-80	Deep Groundwater
R - AA-R-1-68	OS - UAA-2/OS-2-70	Deep Groundwater
R - AA-R-1-58	OS - UAA-2/OS-2-60	Deep Groundwater
R - AA-R-1-48	OS - UAA-2/OS-2-50	Deep Groundwater
R - AA-R-1-28	OS - UAA-2/OS-2-30	Mid Groundwater
R - AA-R-1-131	OS - UAA-2/OS-2-124	Deep Groundwater
R - AA-R-1-128	OS - UAA-2/OS-2-124	Deep Groundwater
R - AA-R-1-118	OS - UAA-2/OS-2-120	Deep Groundwater
R - AA-R-1-108	OS - UAA-2/OS-2-110	Deep Groundwater
Q - BDRK-Q-2-143	OS - UAA-4/OS-4-113	Deep Groundwater

TABLE C-2
MATCHING OF SITE GROUNDWATER LOCATIONS TO BACKGROUND GROUNDWATER LOCATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site Location	Corresponding Background Location	Medium
Q - BDRK-Q-1-163	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-8-94	OS - UAA-4/OS-4-90	Deep Groundwater
Q - AA-Q-8-84	OS - UAA-4/OS-4-80	Deep Groundwater
Q - AA-Q-8-74	OS - UAA-4/OS-4-70	Deep Groundwater
Q - AA-Q-8-64	OS - UAA-4/OS-4-60	Deep Groundwater
Q - AA-Q-8-54	OS - UAA-4/OS-4-50	Deep Groundwater
Q - AA-Q-8-44	OS - UAA-4/OS-4-40	Deep Groundwater
Q - AA-Q-8-34	OS - UAA-4/OS-4-30	Deep Groundwater
Q - AA-Q-8-24	OS - UAA-4/OS-4-20	Mid Groundwater
Q - AA-Q-8-111	OS - UAA-4/OS-4-110	Deep Groundwater
Q - AA-Q-8-104	OS - UAA-4/OS-4-100	Deep Groundwater
Q - AA-Q-7-94	OS - UAA-4/OS-4-90	Deep Groundwater
Q - AA-Q-7-84	OS - UAA-4/OS-4-80	Deep Groundwater
Q - AA-Q-7-74	OS - UAA-4/OS-4-70	Deep Groundwater
Q - AA-Q-7-64	OS - UAA-4/OS-4-60	Deep Groundwater
Q - AA-Q-7-54	OS - UAA-4/OS-4-50	Deep Groundwater
Q - AA-Q-7-44	OS - UAA-4/OS-4-40	Deep Groundwater
Q - AA-Q-7-34	OS - UAA-4/OS-4-30	Deep Groundwater
Q - AA-Q-7-24	OS - UAA-4/OS-4-20	Mid Groundwater
Q - AA-Q-7-104	OS - UAA-4/OS-4-100	Deep Groundwater
Q - AA-Q-6-94	OS - UAA-4/OS-4-90	Deep Groundwater
Q - AA-Q-6-84	OS - UAA-4/OS-4-80	Deep Groundwater
Q - AA-Q-6-74	OS - UAA-4/OS-4-70	Deep Groundwater
Q - AA-Q-6-64	OS - UAA-4/OS-4-60	Deep Groundwater
Q - AA-Q-6-54	OS - UAA-4/OS-4-50	Deep Groundwater
Q - AA-Q-6-44	OS - UAA-4/OS-4-40	Deep Groundwater
Q - AA-Q-6-34	OS - UAA-4/OS-4-30	Deep Groundwater
Q - AA-Q-6-34	OS - UAA-4/OS-4-30	Mid Groundwater
Q - AA-Q-6-24	OS - UAA-4/OS-4-20	Mid Groundwater
Q - AA-Q-6-110	OS - UAA-4/OS-4-110	Deep Groundwater
Q - AA-Q-6-104	OS - UAA-4/OS-4-100	Deep Groundwater
Q - AA-Q-5-95	OS - UAA-3/OS-3-94	Deep Groundwater
Q - AA-Q-5-85	OS - UAA-3/OS-3-84	Deep Groundwater
Q - AA-Q-5-75	OS - UAA-3/OS-3-74	Deep Groundwater
Q - AA-Q-5-65	OS - UAA-3/OS-3-64	Deep Groundwater
Q - AA-Q-5-55	OS - UAA-3/OS-3-54	Deep Groundwater
Q - AA-Q-5-45	OS - UAA-3/OS-3-44	Deep Groundwater
Q - AA-Q-5-106	OS - UAA-3/OS-3-104	Deep Groundwater
Q - AA-Q-5-105	OS - UAA-3/OS-3-104	Deep Groundwater
Q - AA-Q-4-90	OS - UAA-3/OS-3-94	Deep Groundwater
Q - AA-Q-4-80	OS - UAA-3/OS-3-84	Deep Groundwater
Q - AA-Q-4-70	OS - UAA-3/OS-3-74	Deep Groundwater
Q - AA-Q-4-60	OS - UAA-3/OS-3-64	Deep Groundwater
Q - AA-Q-4-50	OS - UAA-3/OS-3-54	Deep Groundwater
Q - AA-Q-4-110	OS - UAA-3/OS-3-114	Deep Groundwater
Q - AA-Q-4-100	OS - UAA-3/OS-3-104	Deep Groundwater
Q - AA-Q-3-90	OS - UAA-3/OS-3-94	Deep Groundwater
Q - AA-Q-3-80	OS - UAA-3/OS-3-84	Deep Groundwater

TABLE C-2
MATCHING OF SITE GROUNDWATER LOCATIONS TO BACKGROUND GROUNDWATER LOCATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site Location	Corresponding Background Location	Medium
Q - AA-Q-3-70	OS - UAA-3/OS-3-74	Deep Groundwater
Q - AA-Q-3-60	OS - UAA-3/OS-3-64	Deep Groundwater
Q - AA-Q-3-50	OS - UAA-3/OS-3-54	Deep Groundwater
Q - AA-Q-3-120	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-3-110	OS - UAA-3/OS-3-114	Deep Groundwater
Q - AA-Q-3-100	OS - UAA-3/OS-3-104	Deep Groundwater
Q - AA-Q-2-90	OS - UAA-3/OS-3-94	Deep Groundwater
Q - AA-Q-2-80	OS - UAA-3/OS-3-84	Deep Groundwater
Q - AA-Q-2-70	OS - UAA-3/OS-3-74	Deep Groundwater
Q - AA-Q-2-60	OS - UAA-3/OS-3-64	Deep Groundwater
Q - AA-Q-2-130B	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-2-130	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-2-120	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-2-110	OS - UAA-3/OS-3-114	Deep Groundwater
Q - AA-Q-2-100	OS - UAA-3/OS-3-104	Deep Groundwater
Q - AA-Q-1-90	OS - UAA-3/OS-3-94	Deep Groundwater
Q - AA-Q-1-80	OS - UAA-3/OS-3-84	Deep Groundwater
Q - AA-Q-1-70	OS - UAA-3/OS-3-74	Deep Groundwater
Q - AA-Q-1-60	OS - UAA-3/OS-3-64	Deep Groundwater
Q - AA-Q-1-50	OS - UAA-3/OS-3-54	Deep Groundwater
Q - AA-Q-1-127.5	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-1-127	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-1-120	OS - UAA-3/OS-3-116	Deep Groundwater
Q - AA-Q-1-110	OS - UAA-3/OS-3-114	Deep Groundwater
Q - AA-Q-1-100	OS - UAA-3/OS-3-104	Deep Groundwater
P - BDRK-P-1-158	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-3-92	OS - UAA-1/OS-1-90	Deep Groundwater
P - AA-P-3-82	OS - UAA-1/OS-1-80	Deep Groundwater
P - AA-P-3-72	OS - UAA-1/OS-1-70	Deep Groundwater
P - AA-P-3-62	OS - UAA-1/OS-1-60	Deep Groundwater
P - AA-P-3-52	OS - UAA-1/OS-1-50	Deep Groundwater
P - AA-P-3-42	OS - UAA-1/OS-1-40	Deep Groundwater
P - AA-P-3-32	OS - UAA-1/OS-1-30	Mid Groundwater
P - AA-P-3-126	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-3-122	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-3-112	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-3-102	OS - UAA-1/OS-1-100	Deep Groundwater
P - AA-P-2-94	OS - UAA-1/OS-1-90	Deep Groundwater
P - AA-P-2-84	OS - UAA-1/OS-1-80	Deep Groundwater
P - AA-P-2-74	OS - UAA-1/OS-1-70	Deep Groundwater
P - AA-P-2-64	OS - UAA-1/OS-1-60	Deep Groundwater
P - AA-P-2-54	OS - UAA-1/OS-1-50	Deep Groundwater
P - AA-P-2-44	OS - UAA-1/OS-1-40	Deep Groundwater
P - AA-P-2-34	OS - UAA-1/OS-1-30	Deep Groundwater
P - AA-P-2-24	OS - UAA-1/OS-1-20	Mid Groundwater
P - AA-P-2-122	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-2-114	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-2-104	OS - UAA-1/OS-1-100	Deep Groundwater

TABLE C-2
MATCHING OF SITE GROUNDWATER LOCATIONS TO BACKGROUND GROUNDWATER LOCATIONS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site Location	Corresponding Background Location	Medium
P - AA-P-1-94	OS - UAA-1/OS-1-90	Deep Groundwater
P - AA-P-1-84	OS - UAA-1/OS-1-80	Deep Groundwater
P - AA-P-1-74	OS - UAA-1/OS-1-70	Deep Groundwater
P - AA-P-1-64	OS - UAA-1/OS-1-60	Deep Groundwater
P - AA-P-1-54	OS - UAA-1/OS-1-50	Deep Groundwater
P - AA-P-1-44	OS - UAA-1/OS-1-40	Deep Groundwater
P - AA-P-1-34	OS - UAA-1/OS-1-40	Deep Groundwater
P - AA-P-1-24	OS - UAA-1/OS-1-20	Mid Groundwater
P - AA-P-1-120	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-1-114	OS - UAA-1/OS-1-110	Deep Groundwater
P - AA-P-1-104	OS - UAA-1/OS-1-100	Deep Groundwater
O - BDRK-O-1-153	OS - UAA-2/OS-2-124	Deep Groundwater
O - AA-O-3-98	OS - UAA-2/OS-2-100	Deep Groundwater
O - AA-O-3-88	OS - UAA-2/OS-2-90	Deep Groundwater
O - AA-O-3-78	OS - UAA-2/OS-2-80	Deep Groundwater
O - AA-O-3-68	OS - UAA-2/OS-2-70	Deep Groundwater
O - AA-O-3-58	OS - UAA-2/OS-2-60	Deep Groundwater
O - AA-O-3-48	OS - UAA-2/OS-2-50	Deep Groundwater
O - AA-O-3-38	OS - UAA-2/OS-2-40	Deep Groundwater
O - AA-O-3-28	OS - UAA-2/OS-2-30	Mid Groundwater
O - AA-O-3-128	OS - UAA-2/OS-2-124	Deep Groundwater
O - AA-O-3-118	OS - UAA-2/OS-2-120	Deep Groundwater
O - AA-O-3-108	OS - UAA-2/OS-2-110	Deep Groundwater
O - AA-O-2-93	OS - UAA-2/OS-2-90	Deep Groundwater
O - AA-O-2-83	OS - UAA-2/OS-2-80	Deep Groundwater
O - AA-O-2-73	OS - UAA-2/OS-2-70	Deep Groundwater
O - AA-O-2-63	OS - UAA-2/OS-2-60	Deep Groundwater
O - AA-O-2-53	OS - UAA-2/OS-2-50	Deep Groundwater
O - AA-O-2-43	OS - UAA-2/OS-2-40	Deep Groundwater
O - AA-O-2-33	OS - UAA-2/OS-2-30	Deep Groundwater
O - AA-O-2-23	OS - UAA-2/OS-2-20	Deep Groundwater
O - AA-O-2-13	OS - UAA-2/OS-2-20	Shallow Groundwater
O - AA-O-2-124	OS - UAA-2/OS-2-124	Deep Groundwater
O - AA-O-2-121	OS - UAA-2/OS-2-120	Deep Groundwater
O - AA-O-2-113	OS - UAA-2/OS-2-110	Deep Groundwater
O - AA-O-2-103	OS - UAA-2/OS-2-100	Deep Groundwater
O - AA-O-1-96	OS - UAA-2/OS-2-100	Deep Groundwater
O - AA-O-1-86	OS - UAA-2/OS-2-90	Deep Groundwater
O - AA-O-1-76	OS - UAA-2/OS-2-80	Deep Groundwater
O - AA-O-1-66	OS - UAA-2/OS-2-70	Deep Groundwater
O - AA-O-1-56	OS - UAA-2/OS-2-60	Deep Groundwater
O - AA-O-1-46	OS - UAA-2/OS-2-50	Deep Groundwater
O - AA-O-1-36	OS - UAA-2/OS-2-40	Deep Groundwater
O - AA-O-1-26	OS - UAA-2/OS-2-30	Deep Groundwater
O - AA-O-1-16	OS - UAA-2/OS-2-20	Shallow Groundwater
O - AA-O-1-120	OS - UAA-2/OS-2-120	Deep Groundwater
O - AA-O-1-116	OS - UAA-2/OS-2-120	Deep Groundwater
O - AA-O-1-106	OS - UAA-2/OS-2-110	Deep Groundwater

D

APPENDIX D

SCREENING VALUES

APPENDIX D
SCREENING VALUES

This appendix presents the screening values used to identify constituents of potential concern (COPC) in each area/medium evaluated in the risk assessment Screening values are presented for each media only for constituents detected in that media at the site The sources and selection of the screening values are discussed in detail in the text in Section 3 0 The screening value tables include the following

Industrial Soil and Sediment

The USEPA Region 9 PRGs (USEPA, 2002b) for industrial soil were used to identify COPCs in soil and sediment Where PRGs were not available, structural similarity was used to assign a surrogate PRG Screening values for industrial soil and sediment are presented in Table D-1 PRGs are based on a target risk level of 1×10^{-6} for potential carcinogens and a target hazard quotient of one for noncarcinogens To account for potentially cumulative effects, PRGs for noncarcinogens have been adjusted to a hazard quotient of 0 1

Shallow Groundwater/Leachate and Surface Water

To provide a Class I evaluation of groundwater in Sauget Area 2, and for the identification of COPCs to be evaluated quantitatively for the groundwater and surface water scenarios addressed in the risk assessment, constituent concentrations in groundwater and surface water were compared to IEPA Class I standards (35 Ill Adm Code 620 410) (IEPA, 2002a) Where Class I standards are not available, federal maximum contaminant levels (MCLs) (USEPA, 2002c) were used; where MCLs are not available, the IEPA remediation objectives for Class I groundwater were used (IEPA, 2002b), where these are not available, the most current USEPA PRGs (USEPA, 2002b) for tap water were used Screening values for Shallow Groundwater/Leachate and Surface Water are presented in Table D-2 PRGs are based on a target risk level of 1×10^{-6} for potential carcinogens and a target hazard quotient of one for noncarcinogens. To account for potentially cumulative effects, PRGs for noncarcinogens have been adjusted to a hazard quotient of 0 1

Fish Tissue

Fish tissue data were compared to the USEPA Region 3 Risk-Based Concentrations (RBCs) for fish (USEPA, 2003a) Screening values for fish tissue are presented in Table D-3 RBCs are based on a target risk level of 1×10^{-6} for potential carcinogens and a target hazard quotient of one for noncarcinogens To account for potentially cumulative effects, RBCs for noncarcinogens have been adjusted to a hazard quotient of 0 1

Air

The USEPA Region 9 PRGs (USEPA, 2002b) for ambient air were used to identify COPCs in

ambient air. Where PRGs were not available, structural similarity was used to assign a surrogate PRG. Screening values for air are presented in Table D-4. PRGs are based on a target risk level of 1×10^{-6} for potential carcinogens and a target hazard quotient of one for noncarcinogens. To account for potentially cumulative effects, PRGs for noncarcinogens have been adjusted to a hazard quotient of 0.1.

References sited in this appendix are presented in Section 8 of the main text of this report.

TABLE D-1
SCREENING VALUES FOR SOIL AND SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)		
	VOCs			
71-55-6	1,1,1-Trichloroethane	6.90E+02	nc	
79-00-5	1,1,2-Trichloroethane	1.60E+00	ca	
75-34-3	1,1-Dichloroethane	1.70E+02	nc	
75-35-4	1,1-Dichloroethylene	4.10E+01	nc	
107-06-2	1,2-Dichloroethane	6.00E-01	ca	
540-59-0	1,2-Dichloroethene (total)	1.50E+01	nc	(b)
78-93-3	2-Butanone (MEK)	2.70E+03	nc	
108-10-1	4-Methyl-2-pentanone (MIBK)	2.80E+02	nc	
67-64-1	Acetone	6.00E+02	nc	
71-43-2	Benzene	1.30E+00	ca	
75-15-0	Carbon Disulfide	1.20E+02	nc	
108-90-7	Chlorobenzene	5.30E+01	nc	
75-00-3	Chloroethane	6.50E+00	ca	
67-66-3	Chloroform	1.20E+00	ca/nc	
74-87-3	Chloromethane	2.60E+00	ca	
10061-01-5	cis-1,3-Dichloropropene	1.80E+00	ca	(j)
75-09-2	Dichloromethane	2.10E+01	ca	
100-41-4	Ethylbenzene	2.00E+01	ca	
591-78-6	Methyl N-Butyl Ketone	2.70E+03	nc	(o)
100-42-5	Styrene (Monomer)	1.80E+03	nc	
127-18-4	Tetrachloroethene	3.40E+00	ca	
108-88-3	Toluene	2.20E+02	nc	
10061-02-6	trans-1,3-Dichloropropene	1.80E+00	ca	(j)
79-01-6	Trichloroethylene	1.10E-01	ca	
75-01-4	Vinyl chloride	7.50E-01	ca	
1330-20-7	Xylenes, Total	9.00E+01	nc	
	SVOCs			
120-82-1	1,2,4-Trichlorobenzene	5.60E+02	nc	
95-50-1	1,2-Dichlorobenzene	4.10E+02	nc	
541-73-1	1,3-Dichlorobenzene	6.30E+00	nc	
106-46-7	1,4-Dichlorobenzene	7.90E+00	ca	
95-95-4	2,4,5-Trichlorophenol	6.20E+03	nc	
88-06-2	2,4,6-Trichlorophenol	6.20E+00	nc	
120-83-2	2,4-Dichlorophenol	1.80E+02	nc	
105-67-9	2,4-Dimethylphenol	1.20E+03	nc	
95-57-8	2-Chlorophenol	2.40E+01	nc	
91-57-6	2-Methylnaphthalene	1.90E+01	nc	(d)
95-48-7	2-Methylphenol	3.10E+03	nc	
88-74-4	2-Nitroaniline	1.80E+00	nc	
88-75-5	2-Nitrophenol	NA		
106-44-5	3-Methylphenol/4-Methylphenol	3.10E+02	nc	
106-47-8	4-Chloroaniline	2.50E+02	nc	
100-01-6	4-Nitroaniline	1.80E+00	nc	(e)
83-32-9	Acenaphthene	2.90E+03	nc	
208-96-8	Acenaphthylene	2.90E+03	nc	(f)

TABLE D-1
SCREENING VALUES FOR SOIL AND SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)		
120-12-7	Anthracene	2.40E+04	nc	
56-55-3	Benzo(a)anthracene	2.10E+00	ca	
50-32-8	Benzo(a)pyrene	2.10E-01	ca	
205-99-2	Benzo(b)fluoranthene	2.10E+00	ca	
191-24-2	Benzo(g,h,i)perylene	2.90E+03	nc	(h)
207-08-9	Benzo(k)fluoranthene	2.10E+01	ca	
85-68-7	Benzyl Butyl Phthalate	1.20E+04	nc	
111-44-4	bis(2-Chloroethyl)ether	5.50E-01	ca	
117-81-7	bis(2-Ethylhexyl)phthalate	1.20E+02	ca	
86-74-8	Carbazole	8.60E+01	ca	
218-01-9	Chrysene	2.10E+02	ca	
53-70-3	Dibenzo(a,h)anthracene	2.10E-01	ca	
132-64-9	Dibenzofuran	3.10E+02	nc	
84-66-2	Diethyl Phthalate	4.90E+04	nc	
131-11-3	Dimethyl Phthalate	6.20E+05	nc	
84-74-2	Di-n-butylphthalate	6.20E+03	nc	
117-84-0	Di-n-octylphthalate	2.50E+03	nc	
88-85-7	Dinoseb	6.20E+01	nc	
206-44-0	Fluoranthene	2.20E+03	nc	
86-73-7	Fluorene	2.60E+03	nc	
118-74-1	Hexachlorobenzene	1.10E+00	ca	
193-39-5	Indeno(1,2,3-cd)pyrene	2.10E+00	ca	
78-59-1	Isophorone	1.80E+03	ca	
91-20-3	Naphthalene	1.90E+01	nc	
98-95-3	Nitrobenzene	1.00E+01	nc	
86-30-6	N-Nitrosodiphenylamine	3.50E+02	ca	
85-01-8	Phenanthrene	2.40E+04	nc	(p)
108-95-2	Phenol	3.70E+04	nc	
129-00-0	Pyrene	2.90E+03	nc	
	Pesticide			
72-54-8	4,4'-DDD	1.00E+01	ca	
72-55-9	4,4'-DDE	7.00E+00	ca	
50-29-3	4,4'-DDT	7.00E+00	ca	
309-00-2	Aldrin	1.00E-01	ca	
319-84-6	alpha-BHC	3.60E-01	ca	
5103-71-9	alpha-Chlordane	6.50E+00	ca	(g)
319-85-7	beta-BHC	1.30E+00	ca	
319-86-8	delta-BHC	1.70E+00	ca	(k)
60-57-1	Dieldrin	1.10E-01	ca	
959-98-8	Endosulfan I	3.70E+02	nc	(m)
33213-65-9	Endosulfan II	3.70E+02	nc	(m)
1031-07-8	Endosulfan Sulfate	3.70E+02	nc	(m)
72-20-8	Endrin	1.80E+01	nc	
7421-93-4	Endrin Aldehyde	1.80E+01	nc	(n)
53494-70-5	Endrin Ketone	1.80E+01	nc	(n)
58-89-9	gamma-BHC (Lindane)	1.70E+00	ca	

TABLE D-1
SCREENING VALUES FOR SOIL AND SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)		
5103-74-2	gamma-Chlordane	6 50E+00	ca	(g)
76-44-8	Heptachlor	3 80E-01	ca	
1024-57-3	Heptachlor Epoxide	1 90E-01	ca	
72-43-5	Methoxychlor	3 10E+02	nc	
	Herbicide			
93-76-5	2,4,5-T	6 20E+02	nc	
93-72-1	2,4,5-TP (Silvex)	4 90E+02	nc	
94-75-7	2,4-D	7 70E+02	nc	
94-82-6	2,4-DB	4 90E+02	nc	
75-99-0	Dalapon	1 80E+03	nc	
1918-00-9	Dicamba	1 80E+03	nc	
120-36-5	Dichlorprop	4 92E+02	nc	(l)
94-74-6	MCPA	3 10E+01	nc	
93-65-2	MCPP	6 20E+01	nc	
87-86-5	Pentachlorophenol	9 00E+00	ca	
	PCBs			
1336-36-3	Total PCBs	1 00E+00	ca	(q)
	Dioxin			
1746-01-6	2,3,7,8-TCDD-TEQ	1 00E-03	ca	(c)
	Metals			
7429-90-5	Aluminum	9 20E+04	nc	
7440-36-0	Antimony	4 10E+01	nc	
7440-38-2	Arsenic	1 60E+00	ca	
7440-39-3	Barium	6 70E+03	nc	
7440-41-7	Beryllium	1 90E+02	nc	
7440-43-9	Cadmium	4 50E+01	nc	
7440-70-2	Calcium	EN		
7440-47-3	Chromium	4 50E+02	ca	(i)
7440-48-4	Cobalt	1 30E+03	nc	
7440-50-8	Copper	4 10E+03	nc	
7439-89-6	Iron	3 10E+04	nc	
7439-92-1	Lead	7 50E+02	trw	
7439-95-4	Magnesium	EN		
7439-96-5	Manganese	1 90E+03	nc	
7439-97-6	Mercury	3 10E+01	nc	
7440-02-0	Nickel	2 00E+03	nc	
7440-09-7	Potassium	EN		
7782-49-2	Selenium	5 10E+02	nc	
7440-22-4	Silver	5 10E+02	nc	
7440-23-5	Sodium	EN		
7440-28-0	Thallium	6 70E+00	nc	
7440-62-2	Vanadium	7 20E+02	nc	
7440-66-6	Zinc	3 10E+04	nc	

TABLE D-1
SCREENING VALUES FOR SOIL AND SEDIMENT
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)

Notes
CAS - Chemical Abstract Service
EN - Essential Nutrient
NA - Not available
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile Organic Compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
VOC - Volatile Organic Compound
(a) USEPA 2002b Region 9 Preliminary Remediation Goals (PRGs) October 1, 2002 Value for Industrial Soil Values for noncarcinogenic constituents were adjusted for a hazard index of 0 1 to account for cumulative effects
(b) Due to structural similarities, the value for cis-1,2-dichloroethene was used
(c) USEPA 1998d Approach for Addressing Dioxin in Soil at CERCLA and RCRA Sites OSWER Directive 9200 4-26 April 13 1998 U S Environmental Protection Agency Washington D C
(d) Due to structural similarities, the value for naphthalene was used
(e) Due to structural similarities, the value for 2-nitroaniline was used
(f) Due to structural similarities, the value for acenaphthene was used
(g) Due to structural similarities, the value for chlordane was used
(h) Due to structural similarities, the value for pyrene was used
(i) Due to structural similarities, the value for total chromium was used
(j) Due to structural similarities, the value for total 1,3-dichloropropene was used
(k) Due to structural similarities, the value for gamma-BHC was used
(l) Due to structural similarities, the value for 4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB) was used
(m) Due to structural similarities, the value for endosulfan was used
(n) Due to structural similarities, the value for endrin was used
(o) Due to structural similarities, the value for 2-butanone was used
(p) Due to structural similarities, the value for anthracene was used
(q) USEPA 1998c Disposal of Polychlorinated Biphenyls (PCBs), Final Rule June 29, 1998

TABLE D-2
SCREENING VALUES FOR GROUNDWATER/LEACHATE AND SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (ug/L) (a)	
	VOCs		
71-55-6	1,1,1-Trichloroethane	2 00E+02	
79-34-5	1,1,2,2-Tetrachloroethane	5 50E-02	(cc)
79-00-5	1,1,2-Trichloroethane	5 00E+00	
75-34-3	1,1-Dichloroethane	7 00E+02	(bb)
75-35-4	1,1-Dichloroethylene	7 00E+00	
107-06-2	1,2-Dichloroethane	5 00E+00	
540-59-0	1,2-Dichloroethene (total)	7 00E+01	(b)
78-93-3	2-Butanone (MEK)	1 90E+03	(cc)
108-10-1	4-Methyl-2-pentanone (MIBK)	1 60E+02	(cc)
67-64-1	Acetone	7 00E+02	(bb)
71-43-2	Benzene	5 00E+00	
75-27-4	Bromodichloromethane	8 00E+01	(aa)
75-15-0	Carbon Disulfide	7 00E+02	(bb)
56-23-5	Carbon Tetrachloride	5 00E+00	
108-90-7	Chlorobenzene	1 00E+02	
75-00-3	Chloroethane	4 60E+00	(cc)
67-66-3	Chloroform	8 00E+01	(aa)
74-87-3	Chloromethane	1 50E+00	(cc)
10061-01-5	cis-1,3-Dichloropropene	1 00E+00	(bb)
75-09-2	Dichloromethane	5 00E+00	
100-41-4	Ethylbenzene	7 00E+02	
74-82-8	Methane	NA	
591-78-6	Methyl N-Butyl Ketone	1 60E+02	(m)(cc)
127-18-4	Tetrachloroethene	5 00E+00	
108-88-3	Toluene	1 00E+03	
79-01-6	Trichloroethylene	5 00E+00	
75-01-4	Vinyl chloride	2 00E+00	
1330-20-7	Xylenes, Total	1 00E+04	
	SVOCs		
120-82-1	1,2,4-Trichlorobenzene	7 00E+01	
95-50-1	1,2-Dichlorobenzene	6 00E+02	
541-73-1	1,3-Dichlorobenzene	6 00E+02	(c)
106-46-7	1,4-Dichlorobenzene	7 50E+01	
95-95-4	2,4,5-Trichlorophenol	7 00E+02	(bb)
88-06-2	2,4,6-Trichlorophenol	1 00E+01	(bb)
120-83-2	2,4-Dichlorophenol	2 10E+01	(bb)
105-67-9	2,4-Dimethylphenol	1 40E+02	(bb)
606-20-2	2,6-Dinitrotoluene	3 10E-01	(bb)
95-57-8	2-Chlorophenol	3 50E+01	(bb)
91-57-6	2-Methylnaphthalene	1 40E+02	(d)(bb)
95-48-7	2-Methylphenol	3 50E+02	(bb)
88-74-4	2-Nitroaniline	1 00E+00	(cc)
88-75-5	2-Nitrophenol	NA	
106-44-5	3-Methylphenol/4-Methylphenol	3 50E+02	(e)(bb)
534-52-1	4,6-Dinitro-2-methylphenol	NA	
59-50-7	4-Chloro-3-methylphenol	NA	

TABLE D-2
SCREENING VALUES FOR GROUNDWATER/LEACHATE AND SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (ug/L) (a)	
106-47-8	4-Chloroaniline	2.80E+01	(bb)
100-01-6	4-Nitroaniline	1.00E+00	(f)(cc)
100-02-7	4-Nitrophenol	NA	
83-32-9	Acenaphthene	4.20E+02	(bb)
120-12-7	Anthracene	2.10E+03	(bb)
56-55-3	Benzo(a)anthracene	1.30E-01	(bb)
50-32-8	Benzo(a)pyrene	2.00E-01	
205-99-2	Benzo(b)fluoranthene	1.80E-01	(bb)
191-24-2	Benzo(g,h,i)perylene	2.10E+02	(h)(bb)
207-08-9	Benzo(k)fluoranthene	1.70E-01	(bb)
85-68-7	Benzyl Butyl Phthalate	1.40E+03	(bb)
111-44-4	bis(2-Chloroethyl)ether	1.00E+01	(bb)
117-81-7	bis(2-Ethylhexyl)phthalate	6.00E+00	
86-74-8	Carbazole	3 40E+00	(cc)
218-01-9	Chrysene	1.50E+00	(bb)
1319-77-3	Cresol o,m,p	3.50E+02	(e)(bb)
53-70-3	Dibenzo(a,h)anthracene	3.00E-01	(bb)
132-64-9	Dibenzofuran	2.40E+01	(cc)
84-66-2	Diethyl Phthalate	5.60E+03	(bb)
131-11-3	Dimethyl Phthalate	3.60E+05	(cc)
84-74-2	Di-n-butylphthalate	7.00E+02	(bb)
117-84-0	Di-n-octylphthalate	1.40E+02	(bb)
86-73-7	Fluorene	2.80E+02	(bb)
193-39-5	Indeno(1,2,3-cd)pyrene	4.30E-01	(bb)
78-59-1	Isophorone	1.40E+03	(bb)
91-20-3	Naphthalene	1.40E+02	(bb)
98-95-3	Nitrobenzene	3.50E+00	(bb)
621-64-7	N-Nitroso-di-n-propylamine	1.80E+00	(bb)
86-30-6	N-Nitrosodiphenylamine	3.20E+00	(bb)
85-01-8	Phenanthrene	2.10E+03	(n)(bb)
108-95-2	Phenol	1.00E+02	
	Pesticide		
72-54-8	4,4'-DDD	1.40E+01	(bb)
72-55-9	4,4'-DDE	1.00E+01	(bb)
50-29-3	4,4'-DDT	6.00E+00	(bb)
309-00-2	Aldrin	1.40E+01	(bb)
319-84-6	alpha-BHC	1.10E-01	(bb)
5103-71-9	alpha-Chlordane	2.00E+00	(g)
319-85-7	beta-BHC	2.00E-01	(i)
319-86-8	delta-BHC	2.00E-01	(i)
60-57-1	Dieldrin	9.00E+00	(bb)
959-98-8	Endosulfan I	4.20E+01	(k)(bb)
33213-65-9	Endosulfan II	4.20E+01	(k)(bb)
1031-07-8	Endosulfan Sulfate	4.20E+01	(k)(bb)
72-20-8	Endrin	2.00E+00	
7421-93-4	Endrin Aldehyde	2.00E+00	(l)
53494-70-5	Endrin Ketone	2.00E+00	(l)

TABLE D-2
SCREENING VALUES FOR GROUNDWATER/LEACHATE AND SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (ug/L) (a)	
58-89-9	gamma-BHC (Lindane)	2.00E-01	
5103-74-2	gamma-Chlordane	2.00E+00	(g)
76-44-8	Heptachlor	4.00E-01	
1024-57-3	Heptachlor Epoxide	2.00E-01	
72-43-5	Methoxychlor	4.00E+01	
	Herbicide		
93-76-5	2,4,5-T	3.60E+02	(cc)
93-72-1	2,4,5-TP (Silvex)	5.00E+01	
94-75-7	2,4-D	7.00E+01	
94-82-6	2,4-DB	2.90E+02	(cc)
1918-00-9	Dicamba	1.10E+03	(cc)
120-36-5	Dichlorprop	2.92E+02	(j)(cc)
94-74-6	MCPA	1.80E+01	(cc)
93-65-2	MCPP	3.60E+01	(cc)
87-86-5	Pentachlorophenol	1.00E+00	
	PCBs		
1336-36-3	Total PCBs	5.00E-01	
	Dioxin		
1746-01-6	2,3,7,8-TCDD-TEQ	3.00E-05	(aa)
	Metals		
7429-90-5	Aluminum	3.60E+04	(cc)
7440-36-0	Antimony	6.00E+00	
7440-38-2	Arsenic	5.00E+01	
7440-39-3	Barium	2.00E+03	
7440-41-7	Beryllium	4.00E+00	
7440-43-9	Cadmium	5.00E+00	
7440-70-2	Calcium	EN	
7440-47-3	Chromium	1.00E+02	
7440-48-4	Cobalt	1.00E+03	
7440-50-8	Copper	6.50E+02	
7439-89-6	Iron	5.00E+03	
C-FE+2	Iron, Ferrous (2+)	5.00E+03	
7439-92-1	Lead	7.50E+00	
7439-95-4	Magnesium	EN	
7439-96-5	Manganese	1.50E+02	
7439-97-6	Mercury	2.00E+00	
7440-02-0	Nickel	1.00E+02	
7440-09-7	Potassium	EN	
7782-49-2	Selenium	5.00E+01	
7440-22-4	Silver	5.00E+01	
7440-23-5	Sodium	EN	
7440-28-0	Thallium	2.00E+00	
7440-62-2	Vanadium	4.90E+01	(bb)
7440-66-6	Zinc	5.00E+03	

TABLE D-2
SCREENING VALUES FOR GROUNDWATER/LEACHATE AND SURFACE WATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (ug/L) (a)

Notes
CAS - Chemical Abstract Service
EN - Essential Nutrient
IEPA - Illinois Environmental Protection Agency
NA - Not available
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile Organic Compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
VOC - Volatile Organic Compound
(a) Screening values for groundwater, leachate and surface water are from IEPA 2002a IEPA Class I standards (35 Ill Adm Code 620 410) February 2, 2002 unless other wise noted If the Class I standard is not available, screening values are equal to the following in order of preference
(aa) USEPA 2002c Drinking Water Standards and Health Advisories EPA 822-R-02-038 Summer 2002
(bb) IEPA, 2002b Tiered Approach to Corrective Action Objectives Title 35, Subtitle G, Chapter I Remediation objectives for Class I groundwater February 5, 2002
(cc) USEPA 2002b Preliminary Remediation Goals (PRGs) October 1, 2002 (with 2/10/03 revisions)
(b) Due to structural similarities, the value for cis-1,2-dichloroethene was used
(c) Due to structural similarities, the value for 1 2-dichlorobenzene was used
(d) Due to structural similarities, the value for naphthalene was used
(e) Due to structural similarities, the value for 2-methylphenol was used
(f) Due to structural similarities, the value for 2-nitroaniline was used
(g) Due to structural similarities, the value for chlordane was used
(h) Due to structural similarities, the value for pyrene was used
(i) Due to structural similarities, the value for gamma-BHC was used
(j) Due to structural similarities, the value for 4-(2,4-Dichlorophenoxy)butyric Acid (2,4-DB) was used
(k) Due to structural similarities, the value for endosulfan was used
(l) Due to structural similarities, the value for endrin was used
(m) Due to structural similarities, the value for 4-methyl-2-pentanone was used
(n) Due to structural similarities, the value for anthracene was used

TABLE D-3
SCREENING VALUES FOR FISH TISSUE
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)		
	SVOCs			
95-50-1	1,2-Dichlorobenzene	1 22E+01	nc	
106-46-7	1,4-Dichlorobenzene	1 31E-01	c	
120-83-2	2,4-Dichlorophenol	4 06E-01	nc	
95-48-7	2-Methylphenol	6 76E+00	nc	
56-55-3	Benzo(a)anthracene	4 32E-03	c	
50-32-8	Benzo(a)pyrene	4 32E-04	c	
117-81-7	bis(2-Ethylhexyl)phthalate	2 25E-01	c	
218-01-9	Chrysene	4 32E-01	c	
53-70-3	Dibenzo(a,h)anthracene	4 32E-04	c	
84-66-2	Diethyl Phthalate	1 08E+02	nc	
206-44-0	Fluoranthene	5 41E+00	nc	
	Pesticide			
72-54-8	4,4'-DDD	1 31E-02	c	
72-55-9	4,4'-DDE	9 28E-03	c	
50-29-3	4,4'-DDT	9 28E-03	c	
319-84-6	alpha-BHC	5 01E-04	c	
5103-71-9	alpha-Chlordane	9 01E-03	c	(b)
319-85-7	beta-BHC	1 75E-03	c	
319-86-8	delta-BHC	1 75E-03	c	(d)
60-57-1	Dieldrin	1 97E-04	c	
959-98-8	Endosulfan I	8 10E-01	nc	(e)
1031-07-8	Endosulfan Sulfate	8 10E-01	nc	(e)
72-20-8	Endrin	4 06E-02	nc	
7421-93-4	Endrin Aldehyde	4 06E-02	nc	(f)
53494-70-5	Endrin Ketone	4 06E-02	nc	(f)
58-89-9	gamma-BHC (Lindane)	2 43E-03	c	
5103-74-2	gamma-Chlordane	9 01E-03	c	(b)
1024-57-3	Heptachlor Epoxide	3 47E-04	c	
72-43-5	Methoxychlor	6 76E-01	nc	
	Herbicide			
93-76-5	2,4,5-T	1 35E+00	nc	
93-72-1	2,4,5-TP (Silvex)	1 08E+00	nc	
94-82-6	2,4-DB	1 08E+00	nc	
1918-00-9	Dicamba	4 06E+00	nc	
93-65-2	MCPP	1 35E-01	nc	
	PCBs			
1336-36-3	Total PCBs	1 58E-03	c	
	Dioxin			
1746-01-6	2,3,7,8-TCDD-TEQ	2 10E-08	c	
	Metals			
7429-90-5	Aluminum	1 35E+02	nc	
7440-38-2	Arsenic	2 10E-03	c	
7440-39-3	Barium	9 46E+00	nc	
7440-70-2	Calcium	EN		
7440-47-3	Chromium	2 00E+02	nc	(c)
7440-50-8	Copper	5 41E+00	nc	
7439-89-6	Iron	4 06E+01	nc	

TABLE D-3
SCREENING VALUES FOR FISH TISSUE
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)		
7439-95-4	Magnesium	EN		
7439-96-5	Manganese	1 90E+01	nc	(g)
7439-97-6	Mercury	1 35E-02	nc	(h)
7440-09-7	Potassium	EN		
7440-23-5	Sodium	EN		
7440-66-6	Zinc	4 06E+01	nc	

Notes
CAS - Chemical Abstract Service
EN - Essential Nutrient
NA - Not available
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile Organic Compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
(a) USEPA 2003a Risk-Based Concentration (RBC) Table April 25, 2003 Values for noncarcinogenic constituents were adjusted for a hazard index of 0 1 to account for cumulative effects
(b) Due to structural similarities, the value for chlordane was used
(c) Due to structural similarities, the value for chromium III was used
(d) Due to structural similarities, the value for beta-BHC was used
(e) Due to structural similarities, the value for endosulfan was used
(f) Due to structural similarities, the value for endrin was used
(g) Value for food
(h) Value for methyl mercury

TABLE D-4
SCREENING VALUES FOR AIR
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)		
	VOCs			
71-55-6	1,1,1-Trichloroethane	2.30E+02	nc	
107-06-2	1,2-Dichloroethane	7.40E-02	ca	
78-93-3	2-Butanone (MEK)	1.00E+02	nc	
108-10-1	4-Methyl-2-pentanone (MIBK)	8.30E+00	nc	
67-64-1	Acetone	3.70E+01	nc	
71-43-2	Benzene	2.30E-01	ca	
108-90-7	Chlorobenzene	6.20E+00	nc	
67-66-3	Chloroform	3.10E-01	ca/nc	
74-87-3	Chloromethane	1.10E+00	ca	
75-09-2	Dichloromethane	4.10E+00	ca	
100-41-4	Ethylbenzene	1.70E+00	ca	
1634-04-4	Methyl tert-butyl ether (MTBE)	1.92E+01	ca	
95-47-6	o-Xylene	1.10E+01	nc	
106-42-3	p-Xylene/m-Xylene	1.10E+01	nc	
100-42-5	Styrene (Monomer)	1.10E+02	nc	
127-18-4	Tetrachloroethene	6.70E-01	ca	
108-88-3	Toluene	4.00E+01	nc	
79-01-6	Trichloroethylene	1.70E-02	ca	
	SVOCs			
83-32-9	Acenaphthene	2.20E+01	nc	
120-12-7	Anthracene	1.10E+02	nc	
206-44-0	Fluoranthene	1.50E+01	nc	
86-73-7	Fluorene	1.50E+01	nc	
91-20-3	Naphthalene	3.10E-01	nc	
85-01-8	Phenanthrene	1.10E+02	nc	(b)
	Pesticide			
319-84-6	alpha-BHC	1.10E-03	ca	
319-85-7	beta-BHC	3.70E-03	ca	
319-86-8	delta-BHC	5.20E-03	ca	(c)
7421-93-4	Endrin Aldehyde	1.10E-01	nc	(d)
5103-74-2	gamma-Chlordane	1.90E-02	ca	(e)
76-44-8	Heptachlor	1.50E-03	ca	
1024-57-3	Heptachlor Epoxide	7.40E-04	ca	
	PCBs			
1336-36-3	Total PCBs	3.40E-03	ca	
	Dioxin			
1746-01-6	2,3,7,8-TCDD-TEQ	4.50E-08	ca	

TABLE D-4
SCREENING VALUES FOR AIR
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

CAS Number	Constituent	Screening Value (mg/kg) (a)	
	Metals		
7440-39-3	Barium	5 20E-02	nc
7440-70-2	Calcium	NA	
7440-50-8	Copper	1 46E+01	nc
7439-89-6	Iron	NA	
7439-92-1	Lead	1 50E+00	
7440-23-5	Sodium	NA	
7440-66-6	Zinc	1 10E+02	nc

Notes
CAS - Chemical Abstract Service
NA - Not available
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile Organic Compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
(a) USEPA, 2002b Region 9 Preliminary Remediation Goals (PRGs) October 1 2002 Value for Industrial Soil Values for noncarcinogenic constituents were adjusted for a hazard index of 0 1 to account for cumulative effects
(b) Due to structural similarities, the value for anthracene was used
(c) Due to structural similarities, the value for gamma-BHC was used
(d) Due to structural similarities, the value for endrin was used
(e) Due to structural similarities, the value for chlordane was used

E

APPENDIX E

EVALUATION OF SOIL TO GROUNDWATER PATHWAY

APPENDIX E: EVALUATION OF SOIL TO GROUNDWATER PATHWAY

As a component of the risk assessment for Sauget Area 2, the soil to groundwater pathway was evaluated The purpose of this analysis was to provide a preliminary evaluation of the potential for soils and/or wastes to leach constituents to groundwater at concentrations in excess of drinking water standards The soil to groundwater pathway is complex, including cross-media transfer and attenuation in both the unsaturated and saturated zones Only a preliminary, conservative evaluation is presented here References sited in this appendix are presented in Section 8 of the main text of this report

E.1 Evaluation of Waste Samples

Waste samples collected at Sauget Area 2 were analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) Although this method is intended to determine whether wastes are classified as hazardous, the results can be used as an estimate of concentrations that may leach from the waste material to porewater This porewater then may potentially migrate downward through the unsaturated zone to underlying groundwater Therefore, the TCLP results can be used as the basis for a conservative evaluation of potential leaching to groundwater

To evaluate the waste samples, the maximum TCLP result for each constituent at each Site was identified To identify constituents of potential concern (COPCs) for the TCLP samples, constituent concentrations from the TCLP sample results are compared to IEPA Class I standards (35 Ill Adm Code 620 410) (IEPA, 2002a) For the Class I groundwater comparison, where Class I standards are not available, federal maximum contaminant levels (MCLs) (USEPA, 2002b) are used, where MCLs are not available, the IEPA remediation objectives for Class I groundwater are used (IEPA, 2002b), where these are not available, the most current USEPA PRGs (USEPA, 2002a) for tap water are used

The screening results are presented on Table E-1 The screening results indicate the identification of many COPCs, especially in Sites O, R, and S Note that these areas are located upgradient from the planned barrier wall at Site R, and within the capture zone of the wall (see Figure E-1) so that impacts to groundwater from these three sites (as well as the northern portion of Site Q, Q (North)) will be contained COPCs for the remaining areas (P, Q (Central), and Q (South)) include benzene, phenol, some chlorinated volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) (including pentachlorophenol), nitroanilines, selected metals, and one pesticide (heptachlor)

The TCLP results can be used to evaluate partitioning between soil and aqueous matrices However, screening of these results against groundwater standards neglects a significant portion of the soil-to-groundwater pathway, the mixing of the infiltrating water with the underlying groundwater This mixing is incorporated into most screening level evaluations by using a standard Dilution Factor (DF) Under

the Illinois TACO regulations, the default DF is 20, indicating a conservative dilution of 20 times when soil pore water reaches the underlying groundwater. Thus, the TCLP screening presented in Table E-1 is conservative in that it does not incorporate a DF value and, therefore, does not account for mixing between infiltrating water and groundwater.

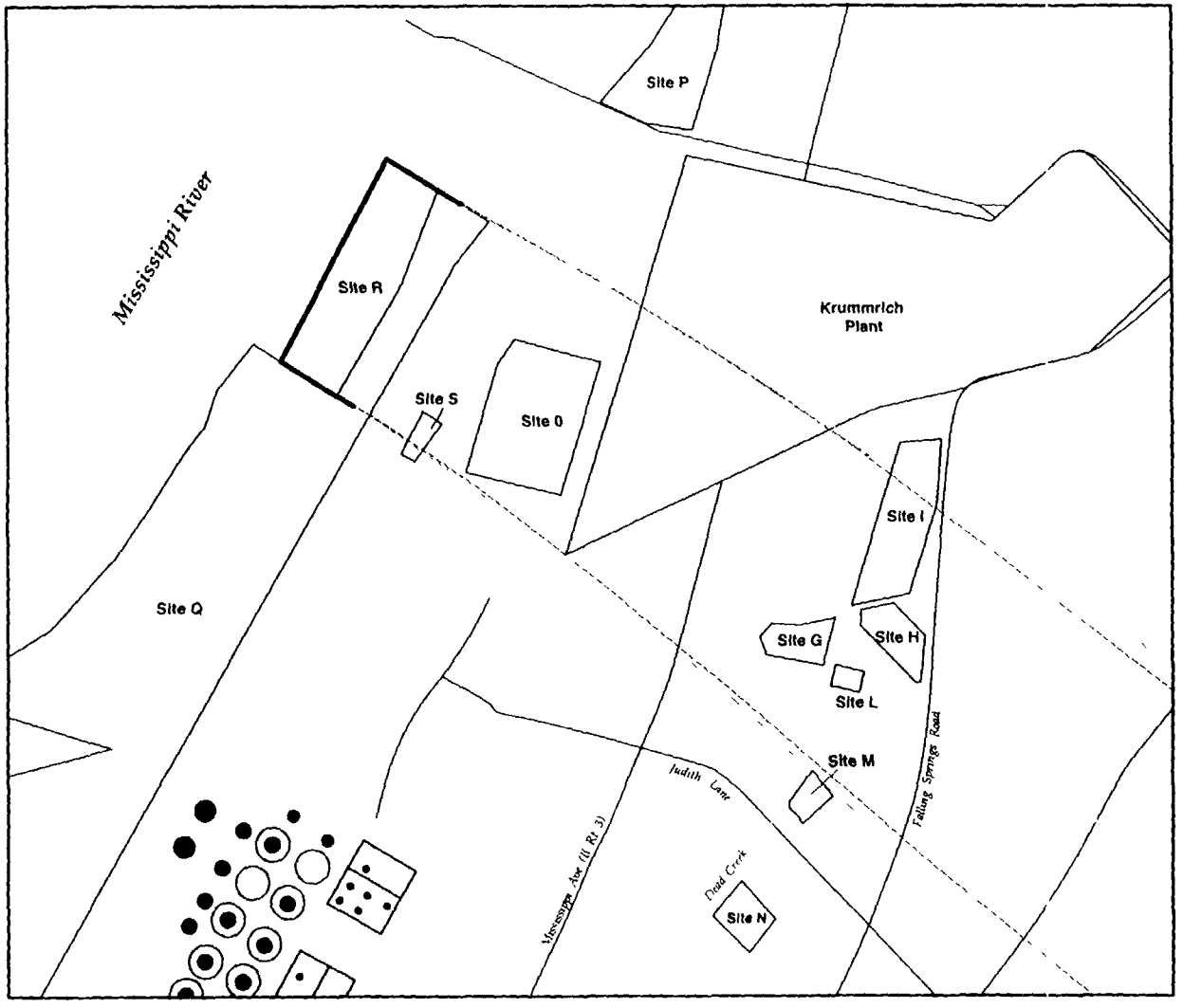
E.2 Evaluation of Soil Samples

Soil samples from Sauget Area 2 were analyzed for the full parameter list using standard analytical methods. None of the samples was analyzed using leachate tests (such as TCLP or the Synthetic Precipitation Leaching Test (SPLP)). The analytical results were screened against TACO Tier 1 remediation objectives (ROs) for the soil component of the groundwater ingestion pathway for Class I groundwater (drinking water) (IEPA, 2002b). The TACO Tier 1 values incorporate default assumptions about partitioning between soil and liquid in the unsaturated zone, and mixing with underlying groundwater.

The results of the Tier 1 screening for soils are presented in Table E-2. Sites O, R, S, and most of Q (North) are located upgradient from and within the capture zone of the planned barrier wall, so that any impacts to groundwater in these areas will be contained. At the other areas, the Tier 1 screening values were exceeded for constituents such as chlorinated VOCs and SVOCs, aromatics (benzene, toluene, xylenes), pesticides (predominantly BHCs), and metals. For most constituents, there were only one or two exceedances in any of the areas; therefore, it is unlikely that these constituents would result in significant impacts to groundwater. Constituents that were detected above the screening values at greater frequency include antimony, barium, copper, nickel, and zinc at Q (South), and silver, cadmium, chromium, and mercury at Site P, Q (Central) and Q (South)

E.3 Summary

Table E-3 provides a summary of exceedances of the soil-to-groundwater and TCLP screening results.



N

LEGEND

- Shallow Hydrogeologic Unit Capture Zone Boundary
- Middle Hydrogeologic Unit Capture Zone Boundary
- Deep Hydrogeologic Unit Capture Zone Boundary
- Jet Grouted Barrier Wall
- Sauget Area 1
- Sauget Area 2

NOTES:

1) Based on MODFLOW modeling described in Focused Feasibility Study, Volume 1 Interim Groundwater Remedy Sauget Area 2 Sites O, Q, R and S Solutia, Inc March 31, 2002 "Groundwater Interim Remedy Design Basis", and MODPATH modeling

2) Physical barrier includes 3 partially extraction pumping wells pumping at combined pumping rate of 535 gpm

3) Modeling performed using average river stage (391 ft AMSL) All other values from baseline modeling run

4) Base map from Figure 1 Focused Feasibility Study Volume 1, Interim Groundwater Remedy Sauget Area 2 Sites O, Q R and S Solutia, Inc , March 31, 2002

5) River boundary changes with river stage River boundary on this map is approximate

SCALE (ft)

0 500 1000

PRELIMINARY

FIGURE 1

GROUNDWATER SERVICES, INC.	GSI Job No G-2561	Drawn By CCJ	CAPTURE ZONE MAPS FOR GROUNDWATER ALTERNATIVE B-PHYSICAL BARRIER
	Issued 4/01/02	Ch'k'd By CJN	Sauget Area 2, Sauget Illinois
	Revised	Apr'v'd By	
	Scale As Shown	FIGURE 1	

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Site O													
VOCs													
1,1,1-Trichloroethane	71-55-6	ug/L	2 3 3	67	1 86E+01	3 60E+01	No	NA	--	2 00E+02	No	No	</=Screening Level
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	1 1 3	100	5 70E+00	5 70E+00	No	NA	--	5 50E-02	Yes	Yes	>Screening Level
2-Butanone (MEK)	78-93-3	ug/L	2 3 3	67	2 03E+02	2 40E+02	No	NA	--	1 90E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	3 3 3	100	6 90E+02	1 50E+03	No	NA	--	1 60E+02	Yes	Yes	>Screening Level
Acetone	67 64-1	ug/L	1 3 3	33	5 78E+02	7 35E+02	No	NA	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	3 3 3	100	1 36E+03	3 30E+03	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	3 3 3	100	1 46E+03	3 60E+03	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/L	1 3 3	33	1 90E+01	2 70E+01	No	NA	--	8 00E+01	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 3	100	1 20E+01	1 20E+01	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	3 3 3	100	3 73E+02	5 80E+02	No	NA	-	7 00E+02	No	No	</=Screening Level
Methyl N Butyl Ketone	591-78-6	ug/L	1 1 3	100	6 50E+01	6 50E+01	No	NA	--	1 60E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	3 3 3	100	2 61E+02	4 60E+02	No	NA	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 3	100	7 50E+00	7 50E+00	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	3 3 3	100	1 80E+03	2 40E+03	No	NA	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2,4-Trichlorobenzene	120-82-1	ug/L	2 3 3	67	5 07E+01	9 50E+01	No	NA	--	7 00E+01	Yes	Yes	>Screening Level
1,2-Dichlorobenzene	95-50-1	ug/L	3 3 3	100	7 43E+02	1 65E+03	No	NA	-	6 00E+02	Yes	Yes	>Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	2 3 3	67	2 77E+01	4 00E+01	No	NA	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	3 3 3	100	2 46E+02	4 50E+02	No	NA	--	7 50E+01	Yes	Yes	>Screening Level
2,4,5-Trichlorophenol	95-95-4	ug/L	2 2 3	100	1 70E+01	1 80E+01	No	NA	--	7 00E+02	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	3 3 3	100	1 48E+02	3 05E+02	No	NA	--	1 00E+01	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	3 3 3	100	2 46E+02	4 50E+02	No	NA	--	2 10E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 3 3	33	3 78E+01	6 35E+01	No	NA	--	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	2 3 3	67	1 83E+02	3 05E+02	No	NA	--	3 50E+01	Yes	Yes	>Screening Level
2-Methylnaphthalene	91-57-6	ug/L	3 3 3	100	3 19E+01	6 15E+01	No	NA	--	1 40E+02	No	No	</=Screening Level
2-Methylphenol	95-48-7	ug/L	1 1 3	100	1 95E+01	1 95E+01	No	NA	--	3 50E+02	No	No	</=Screening Level
2-Nitroaniline	88-74-4	ug/L	2 3 3	67	2 80E+02	6 50E+02	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
2-Nitrophenol	88-75-5	ug/L	1 3 3	33	8 33E+01	2 00E+02	No	NA	--	NA	--	No	Screening Level NA
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	2 3 3	67	9 77E+01	2 35E+02	No	NA	--	3 50E+02	No	No	</=Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
4-Chloro 3-methylphenol	59 50-7	ug/L	1 1 3	100	9 10E+00	9 10E+00	No	NA	--	NA	--	No	Screening Level NA
4-Chloroaniline	106-47-8	ug/L	2 3 3	67	1 24E+02	3 10E+02	No	NA		2 80E+01	Yes	Yes	>Screening Level
4-Nitroaniline	100-01-6	ug/L	2 3 3	67	7 92E+02	2 20E+03	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
4 Nitrophenol	100-02-7	ug/L	2 3 3	67	1 46E+02	2 90E+02	No	NA	--	NA	--	No	Screening Level NA
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 3	100	4 00E+00	4 00E+00	No	NA	-	2 10E+02	No	No	</=Screening Level
Benzyl Butyl Phthalate	85-68-7	ug/L	1 1 3	100	1 30E+01	1 30E+01	No	NA	--	1 40E+03	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	2 3 3	67	1 02E+02	2 00E+02	No	NA	-	1 40E+02	Yes	Yes	>Screening Level
Nitrobenzene	98-95-3	ug/L	2 3 3	67	1 28E+02	3 10E+02	No	NA	--	3 50E+00	Yes	Yes	>Screening Level
Phenanthrene	85-01-8	ug/L	2 2 3	100	5 25E+00	5 50E+00	No	NA	-	2 10E+03	No	No	</=Screening Level
Phenol	108-95-2	ug/L	3 3 3	100	3 76E+02	8 15E+02	No	NA	-	1 00E+02	Yes	Yes	>Screening Level
Pesticide													
beta BHC	319 85 7	ug/L	1 3 3	33	3 97E+00	9 40E+00	No	NA	-	2 00E-01	Yes	Yes	>Screening Level
Methoxychlor	72-43-5	ug/L	1 1 3	100	6 00E+00	6 00E+00	No	NA	--	4 00E+01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	3 3 3	100	4 09E+02	8 20E+02	No	NA	--	3 60E+02	Yes	Yes	>Screening Level
2,4,5-TP (Silvex)	93-72-1	ug/L	2 2 3	100	5 80E+00	6 10E+00	No	NA	--	5 00E+01	No	No	</=Screening Level
2,4-D	94-75-7	ug/L	3 3 3	100	1 10E+03	1 90E+03	No	NA		7 00E+01	Yes	Yes	>Screening Level
Pentachlorophenol	87-86-5	ug/L	3 3 3	100	2 56E+03	5 00E+03	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	3 3 3	100	3 53E+01	5 89E+01	No	NA	--	5 00E-01	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD TEQ	1746 01-6	ug/L	3 3 3	100	1 54E-04	4 35E-04	No	NA	--	3 00E 05	Yes	Yes	>Screening Level
Metals													
Aluminum	7429 90-5	ug/L	1 1 3	100	1 10E+02	1 10E+02	No	NA	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 3	100	7 70E+01	7 70E+01	No	NA	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	3 3 3	100	1 00E+03	1 45E+03	No	NA	--	2 00E+03	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 3 3	33	9 17E+01	1 75E+02	No	NA		5 00E+00	Yes	Yes	>Screening Level
Calcium	7440-70-2	ug/L	3 3 3	100	3 82E+05	4 30E+05	Yes	NA	-	NA	--	No	EN
Copper	7440-50-8	ug/L	1 1 3	100	1 10E+01	1 10E+01	No	NA	-	6 50E+02	No	No	</=Screening Level
Iron	7439 89-6	ug/L	3 3 3	100	1 75E+03	4 70E+03	Yes	NA	-	5 00E+03	No	No	EN
Lead	7439 92-1	ug/L	2 3 3	67	1 10E+02	2 10E+02	No	NA	-	7 50E+00	Yes	Yes	>Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Magnesium	7439-95-4	ug/L	3 3 3	100	6 90E+04	1 10E+05	Yes	NA	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	3 3 3	100	1 14E+04	2 00E+04	No	NA	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	3 3 3	100	1 18E+02	1 65E+02	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	3 3 3	100	6 27E+03	1 25E+04	Yes	NA	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	2 3 3	67	5 37E+03	1 05E+04	No	NA		5 00E+03	Yes	Yes	>Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Site P													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 4 4	25	2 23E+01	2 90E+01	No	NA	--	7 00E+01	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	3 3 4	100	2 57E+01	3 70E+01	No	NA	--	1 60E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	4 4 4	100	4 45E+01	1 40E+02	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	2 4 4	50	1 38E+01	2 80E+01	No	NA	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	2 4 4	50	1 75E+01	3 40E+01	No	NA	-	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	4 4 4	100	7 04E+01	2 20E+02	No	NA	--	7 00E+02	No	No	</=Screening Level
Tetrachloroethene	127-18-4	ug/L	2 4 4	50	6 08E+01	2 10E+02	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	2 4 4	50	1 33E+02	4 30E+02	No	NA	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	2 4 4	50	1 16E+01	1 80E+01	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	4 4 4	100	3 01E+02	1 00E+03	No	NA	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	3 4 4	75	2 44E+01	4 40E+01	No	NA	-	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	3 4 4	75	1 63E+02	4 30E+02	No	NA	--	7 50E+01	Yes	Yes	>Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	2 2 4	100	1 07E+01	1 90E+01	No	NA	--	1 00E+01	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	3 4 4	75	1 29E+02	4 40E+02	No	NA	--	2 10E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 1 4	100	6 80E+00	6 80E+00	No	NA	--	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 4	100	1 70E+01	1 70E+01	No	NA	--	3 50E+01	No	No	</=Screening Level
2 Methylphenol	95-48-7	ug/L	1 1 4	100	1 90E+00	1 90E+00	No	NA	-	3 50E+02	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44 5	ug/L	4 4 4	100	2 70E+01	6 20E+01	No	NA	-	3 50E+02	No	No	</=Screening Level
4 Chloroaniline	106-47-8	ug/L	4 4 4	100	5 93E+01	1 60E+02	No	NA	--	2 80E+01	Yes	Yes	>Screening Level
4-Nitroaniline	100-01-6	ug/L	1 1 4	100	9 10E+00	9 10E+00	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
Diethyl Phthalate	84-66-2	ug/L	1 4 4	25	6 69E+02	2 60E+03	No	NA	--	5 60E+03	No	No	</=Screening Level
Naphthalene	91-20 3	ug/L	3 4 4	75	2 55E+01	3 10E+01	No	NA	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	4 4 4	100	2 08E+02	4 50E+02	No	NA		1 00E+02	Yes	Yes	>Screening Level
Pesticide													
Heptachlor	76-44-8	ug/L	1 1 4	100	6 80E-01	6 80E 01	No	NA		4 00E 01	Yes	Yes	>Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 4 4	25	1 26E+01	1 30E+01	No	NA	--	3 60E+02	No	No	</=Screening Level
2,4-DB	94-82-6	ug/L	1 4 4	25	1 76E+01	3 30E+01	No	NA	-	2 90E+02	No	No	</=Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Pentachlorophenol	87-86-5	ug/L	4 4 4	100	1 70E+02	5 10E+02	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	2 20E-01	2 20E-01	No	NA	--	5 00E-01	No	No	</=Screening Level
Metals													
Arsenic	7440-38-2	ug/L	1 1 4	100	7 60E+01	7 60E+01	No	NA	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	4 4 4	100	4 01E+02	9 40E+02	No	NA	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	4 4 4	100	1 05E+06	1 10E+06	Yes	NA	--	NA	--	No	EN
Cobalt	7440-48-4	ug/L	4 4 4	100	3 10E+01	7 10E+01	No	NA	--	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	4 4 4	100	2 55E+04	1 00E+05	Yes	NA	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 4	100	2 90E+01	2 90E+01	No	NA	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	4 4 4	100	1 68E+04	2 50E+04	Yes	NA	-	NA	--	No	EN
Manganese	7439-96-5	ug/L	4 4 4	100	3 05E+03	3 90E+03	No	NA	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	4 4 4	100	1 01E+02	1 70E+02	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	4 4 4	100	1 20E+04	2 00E+04	Yes	NA	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	2 2 4	100	2 70E+01	3 70E+01	No	NA	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	4 4 4	100	1 99E+04	7 40E+04	No	NA	--	5 00E+03	Yes	Yes	>Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Site Q Central													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 : 1 : 3	100	4.70E+00	4.70E+00	No	NA	--	7.00E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/L	3 : 3 : 3	100	7.48E+01	8.55E+01	No	NA	--	1.90E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 : 1 : 3	100	1.55E+01	1.55E+01	No	NA	--	1.60E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/L	2 : 2 : 3	100	2.25E+02	2.40E+02	No	NA	--	7.00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	3 : 3 : 3	100	7.47E+00	7.90E+00	No	NA	--	5.00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 : 3 : 3	33	1.37E+01	2.10E+01	No	NA	--	7.00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	2 : 3 : 3	67	2.20E+01	3.00E+01	No	NA	--	1.00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	3 : 3 : 3	100	8.32E+00	9.30E+00	No	NA	--	1.00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	2 : 3 : 3	67	3.97E+01	5.20E+01	No	NA	--	1.00E+04	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	2 : 3 : 3	67	1.82E+01	2.55E+01	No	NA	--	7.50E+01	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 : 3 : 3	33	2.53E+01	2.60E+01	No	NA	--	1.00E+01	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 : 1 : 3	100	6.10E+00	6.10E+00	No	NA	--	2.10E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 : 1 : 3	100	4.10E+00	4.10E+00	No	NA	--	3.50E+02	No	No	</=Screening Level
Acenaphthene	83-32-9	ug/L	1 : 1 : 3	100	8.60E+00	8.60E+00	No	NA	--	4.20E+02	No	No	</=Screening Level
Benzyl Butyl Phthalate	85-68-7	ug/L	1 : 1 : 3	100	3.80E+00	3.80E+00	No	NA	--	1.40E+03	No	No	</=Screening Level
Diethyl Phthalate	84-66-2	ug/L	1 : 1 : 3	100	9.70E+00	9.70E+00	No	NA	--	5.60E+03	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	2 : 3 : 3	67	4.50E+01	9.10E+01	No	NA	--	1.40E+02	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/L	1 : 1 : 3	100	9.50E+00	9.50E+00	No	NA	--	2.10E+03	No	No	</=Screening Level
Herbicide													
Pentachlorophenol	87-86-5	ug/L	2 : 3 : 3	67	1.18E+02	3.10E+02	No	NA	--	1.00E+00	Yes	Yes	>Screening Level
Metals													
Arsenic	7440-38-2	ug/L	2 : 2 : 3	100	6.00E+01	6.60E+01	No	NA	--	5.00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	3 : 3 : 3	100	1.72E+03	2.60E+03	No	NA	--	2.00E+03	Yes	Yes	>Screening Level
Calcium	7440-70-2	ug/L	3 : 3 : 3	100	6.18E+05	8.05E+05	Yes	NA	--	NA	--	No	EN
Cobalt	7440-48-4	ug/L	3 : 3 : 3	100	5.07E+01	6.40E+01	No	NA	--	1.00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	2 : 3 : 3	67	8.43E+04	2.20E+05	Yes	NA	--	5.00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	3 : 3 : 3	100	3.73E+01	5.60E+01	No	NA	--	7.50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	3 : 3 : 3	100	2.52E+04	2.95E+04	Yes	NA	--	NA	--	No	EN

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COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Manganese	7439-96-5	ug/L	3 3 3	100	1 39E+04	3 00E+04	No	NA	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	3 3 3	100	1 79E+02	2 16E+02	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	3 3 3	100	1 50E+04	2 25E+04	Yes	NA	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	3 3 3	100	2 91E+03	4 80E+03	No	NA	--	5 00E+03	No	No	</=Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Site Q North													
VOCs													
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	1 1 5	100	4 10E+00	4 10E+00	No	NA	--	5 50E 02	Yes	Yes	>Screening Level
4 Methyl-2-pentanone (MIBK)	108-10-1	ug/L	3 3 5	100	3 57E+01	6 00E+01	No	NA	--	1 60E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	2 5 5	40	8 50E+00	1 00E+01	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 5 5	20	1 50E+01	3 50E+01	No	NA	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	2 5 5	40	2 82E+01	9 20E+01	No	NA	--	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 5 5	20	6 00E+01	2 60E+02	No	NA	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	2 5 5	40	4 84E+01	1 90E+02	No	NA	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	3 3 5	100	6 10E+00	9 60E+00	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 5 5	20	3 96E+02	1 90E+03	No	NA	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2,4-Trichlorobenzene	120-82-1	ug/L	2 5 5	40	2 70E+01	3 90E+01	No	NA	--	7 00E+01	No	No	</=Screening Level
1,2-Dichlorobenzene	95-50-1	ug/L	2 5 5	40	7 42E+01	2 80E+02	No	NA		6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	2 5 5	40	3 50E+01	5 40E+01	No	NA	--	7 50E+01	No	No	</=Screening Level
2,4,5-Trichlorophenol	95-95-4	ug/L	1 1 5	100	1 40E+01	1 40E+01	No	NA	--	7 00E+02	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	3 5 5	60	8 07E+02	3 80E+03	No	NA	--	1 00E+01	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	3 5 5	60	4 73E+03	2 30E+04	No	NA	--	2 10E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 1 5	100	1 20E+01	1 20E+01	No	NA	--	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	2 5 5	40	2 09E+02	7 10E+02	No	NA	--	3 50E+01	Yes	Yes	>Screening Level
2-Nitroaniline	88-74-4	ug/L	1 5 5	20	2 98E+02	9 90E+02	No	NA	-	1 00E+00	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	2 5 5	40	2 84E+01	3 70E+01	No	NA	-	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	2 5 5	40	9 60E+02	4 00E+03	No	NA	--	2 80E+01	Yes	Yes	>Screening Level
4-Nitroaniline	100-01-6	ug/L	1 1 5	100	3 40E+01	3 40E+01	No	NA		1 00E+00	Yes	Yes	>Screening Level
Di-n-butylphthalate	84-74-2	ug/L	1 1 5	100	2 10E+01	2 10E+01	No	NA	-	7 00E+02	No	No	</=Screening Level
Diethyl Phthalate	84-66-2	ug/L	2 5 5	40	2 34E+01	3 50E+01	No	NA	-	5 60E+03	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 5 5	20	1 28E+02	4 40E+02	No	NA	--	1 40E+02	Yes	Yes	>Screening Level
Nitrobenzene	98-95-3	ug/L	1 5 5	20	4 80E+01	1 40E+02	No	NA	-	3 50E+00	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	2 5 5	40	8 30E+01	2 10E+02	No	NA	-	1 00E+02	Yes	Yes	>Screening Level
Herbicide													
2,4,5 T	93 76 5	ug/L	2 5 5	40	1 57E+01	3 70E+01	No	NA	--	3 60E+02	No	No	</=Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
2,4-D	94-75-7	ug/L	1 5 5	20	5 70E+02	2 80E+03	No	NA	--	7 00E+01	Yes	Yes	>Screening Level
Dichlorprop	120-36-5	ug/L	1 1 5	100	7 70E+01	7 70E+01	No	NA	--	2 92E+02	No	No	</=Screening Level
Pentachlorophenol	87-86-5	ug/L	2 5 5	40	1 44E+03	5 80E+03	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	2 5 5	40	1 17E+00	2 50E+00	No	NA	-	5 00E-01	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	1 4 4	25	6 80E-06	2 09E-05	No	NA	--	3 00E-05	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 5 5	20	3 40E+03	1 30E+04	No	NA	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 5	100	5 90E+01	5 90E+01	No	NA	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	5 5 5	100	1 81E+03	5 20E+03	No	NA	--	2 00E+03	Yes	Yes	>Screening Level
Beryllium	7440-41 7	ug/L	1 1 5	100	2 00E+00	2 00E+00	No	NA		4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	3 3 5	100	9 80E+00	1 20E+01	No	NA	-	5 00E+00	Yes	Yes	>Screening Level
Calcium	7440-70-2	ug/L	5 5 5	100	9 56E+05	1 40E+06	Yes	NA	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 5	100	2 70E+01	2 70E+01	No	NA	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	5 5 5	100	8 65E+01	1 50E+02	No	NA	--	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	3 5 5	60	2 34E+03	1 00E+04	Yes	NA	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	4 5 5	80	1 36E+02	3 50E+02	No	NA	-	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	5 5 5	100	2 19E+04	3 95E+04	Yes	NA	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	5 5 5	100	5 33E+03	8 85E+03	No	NA	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	5 5 5	100	2 59E+02	5 30E+02	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	5 5 5	100	1 06E+04	1 60E+04	Yes	NA	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 5	100	2 10E+01	2 10E+01	No	NA	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	5 5 5	100	3 82E+03	1 10E+04	No	NA	--	5 00E+03	Yes	Yes	>Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Site Q South													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 4	100	4 70E+00	4 70E+00	No	NA	--	7 00E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/L	4 4 4	100	3 35E+00	4 50E+00	No	NA	--	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 4	100	8 60E+00	8 60E+00	No	NA	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 4 4	25	2 58E+01	7 30E+01	No	NA	--	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 4 4	25	3 00E+01	5 25E+01	No	NA	-	1 50E+00	Yes	Yes	>Screening Level
cis-1,3-Dichloropropene	10061-01-5	ug/L	1 1 4	100	4 80E+00	4 80E+00	No	NA	-	1 00E+00	Yes	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	1 4 4	25	1 83E+01	4 30E+01	No	NA	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	2 4 4	50	1 55E+01	2 90E+01	No	NA	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 4 4	25	1 48E+01	2 90E+01	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	2 4 4	50	4 10E+01	1 00E+02	No	NA	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 4	100	4 60E+00	4 60E+00	No	NA	--	7 50E+01	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 4 4	25	2 61E+01	2 95E+01	No	NA	--	1 00E+01	Yes	Yes	>Screening Level
2,4 Dichlorophenol	120-83-2	ug/L	2 4 4	50	4 27E+01	1 13E+02	No	NA		2 10E+01	Yes	Yes	>Screening Level
2-Nitroaniline	88-74-4	ug/L	1 1 4	100	6 70E+00	6 70E+00	No	NA	-	1 00E+00	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 4	100	3 20E+01	3 20E+01	No	NA	--	2 80E+01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 4 4	25	3 90E+01	8 10E+01	No	NA	-	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 4 4	25	2 58E+01	2 80E+01	No	NA	--	1 00E+02	No	No	</=Screening Level
Herbicide													
2,4-D	94-75-7	ug/L	1 4 4	25	1 44E+01	2 03E+01	No	NA	-	7 00E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	ug/L	4 4 4	100	3 53E+02	1 30E+03	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
Metals													
Barium	7440-39-3	ug/L	4 4 4	100	2 69E+03	3 60E+03	No	NA	--	2 00E+03	Yes	Yes	>Screening Level
Cadmium	7440-43-9	ug/L	3 4 4	75	1 78E+02	3 40E+02	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Calcium	7440-70-2	ug/L	4 4 4	100	4 65E+05	5 50E+05	Yes	NA	--	NA	--	No	EN
Cobalt	7440-48-4	ug/L	4 4 4	100	1 71E+02	5 70E+02	No	NA	-	1 00E+03	No	No	</=Screening Level
Copper	7440-50 8	ug/L	3 4 4	75	1 29E+03	4 60E+03	No	NA	-	6 50E+02	Yes	Yes	>Screening Level
Iron	7439-89-6	ug/L	2 4 4	50	1 57E+04	6 00E+04	Yes	NA	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	4 4 4	100	1 14E+03	2 40E+03	No	NA		7 50E+00	Yes	Yes	>Screening Level

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HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Magnesium	7439-95-4	ug/L	4 : 4 : 4	100	1.69E+04	2.60E+04	Yes	NA	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	4 : 4 : 4	100	4.96E+03	6.60E+03	No	NA	--	1.50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	4 : 4 : 4	100	2.65E+02	4.60E+02	No	NA	--	1.00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	4 : 4 : 4	100	6.80E+03	8.00E+03	Yes	NA	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	4 : 4 : 4	100	1.79E+04	2.80E+04	No	NA	--	5.00E+03	Yes	Yes	>Screening Level

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SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Site R													
VOCs													
1,1,1-Trichloroethane	71-55-6	ug/L	1 4 4	25	3 75E+01	1 20E+02	No	NA	--	2 00E+02	No	No	</=Screening Level
1,2-Dichloroethane	107-06-2	ug/L	3 4 4	75	6 53E+03	2 40E+04	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 4 4	25	1 24E+03	4 90E+03	No	NA	--	7 00E+01	Yes	Yes	>Screening Level
4 Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 4 4	25	2 00E+03	7 70E+03	No	NA	--	1 60E+02	Yes	Yes	>Screening Level
Acetone	67-64-1	ug/L	2 3 4	67	2 60E+02	2 90E+02	No	NA	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	4 4 4	100	3 96E+03	1 40E+04	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	4 4 4	100	9 40E+03	3 30E+04	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/L	3 4 4	75	1 50E+03	5 90E+03	No	NA	--	8 00E+01	Yes	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	4 4 4	100	5 20E+02	1 60E+03	No	NA	--	7 00E+02	Yes	Yes	>Screening Level
Tetrachloroethene	127-18-4	ug/L	3 4 4	75	3 12E+03	1 20E+04	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	4 4 4	100	7 93E+03	2 60E+04	No	NA	--	1 00E+03	Yes	Yes	>Screening Level
Trichloroethylene	79-01-6	ug/L	2 4 4	50	1 85E+04	7 40E+04	No	NA	-	5 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	4 4 4	100	1 94E+03	5 20E+03	No	NA	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2,4-Trichlorobenzene	120-82-1	ug/L	3 4 4	75	4 98E+01	1 30E+02	No	NA	--	7 00E+01	Yes	Yes	>Screening Level
1,2-Dichlorobenzene	95-50-1	ug/L	4 4 4	100	3 90E+02	8 40E+02	No	NA	--	6 00E+02	Yes	Yes	>Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	3 4 4	75	1 05E+02	2 20E+02	No	NA	--	7 50E+01	Yes	Yes	>Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	4 4 4	100	4 22E+03	1 20E+04	No	NA	--	1 00E+01	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83 2	ug/L	4 4 4	100	2 69E+04	9 00E+04	No	NA	-	2 10E+01	Yes	Yes	>Screening Level
2,4 Dimethylphenol	105-67-9	ug/L	2 4 4	50	1 80E+02	5 10E+02	No	NA	-	1 40E+02	Yes	Yes	>Screening Level
2-Chlorophenol	95-57-8	ug/L	4 4 4	100	7 70E+03	2 00E+04	No	NA	--	3 50E+01	Yes	Yes	>Screening Level
2-Methylnaphthalene	91-57-6	ug/L	1 1 4	100	1 10E+01	1 10E+01	No	NA	--	1 40E+02	No	No	</=Screening Level
2-Methylphenol	95-48-7	ug/L	3 4 4	75	2 94E+02	9 40E+02	No	NA	--	3 50E+02	Yes	Yes	>Screening Level
2-Nitroaniline	88-74-4	ug/L	3 4 4	75	8 63E+02	3 20E+03	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	4 4 4	100	8 51E+02	1 90E+03	No	NA	--	3 50E+02	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	3 4 4	75	3 86E+03	8 50E+03	No	NA	--	2 80E+01	Yes	Yes	>Screening Level
4-Nitroaniline	100-01-6	ug/L	4 4 4	100	1 83E+03	5 50E+03	No	NA		1 00E+00	Yes	Yes	>Screening Level
4-Nitrophenol	100-02-7	ug/L	1 4 4	25	7 94E+02	2 80E+03	No	NA	-	NA	--	No	Screening Level NA
Di n-butylphthalate	84-74-2	ug/L	1 4 4	25	5 69E+02	2 20E+03	No	NA		7 00E+02	Yes	Yes	>Screening Level

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SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Diethyl Phthalate	84-66-2	ug/L	2 4 4	50	9 64E+02	3 80E+03	No	NA	--	5 60E+03	No	No	</=Screening Level
Dimethyl Phthalate	131-11-3	ug/L	1 4 4	25	7 44E+02	2 90E+03	No	NA	--	3 60E+05	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	4 4 4	100	1 79E+03	3 90E+03	No	NA	--	1 40E+02	Yes	Yes	>Screening Level
Nitrobenzene	98-95-3	ug/L	3 4 4	75	1 21E+03	3 20E+03	No	NA	--	3 50E+00	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	4 4 4	100	1 83E+04	4 00E+04	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Pesticide													
4,4'-DDE	72-55-9	ug/L	1 1 4	100	1 40E+00	1 40E+00	No	NA	--	1 00E+01	No	No	</=Screening Level
alpha-Chlordane	5103-71-9	ug/L	3 3 4	100	1 57E+00	2 10E+00	No	NA	--	2 00E+00	Yes	Yes	>Screening Level
beta-BHC	319-85-7	ug/L	1 1 4	100	3 40E-01	3 40E-01	No	NA	--	2 00E-01	Yes	Yes	>Screening Level
Endrin Aldehyde	7421-93-4	ug/L	1 4 4	25	4 47E+00	7 90E+00	No	NA	--	2 00E+00	Yes	Yes	>Screening Level
Heptachlor	76-44-8	ug/L	1 1 4	100	1 20E+00	1 20E+00	No	NA	-	4 00E 01	Yes	Yes	>Screening Level
Methoxychlor	72-43-5	ug/L	1 1 4	100	4 90E+00	4 90E+00	No	NA	--	4 00E+01	No	No	</=Screening Level
Herbicide													
2 4 D	94 75 7	ug/L	4 4 4	100	1 05E+04	2 30E+04	No	NA	--	7 00E+01	Yes	Yes	>Screening Level
Dichlorprop	120-36-5	ug/L	2 2 4	100	8 14E+02	1 60E+03	No	NA	--	2 92E+02	Yes	Yes	>Screening Level
Pentachlorophenol	87-86-5	ug/L	1 1 4	100	4 70E+01	4 70E+01	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	2 4 4	50	8 60E-01	1 25E+00	No	NA	--	5 00E-01	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	2 4 4	50	3 27E-07	5 80E-07	No	NA	--	3 00E-05	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 4 4	25	1 28E+03	2 10E+03	No	NA	--	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	4 4 4	100	5 85E+02	7 60E+02	No	NA	--	2 00E+03	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 4 4	25	6 25E+01	1 00E+02	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Calcium	7440-70-2	ug/L	4 4 4	100	2 50E+05	4 80E+05	Yes	NA	--	NA	--	No	EN
Cobalt	7440-48-4	ug/L	4 4 4	100	3 15E+02	6 30E+02	No	NA	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	2 4 4	50	1 15E+02	1 60E+02	No	NA	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	3 4 4	75	5 76E+03	1 20E+04	Yes	NA	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	2 2 4	100	4 45E+01	5 70E+01	No	NA	-	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	4 4 4	100	3 35E+04	4 50E+04	Yes	NA		NA	--	No	EN
Manganese	7439-96-5	ug/L	4 4 4	100	3 54E+03	5 10E+03	No	NA	--	1 50E+02	Yes	Yes	>Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Nickel	7440-02-0	ug/L	4 4 4	100	3 80E+02	1 30E+03	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	4 4 4	100	9 08E+03	2 20E+04	Yes	NA	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	4 4 4	100	3 15E+03	1 10E+04	No	NA	--	5 00E+03	Yes	Yes	>Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Site S													
VOCs													
1,1,1-Trichloroethane	71-55-6	ug/L	2 2 2	100	4 50E+02	6 00E+02	No	NA	--	2 00E+02	Yes	Yes	>Screening Level
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	2 2 2	100	1 22E+01	1 50E+01	No	NA	--	5 50E 02	Yes	Yes	>Screening Level
1,1,2-Trichloroethane	79-00-5	ug/L	1 1 2	100	6 40E+00	6 40E+00	No	NA		5 00E+00	Yes	Yes	>Screening Level
1,1-Dichloroethane	75-34-3	ug/L	1 2 2	50	7 50E+01	1 30E+02	No	NA		7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 2 2	50	2 70E+02	5 00E+02	No	NA	-	7 00E+01	Yes	Yes	>Screening Level
2-Butanone (MEK)	78-93-3	ug/L	2 2 2	100	2 95E+03	4 70E+03	No	NA	--	1 90E+03	Yes	Yes	>Screening Level
4-Methyl-2-pentanone (MIBK)	108 10-1	ug/L	2 2 2	100	1 05E+04	1 50E+04	No	NA	--	1 60E+02	Yes	Yes	>Screening Level
Acetone	67-64-1	ug/L	2 2 2	100	1 60E+03	1 80E+03	No	NA	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	2 2 2	100	5 70E+01	6 70E+01	No	NA	-	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 2 2	50	8 60E+02	1 70E+03	No	NA	-	1 00E+02	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/L	1 1 2	100	1 20E+01	1 20E+01	No	NA	-	8 00E+01	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	2 2 2	100	2 45E+02	4 70E+02	No	NA	-	5 00E+00	Yes	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	2 2 2	100	3 80E+03	4 40E+03	No	NA	--	7 00E+02	Yes	Yes	>Screening Level
Methyl N-Butyl Ketone	591-78-6	ug/L	2 2 2	100	3 50E+03	5 40E+03	No	NA	--	1 60E+02	Yes	Yes	>Screening Level
Tetrachloroethene	127-18-4	ug/L	2 2 2	100	4 13E+02	7 60E+02	No	NA	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	2 2 2	100	2 85E+04	4 10E+04	No	NA	-	1 00E+03	Yes	Yes	>Screening Level
Trichloroethylene	79-01-6	ug/L	2 2 2	100	6 50E+02	7 20E+02	No	NA		5 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	2 2 2	100	2 05E+04	2 30E+04	No	NA	--	1 00E+04	Yes	Yes	>Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 2 2	50	6 10E+01	9 70E+01	No	NA	--	6 00E+02	No	No	</=Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	1 1 2	100	7 20E+00	7 20E+00	No	NA	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 2 2	50	7 75E+01	1 30E+02	No	NA	-	7 50E+01	Yes	Yes	>Screening Level
2,4,5-Trichlorophenol	95-95-4	ug/L	1 1 2	100	7 40E+00	7 40E+00	No	NA	--	7 00E+02	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 2 2	50	1 63E+02	3 00E+02	No	NA	--	1 00E+01	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 2 2	50	2 08E+02	3 90E+02	No	NA	-	2 10E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	2 2 2	100	6 60E+01	6 80E+01	No	NA	--	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 2 2	50	3 15E+01	3 80E+01	No	NA	--	3 50E+01	Yes	Yes	>Screening Level
2-Methylnaphthalene	91-57-6	ug/L	2 2 2	100	1 80E+01	2 20E+01	No	NA		1 40E+02	No	No	</=Screening Level
2-Methylphenol	95-48-7	ug/L	2 2 2	100	9 00E+01	1 30E+02	No	NA	-	3 50E+02	No	No	</=Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
2-Nitroaniline	88-74-4	ug/L	1 1 2	100	8 20E+01	8 20E+01	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	2 2 2	100	4 10E+02	6 20E+02	No	NA	--	3 50E+02	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 2 2	50	2 95E+02	5 40E+02	No	NA	--	2 80E+01	Yes	Yes	>Screening Level
Benzyl Butyl Phthalate	85-68-7	ug/L	1 1 2	100	3 20E+00	3 20E+00	No	NA	--	1 40E+03	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 2	100	7 00E+00	7 00E+00	No	NA	--	6 00E+00	Yes	Yes	>Screening Level
Di-n-butylphthalate	84-74-2	ug/L	2 2 2	100	4 65E+01	7 40E+01	No	NA	--	7 00E+02	No	No	</=Screening Level
Diethyl Phthalate	84-66-2	ug/L	1 2 2	50	4 05E+01	5 60E+01	No	NA	--	5 60E+03	No	No	</=Screening Level
Dimethyl Phthalate	131-11-3	ug/L	1 1 2	100	1 70E+01	1 70E+01	No	NA	--	3 60E+05	No	No	</=Screening Level
Isophorone	78-59-1	ug/L	2 2 2	100	1 65E+03	2 10E+03	No	NA	--	1 40E+03	Yes	Yes	>Screening Level
N-Nitrosodiphenylamine	86-30-6	ug/L	1 1 2	100	1 30E+01	1 30E+01	No	NA	-	3 20E+00	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	2 2 2	100	3 00E+02	3 40E+02	No	NA	--	1 40E+02	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	2 2 2	100	4 50E+02	7 10E+02	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 2	100	5 80E-01	5 80E-01	No	NA	-	1 10E-01	Yes	Yes	>Screening Level
alpha-Chlordane	5103-71-9	ug/L	1 1 2	100	3 90E-01	3 90E-01	No	NA		2 00E+00	No	No	</=Screening Level
beta-BHC	319-85-7	ug/L	2 2 2	100	1 03E+00	1 60E+00	No	NA	--	2 00E-01	Yes	Yes	>Screening Level
delta-BHC	319-86-8	ug/L	1 1 2	100	4 90E-01	4 90E-01	No	NA	--	2 00E-01	Yes	Yes	>Screening Level
Heptachlor	76-44-8	ug/L	1 1 2	100	3 30E-01	3 30E 01	No	NA	--	4 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 2 2	50	1 93E+01	2 60E+01	No	NA		3 60E+02	No	No	</=Screening Level
2,4-D	94-75-7	ug/L	1 2 2	50	3 83E+01	6 40E+01	No	NA	-	7 00E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	ug/L	1 2 2	50	9 13E+02	1 80E+03	No	NA	--	1 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 2 2	50	2 65E-01	2 80E 01	No	NA	-	5 00E-01	No	No	</=Screening Level
Metals													
Barium	7440-39-3	ug/L	2 2 2	100	8 35E+02	8 50E+02	No	NA	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	2 2 2	100	1 90E+06	2 60E+06	Yes	NA	-	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 2 2	50	1 30E+02	1 60E+02	No	NA	--	1 00E+02	Yes	Yes	>Screening Level
Lead	7439-92-1	ug/L	1 2 2	50	1 05E+02	1 10E+02	No	NA	-	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	2 2 2	100	1 35E+04	1 60E+04	Yes	NA		NA		No	EN
Manganese	7439 96-5	ug/L	2 2 2	100	1 20E+03	1 30E+03	No	NA	--	1 50E+02	Yes	Yes	>Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason
Nickel	7440-02-0	ug/L	2 2 2	100	6 15E+01	7 00E+01	No	NA	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	2 2 2	100	4 15E+03	5 20E+03	Yes	NA	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 2 2	50	4 05E+02	7 10E+02	No	NA	--	5 00E+03	No	No	</=Screening Level

TABLE E-1
COMPARISON OF TCLP DATA TO GROUNDWATER STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Mean Concentration (c)	Maximum Detected Concentration (d)	Essential Nutrient?	Background Concentration (e)	Is Max Concentration > Background?	TCLP Screening Level (f)	Is Max Concentration > Screening Value?	COPC? (g)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
EN - Essential nutrient
FOD - Frequency of detection
NA - Not available
IEPA - Illinois Environmental Protection Agency
USEPA - United States Environmental Protection Agency
PCB - Polychlorinated Biphenyl
TCLP - Toxicity Characteristic Leaching Procedure, extracts were performed on the composite waste samples
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalent Concentration
VOC - Volatile Organic Compound
-- Not applicable
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as C
(c) The arithmetic mean concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used) A proxy concentration of half the detection limit was used for non detected results
(d) The maximum detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used) A proxy concentration of half the detection limit was used for non-detected results
(e) No background data are available for the TCLP samples
(f) TCLP screening levels were used according to the following hierarchy
Illinois Groundwater Quality Standards for Class I Potable Resource Groundwater 35 Ill Adm Code 620 410 February 2, 2002
USEPA, 2002 2002 Edition of the Drinking Water Standards and Health Advisories Office of Water EPA 822-R-02-038 Maximum Contaminant Levels Summer 20
IEPA, 2002 Tiered Approach to Corrective Action Objectives Appendix B, Table E Tier 1 Groundwater Remediation Objectives for the Groundwater Component of the Groundwater Ingestion Route Class I values February 5, 2002
USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for Tap Water
(g) A constituent is identified as a COPC if it is detected in greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient, if the maximum detected concentration is greater than the background concentration and if the maximum detected concentration is greater than the TCLP screening level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Herbicide	Dichlorprop	0 011	J	1 14E-01	NA	No	Screening Level NA
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Herbicide	MCPP	43	J	3 60E+00	NA	No	Screening Level NA
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Herbicide	Pentachlorophenol	0 061	J	4 57E-03	2 00E-02	No	</=BKG
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Aluminum	5200	J	1 38E+04	NA	No	Screening Level NA
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Antimony	0 81	J	2 33E+00	5 00E+00	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Arsenic	11		1 24E+01	2 50E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Barium	340	J	3 07E+02	2 60E+02	Yes	>Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Beryllium	0 39	J	9 02E-01	1 10E+00	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Cadmium	17	J	3 34E+00	1 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Calcium	4900		9 74E+04	NA	No	EN
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Chromium	16		2 21E+01	2 10E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Cobalt	5 9	J	9 40E+00	NA	No	Screening Level NA
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Copper	270		8 58E+01	3 30E+02	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Iron	11000		2 33E+04	NA	No	EN
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Lead	130	J	1 30E+02	NA	No	Screening Level NA
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Magnesium	2300	J	1 23E+04	NA	No	EN
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Manganese	420		5 52E+02	NA	No	Screening Level NA
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Mercury	43		1 34E-01	1 00E-02	Yes	>Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Nickel	28		3 30E+01	2 00E+01	No	</=BKG
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Potassium	720	J	3 01E+03	NA	No	EN
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Silver	2 9		9 90E-01	2 40E-01	Yes	>Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Sodium	96	J	1 58E+02	NA	No	EN
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Vanadium	19	J	3 89E+01	9 80E+02	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Metal	Zinc	940	J	3 90E+02	1 00E+03	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Pesticide	Dieldrin	0 0014	J	1 13E-02	4 00E-03	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Pesticide	gamma-Chlordane	0 00033	J	4 11E-02	1 00E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	1 2-Dichlorobenzene	0 034	J	NA	1 70E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Benzo(a)anthracene	0 041	J	2 76E-01	2 00E+00	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Benzo(a)pyrene	0 046	J	4 06E-01	8 00E+00	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Benzo(b)fluoranthene	0 089	J	3 66E-01	5 00E+00	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Benzo(g h i)perylene	0 042	J	4 14E-01	4 20E+03	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 25	J	3 53E-01	3 60E+03	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Chrysene	0 067	J	2 99E-01	1 60E+02	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Fluoranthene	0 082	J	4 50E-01	4 30E+03	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Indeno(1 2,3-cd)pyrene	0 032	J	NA	1 40E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Phenanthrene	0 032	J	3 31E-01	1.20E+04	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Semivolatile	Pyrene	0 078	J	4 30E-01	4.20E+03	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Volatile	Benzene	0 59	J	NA	3 00E-02	Yes	>Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Volatile	Carbon Disulfide	0 18	J	NA	3.20E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Volatile	Chlorobenzene	5 8	J	NA	1 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Volatile	Ethylbenzene	4 4	J	1 07E-03	1 30E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Volatile	Tetrachloroethene	0.29	J	8 80E-04	6 00E-02	No	</=BKG
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Volatile	Toluene	0 87	J	NA	1.20E+01	No	</=Screening Level
O North	SOIL-O-1	Surface	SOIL-O-1-0 5	Volatile	Xylenes Total	80	J	1 61E-03	1.50E+02	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Herbicide	2,4 5-T	7 7	J	NA	1 10E+01	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Herbicide	2 4-D	20		NA	1 50E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Aluminum	1500		7 86E+03	NA	No	Screening Level NA
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Antimony	2 4		1 21E+00	5 00E+00	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Arsenic	37		9 26E+00	2 50E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Barium	1200		3 28E+02	2 60E+02	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Beryllium	0 14	J	6 28E-01	1 10E+00	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Cadmium	86		2 91E-01	1 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Calcium	7900		2 48E+04	NA	No	EN
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Chromium	62		1 57E+01	2 10E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Cobalt	4 1		9 14E+00	NA	No	Screening Level NA
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Copper	1500		1 35E+01	3 30E+02	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Iron	8500		1 88E+04	NA	No	EN
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Lead	1200		1 33E+01	NA	No	Screening Level NA
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Magnesium	950		1 02E+04	NA	No	EN
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Manganese	1800		4 50E+02	NA	No	Screening Level NA
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Mercury	360	J	2 07E-02	1 00E-02	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Nickel	25	J	2 35E+01	2 00E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Potassium	420	J	1 75E+03	NA	No	EN
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Selenium	24		NA	1 30E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Silver	15		NA	2 40E-01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Sodium	220		1 25E+02	NA	No	EN
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Vanadium	11		2 98E+01	9 80E+02	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Metal	Zinc	3900		5 88E+01	1 00E+03	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	4 4'-DDE	33		NA	5 40E+01	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	4,4'-DDT	58	J	1 04E-03	3 20E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	Aldrin	4 5	J	NA	5 00E-01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	alpha-BHC	1 5	J	NA	5 00E-04	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	beta-BHC	21	J	NA	5 00E-04	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	Dieldrin	50	J	NA	4 00E-03	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	Endosulfan II	9 6	J	NA	1 80E+01	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	Endosulfan Sulfate	24	J	NA	1 80E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Pesticide	Heptachlor	9 9	J	NA	2 30E+01	No	</=Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	1 2 4-Trichlorobenzene	290		NA	5 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	1 2-Dichlorobenzene	520		NA	1 70E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	1 3-Dichlorobenzene	12	J	NA	2 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	1 4-Dichlorobenzene	120		NA	2 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	2 4 5-Trichlorophenol	8 1	J	NA	2 70E+02	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	2 4 6-Trichlorophenol	61		NA	2 00E-01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	2 4-Dichlorophenol	33		NA	4 80E-01	Yes	>Screening Level
O North	SOIL-O 1	Subsurface	SOIL-O-1-6FT	Semivolatile	2-Chlorophenol	6 2	J	NA	1 50E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	2-Methylnaphthalene	200		NA	1 20E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	2-Methylphenol	4	J	NA	1 50E+01	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	2-Nitroaniline	62	J	NA	NA	No	Screening Level NA
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	2-Nitrophenol	12	J	NA	NA	No	Screening Level NA
O North	SOIL-O 1	Subsurface	SOIL-O-1-6FT	Semivolatile	3-Methylphenol/4-Methylphenol	14	J	NA	1 50E+01	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	4-Nitroaniline	1000	J	NA	NA	No	Screening Level NA
O North	SOIL-O 1	Subsurface	SOIL-O-1-6FT	Semivolatile	Acenaphthene	12	J	NA	5 70E+02	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Anthracene	10	J	NA	1 20E+04	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Benzo(a)anthracene	36		NA	2 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Benzo(a)pyrene	8 5	J	NA	8 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Benzo(b)fluoranthene	12	J	NA	5 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Benzo(g h i)perylene	4 7	J	NA	4 20E+03	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Benzo(k)fluoranthene	3 8	J	NA	4 90E+01	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Benzyl Butyl Phthalate	38		NA	9 30E+02	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	bis(2-Chloroethyl)ether	2 1	J	NA	4 00E-04	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	8 2	J	6 40E-02	3 60E+03	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Carbazole	4 9	J	NA	6 00E-01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Chrysene	69		NA	1 60E+02	No	<=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Dibenzo(a h)anthracene	4 6	J	NA	2 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Di-n-octylphthalate	3 4	J	NA	1 00E+04	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Fluoranthene	13	J	NA	4 30E+03	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Fluorene	20	J	NA	5 60E+02	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Hexachlorobenzene	4 5	J	NA	2 00E+00	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Naphthalene	41		NA	1.20E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Nitrobenzene	11	J	NA	1 00E-01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Phenanthrene	93	J	NA	1 20E+04	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Phenol	22		NA	1 00E+02	No	</=Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Semivolatile	Pyrene	120		NA	4.20E+03	No	</=Screening Level
O North	SOIL-O 1	Subsurface	SOIL-O-1-6FT	Volatile	Benzene	61		NA	3 00E-02	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Volatile	Chlorobenzene	480		NA	1 00E+00	Yes	>Screening Level
O North	SOIL-O 1	Subsurface	SOIL-O-1-6FT	Volatile	Dichloromethane	87		6 30E-03	2 00E-02	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Volatile	Ethylbenzene	760		8 37E-04	1 30E+01	No	</=BKG
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Volatile	Toluene	90		NA	1 20E+01	Yes	>Screening Level
O North	SOIL-O-1	Subsurface	SOIL-O-1-6FT	Volatile	Xylenes Total	3800		1 50E-03	1 50E+02	Yes	>Screening Level
O	SOIL-O 2	Surface	SOIL-O-2-0 5	Herbicide	2 4-D	0 031	J	9 96E-03	1 50E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Herbicide	2 4-DB	0 013	J	NA	1 50E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Herbicide	Dicamba	0 0024	J	NA	NA	No	Screening Level NA
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Herbicide	Dichlorprop	0 037	J	1 14E-01	NA	No	Screening Level NA
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Herbicide	MCPP	12	J	3 60E+00	NA	No	Screening Level NA
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Herbicide	Pentachlorophenol	0 023	J	4 57E-03	2 00E-02	No	</=BKG
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Aluminum	7400	J	1 38E+04	NA	No	Screening Level NA
O	SOIL-O 2	Surface	SOIL-O-2-0 5	Metal	Antimony	0 74	J	2 33E+00	5 00E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Arsenic	5 1		1 24E+01	2 50E+01	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Barium	100	J	3 07E+02	2 60E+02	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Beryllium	0 46		9 02E-01	1 10E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Cadmium	0 54	J	3 34E+00	1 00E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Calcium	26000		9 74E+04	NA	No	EN
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Chromium	13		2 21E+01	2 10E+01	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Cobalt	6 6	J	9 40E+00	NA	No	Screening Level NA
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Copper	26		8 58E+01	3 30E+02	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Iron	15000		2 33E+04	NA	No	EN
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Lead	14	J	1 30E+02	NA	No	Screening Level NA
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Magnesium	8500	J	1 23E+04	NA	No	EN
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Manganese	530		5 52E+02	NA	No	Screening Level NA
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Mercury	0 049		1 34E-01	1 00E-02	No	</=BKG
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Nickel	18		3 30E+01	2 00E+01	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Potassium	850	J	3 01E+03	NA	No	EN
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Sodium	110	J	1 58E+02	NA	No	EN
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Vanadium	28	J	3 89E+01	9 80E+02	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Metal	Zinc	70	J	3 90E+02	1 00E+03	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Pesticide	4 4-DDT	0 00081	J	4 04E-02	3.20E+01	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Pesticide	Endrin Aldehyde	0 0034	J	5 88E-03	1 00E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Pesticide	Methoxychlor	0 00088	J	5 60E-03	1 60E+02	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Semivolatile	Benzo(b)fluoranthene	0 14	J	3 66E-01	5 00E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 023	J	3 53E-01	3 60E+03	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Semivolatile	Dibenzo(a h)anthracene	0 078	J	1 20E-01	2 00E+00	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Volatile	Ethylbenzene	0 00038	J	1 07E-03	1 30E+01	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Volatile	Tetrachloroethene	0 001	J	8 80E-04	6 00E-02	No	</=Screening Level
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Volatile	Trichloroethylene	0 00058	J	NA	6 00E-02	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
O	SOIL-O-2	Surface	SOIL-O-2-0 5	Volatile	Xylenes Total	0 0013	J	1 61E-03	1 50E+02	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Herbicide	2,4,5-T	0 044	J	NA	1 10E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Herbicide	2,4-D	0 4		NA	1 50E+00	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Herbicide	MCPP	3 8	J	NA	NA	No	Screening Level NA
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Aluminum	9300		7 86E+03	NA	No	Screening Level NA
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Arsenic	5 5		9 26E+00	2.50E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Barium	100		3 28E+02	2 60E+02	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Beryllium	0 65		6 28E-01	1 10E+00	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Cadmium	0 69		2 91E-01	1 00E+00	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Calcium	4100		2 48E+04	NA	No	EN
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Chromium	17		1 57E+01	2 10E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Cobalt	10		9 14E+00	NA	No	Screening Level NA
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Copper	15		1 35E+01	3 30E+02	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Iron	17000		1 88E+04	NA	No	EN
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Lead	12		1 33E+01	NA	No	Screening Level NA
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Magnesium	3300		1 02E+04	NA	No	EN
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Manganese	730		4 50E+02	NA	No	Screening Level NA
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Mercury	0 22	J	2 07E-02	1 00E-02	Yes	>Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Nickel	21	J	2 35E+01	2 00E+01	No	</=BKG
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Potassium	760	J	1 75E+03	NA	No	EN
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Vanadium	28		2 98E+01	9 80E+02	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Metal	Zinc	48		5 88E+01	1 00E+03	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Pesticide	4,4'-DDT	0 0067	J	1 04E-03	3.20E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Pesticide	delta-BHC	0 013	J	NA	5 00E-04	Yes	>Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Pesticide	Dieldrin	0 005	J	NA	4 00E-03	Yes	>Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Pesticide	gamma-BHC (Lindane)	0 018	J	NA	9 00E-03	Yes	>Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Pesticide	Heptachlor	0 0073	J	NA	2 30E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	1,1 1-Trichloroethane	0 0065	J	NA	2 00E+00	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	2-Butanone (MEK)	0 0058	J	NA	NA	No	Screening Level NA
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	Acetone	0 018	J	NA	1 60E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	Benzene	0 6		NA	3 00E-02	Yes	>Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	Chlorobenzene	0 065		NA	1 00E+00	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	Chloroform	0 003	J	NA	6 00E-01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	Ethylbenzene	0 059		8 37E-04	1 30E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	Toluene	0 042		NA	1 20E+01	No	</=Screening Level
O	SOIL-O-2	Subsurface	SOIL-O-2-6FT	Volatile	Xylenes Total	0.22		1 50E-03	1 50E+02	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Herbicide	2,4 5-T	0 017	J	NA	1 10E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Herbicide	2 4-D	0 05	J	9 96E-03	1 50E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Herbicide	2 4-DB	0 019	J	NA	1 50E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Herbicide	Dichlorprop	0 01	J	1 14E-01	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Herbicide	MCPP	11	J	3 60E+00	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Herbicide	Pentachlorophenol	2		4 57E-03	2 00E-02	No	</=BKG
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Aluminum	8600	J	1 38E+04	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Arsenic	6 3		1 24E+01	2 50E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Barium	130	J	3 07E+02	2 60E+02	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Beryllium	0 54		9 02E-01	1 10E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Cadmium	1 7	J	3 34E+00	1 00E+00	No	</=BKG
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Calcium	6600		9 74E+04	NA	No	EN
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Chromium	15		2 21E+01	2 10E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Cobalt	6 9	J	9 40E+00	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Copper	40		8 58E+01	3 30E+02	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Iron	16000		2 33E+04	NA	No	EN
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Lead	20	J	1 30E+02	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Magnesium	4100	J	1 23E+04	NA	No	EN
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Manganese	490		5 52E+02	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Mercury	2 9		1 34E-01	1 00E-02	Yes	>Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Nickel	18		3 30E+01	2 00E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Potassium	860	J	3 01E+03	NA	No	EN
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Sodium	85	J	1 58E+02	NA	No	EN
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Vanadium	28	J	3 89E+01	9 80E+02	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Metal	Zinc	130	J	3 90E+02	1 00E+03	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	4 4'-DDD	0 086	J	7 04E-03	1 60E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	4,4'-DDT	0.23	J	4 04E-02	3 20E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	alpha-Chlordane	0 0094	J	6 15E-03	1 00E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	Dieldrin	0 18	J	1 13E-02	4 00E-03	No	</=BKG
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	Endosulfan II	0 011	J	1 16E-03	1 80E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	Endosulfan Sulfate	0 17	J	1 81E-03	1 80E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	Endrin Ketone	0 022	J	NA	1 00E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	gamma-BHC (Lindane)	0 032	J	NA	9 00E-03	Yes	>Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	gamma-Chlordane	0 18		4 11E-02	1 00E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Pesticide	Heptachlor	0 016	J	3 12E-02	2 30E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	1,2-Dichlorobenzene	0 036	J	NA	1 70E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	2,4-Dichlorophenol	0 035	J	NA	4 80E-01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	2-Nitroaniline	0 053	J	NA	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Benzo(a)anthracene	0 063	J	2 76E-01	2 00E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Benzo(b)fluoranthene	0 098	J	3 66E-01	5 00E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Benzo(g h,i)perylene	1 2		4 14E-01	4 20E+03	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Benzo(k)fluoranthene	0 1	J	2 83E-01	4 90E+01	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Benzyl Butyl Phthalate	0 035	J	NA	9 30E+02	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 062	J	3 53E-01	3 60E+03	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Chrysene	0 2	J	2 99E-01	1 60E+02	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Dibenzo(a,h)anthracene	0 13	J	1.20E-01	2 00E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Di-n-butylphthalate	0 049	J	NA	2 30E+03	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Hexachlorobenzene	0 11	J	NA	2 00E+00	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Phenanthrene	0 04	J	3 31E-01	1 20E+04	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Semivolatile	Pyrene	0 13	J	4 30E-01	4 20E+03	No	</=Screening Level
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Volatile	2-Butanone (MEK)	0 017	J	NA	NA	No	Screening Level NA
O	SOIL-O-3	Surface	SOIL-O-3-0 5	Volatile	Acetone	0 13		NA	1 60E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Herbicide	2 4,5-T	3 1	J	NA	1 10E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Herbicide	2 4-D	42	J	NA	1 50E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Aluminum	10000		7 86E+03	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Arsenic	8 6		9 26E+00	2 50E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Barium	130		3 28E+02	2 60E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Beryllium	0 74		6.28E-01	1 10E+00	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Cadmium	2 4		2 91E-01	1 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Calcium	6100		2 48E+04	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Chromium	24		1 57E+01	2 10E+01	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Cobalt	7		9 14E+00	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Copper	35		1 35E+01	3 30E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Iron	20000		1 88E+04	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Lead	22		1 33E+01	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Magnesium	3700		1 02E+04	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Manganese	460		4 50E+02	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Mercury	20	J	2 07E-02	1 00E-02	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Nickel	22	J	2 35E+01	2 00E+01	No	</=BKG
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Potassium	1000	J	1 75E+03	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Sodium	200		1 25E+02	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Vanadium	31		2 98E+01	9 80E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Metal	Zinc	150	J	5 88E+01	1 00E+03	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	4 4'-DDT	5 3	J	1 04E-03	3 20E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	beta-BHC	1 7	J	NA	5 00E-04	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	delta-BHC	5 3	J	NA	5 00E-04	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	Dieldrin	6 8		NA	4 00E-03	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	Endrin Aldehyde	1 6	J	NA	1 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	gamma-BHC (Lindane)	4 8	J	NA	9 00E-03	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	Heptachlor	5 3	J	NA	2 30E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Pesticide	Heptachlor Epoxide	0 64	J	6 40E-04	7 00E-01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	1 2,4-Trichlorobenzene	31	J	NA	5 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	1 2-Dichlorobenzene	130	J	NA	1 70E+01	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	1 3-Dichlorobenzene	5 2	J	NA	2 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	1 4-Dichlorobenzene	79	J	NA	2 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	2 4,6-Trichlorophenol	6 9	J	NA	2 00E-01	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	2 4-Dichlorophenol	10	J	NA	4 80E-01	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	2-Chlorophenol	9 6	J	NA	1 50E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	2-Methylnaphthalene	25	J	NA	1 20E+01	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Benzo(a)anthracene	14	J	NA	2 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Benzo(a)pyrene	8 6	J	NA	8 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Benzo(b)fluoranthene	9 1	J	NA	5 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Benzo(g,h,i)perylene	6 1	J	NA	4 20E+03	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Chrysene	31	J	NA	1 60E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Fluoranthene	4 4	J	NA	4 30E+03	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Naphthalene	7 7	J	NA	1.20E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Phenanthrene	21	J	NA	1.20E+04	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Phenol	7 9	J	NA	1 00E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Semivolatile	Pyrene	28	J	NA	4.20E+03	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	1,1 1-Trichloroethane	0 0063		NA	2 00E+00	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	2-Butanone (MEK)	0 03		NA	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	4-Methyl-2-pentanone (MIBK)	0 39	J	2 00E-03	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	Acetone	1 8	J	NA	1 60E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	Chlorobenzene	0.2	J	NA	1 00E+00	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	Chloroform	0 0066		NA	6 00E-01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	Ethylbenzene	0.2	J	8 37E-04	1 30E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	Toluene	0 068	J	NA	1.20E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT	Volatile	Xylenes Total	0 76		1 50E-03	1 50E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Herbicide	2,4-D	12	J	NA	1 50E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Aluminum	7000		7 86E+03	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Arsenic	6		9 26E+00	2 50E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Barium	240		3 28E+02	2 60E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Beryllium	0 51		6 28E-01	1 10E+00	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Cadmium	0 33	J	2 91E-01	1 00E+00	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Calcium	12000		2 48E+04	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Chromium	11		1 57E+01	2 10E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Cobalt	6 1		9 14E+00	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Copper	14		1 35E+01	3 30E+02	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Iron	13000		1 88E+04	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Lead	12		1 33E+01	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Magnesium	6300		1 02E+04	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Manganese	380		4 50E+02	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Mercury	0 056	J	2 07E-02	1 00E-02	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Nickel	16	J	2 35E+01	2 00E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Potassium	1600	J	1 75E+03	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Sodium	270		1 25E+02	NA	No	EN
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Vanadium	21		2 98E+01	9 80E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Metal	Zinc	49	J	5 88E+01	1 00E+03	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Pesticide	4,4'-DDT	0 75	J	1 04E-03	3.20E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Pesticide	beta-BHC	0 088	J	NA	5 00E-04	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Pesticide	delta-BHC	0 4	J	NA	5 00E-04	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Pesticide	Dieldrin	0 8		NA	4 00E-03	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Pesticide	gamma-BHC (Lindane)	0 96		NA	9 00E-03	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Pesticide	Heptachlor	0.25	J	NA	2 30E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Pesticide	Heptachlor Epoxide	0 14	J	6 40E-04	7.00E-01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	1,2,4-Trichlorobenzene	13	J	NA	5 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	1,2-Dichlorobenzene	27	J	NA	1 70E+01	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	1,4-Dichlorobenzene	15	J	NA	2 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	2,4-Dichlorophenol	4 4	J	NA	4 80E-01	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	2-Methylnaphthalene	10	J	NA	1 20E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	Benzo(a)anthracene	7 2	J	NA	2 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	Benzo(a)pyrene	5 6	J	NA	8 00E+00	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	Benzo(b)fluoranthene	6 1	J	NA	5 00E+00	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	Benzo(g,h,i)perylene	4	J	NA	4 20E+03	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	Chrysene	17	J	NA	1 60E+02	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	Phenanthrene	9 8	J	NA	1 20E+04	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Semivolatile	Pyrene	13	J	NA	4 20E+03	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Volatile	2-Butanone (MEK)	0 016	J	NA	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Volatile	4-Methyl-2-pentanone (MIBK)	0 051	J	2 00E-03	NA	No	Screening Level NA
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Volatile	Acetone	0 5		NA	1 60E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Volatile	Benzene	0 046	J	NA	3 00E-02	Yes	>Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Volatile	Chlorobenzene	0 22	J	NA	1 00E+00	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Volatile	Ethylbenzene	0 027	J	8 37E-04	1 30E+01	No	</=Screening Level
O	SOIL-O-3	Subsurface	SOIL-O-3-6FT-DUP	Volatile	Xylenes, Total	0 11	J	1 50E-03	1 50E+02	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Herbicide	Pentachlorophenol	0 0071	J	4 57E-03	2 00E-02	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Aluminum	4000		1 38E+04	NA	No	Screening Level NA
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Antimony	1 6	J	2 33E+00	5 00E+00	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Arsenic	26	J	1 24E+01	2 50E+01	Yes	>Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Barium	120		3 07E+02	2 60E+02	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Beryllium	1 8		9 02E-01	1 10E+00	Yes	>Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Cadmium	2		3 34E+00	1 00E+00	No	</=BKG
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Calcium	3200		9 74E+04	NA	No	EN
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Chromium	19		2 21E+01	2 10E+01	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Cobalt	13	J	9 40E+00	NA	No	Screening Level NA
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Copper	64		8 58E+01	3 30E+02	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Iron	9200		2 33E+04	NA	No	EN
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Lead	74		1 30E+02	NA	No	Screening Level NA
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Magnesium	460		1 23E+04	NA	No	EN
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Manganese	31		5 52E+02	NA	No	Screening Level NA
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Mercury	0.23		1 34E-01	1 00E-02	Yes	>Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Nickel	47		3 30E+01	2 00E+01	Yes	>Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Potassium	690	J	3 01E+03	NA	No	EN
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Selenium	7		1 08E+00	1 30E+00	Yes	>Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Silver	0.22	J	9 90E-01	2 40E-01	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Sodium	260		1 58E+02	NA	No	EN
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Thallium	1 3		NA	1 60E+00	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Vanadium	44		3 89E+01	9 80E+02	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Metal	Zinc	200	J	3 90E+02	1 00E+03	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Pesticide	4 4'-DDT	0 017	J	4 04E-02	3.20E+01	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Benzo(a)anthracene	0 029	J	2 76E-01	2 00E+00	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Benzo(a)pyrene	0 042	J	4 06E-01	8 00E+00	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Benzo(b)fluoranthene	0 032	J	3 66E-01	5 00E+00	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Benzo(g,h,i)perylene	0 072	J	4 14E-01	4 20E+03	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Benzo(k)fluoranthene	0 03	J	2 83E-01	4 90E+01	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 05	J	3 53E-01	3 60E+03	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Chrysene	0 034	J	2 99E-01	1 60E+02	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Dibenzo(a,h)anthracene	0 059	J	1 20E-01	2 00E+00	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Fluoranthene	0 04	J	4 50E-01	4 30E+03	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	0 066	J	NA	1 40E+01	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Phenanthrene	0 024	J	3 31E-01	1.20E+04	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Semivolatile	Pyrene	0 051	J	4 30E-01	4 20E+03	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	2-Butanone (MEK)	0 0071	J	NA	NA	No	Screening Level NA
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	4-Methyl-2-pentanone (MIBK)	0 021	J	NA	NA	No	Screening Level NA
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Benzene	0 0038	J	NA	3 00E-02	No	</=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Carbon Disulfide	0 0014	J	NA	3 20E+01	No	</=Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Chlorobenzene	0 004	J	NA	1 00E+00	No	<=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Ethylbenzene	0 0024	J	1 07E-03	1 30E+01	No	<=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Methyl N-Butyl Ketone	0 0059	J	NA	NA	No	Screening Level NA
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Tetrachloroethene	0 006	J	8 80E-04	6 00E-02	No	<=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Toluene	0 032	J	NA	1.20E+01	No	<=Screening Level
P	SOIL-P-1	Surface	SOIL-P-1-0 5	Volatile	Trichloroethylene	0 0015	J	NA	6 00E-02	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Herbicide	2 4 5-T	0 0078	J	NA	1 10E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Herbicide	2 4-D	0 055	J	NA	1 50E+00	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Herbicide	Dalapon	0 0083	J	NA	8 50E-01	No	<=Screening Level
P	SOIL-P 1	Subsurface	SOIL-P-1-6FT	Herbicide	Pentachlorophenol	0 02	J	NA	2 00E-02	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Aluminum	4500		7 86E+03	NA	No	Screening Level NA
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Antimony	0 86	J	1 21E+00	5 00E+00	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Arsenic	27	J	9 26E+00	2 50E+01	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Barium	120		3 28E+02	2 60E+02	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Beryllium	1.2		6 28E-01	1 10E+00	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Cadmium	5 6		2 91E-01	1 00E+00	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Calcium	45000		2 48E+04	NA	No	EN
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Chromium	23		1 57E+01	2 10E+01	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Cobalt	8 4	J	9 14E+00	NA	No	Screening Level NA
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Copper	35		1 35E+01	3 30E+02	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Iron	12000		1 88E+04	NA	No	EN
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Lead	110		1 33E+01	NA	No	Screening Level NA
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Magnesium	2800		1 02E+04	NA	No	EN
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Manganese	130		4 50E+02	NA	No	Screening Level NA
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Mercury	0 91		2 07E-02	1 00E-02	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Nickel	32		2 35E+01	2 00E+01	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Potassium	1100	J	1 75E+03	NA	No	EN
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Selenium	1 8		NA	1 30E+00	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Silver	0 3	J	NA	2 40E-01	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Sodium	1200		1 25E+02	NA	No	EN
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Thallium	1 5		NA	1 60E+00	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Vanadium	30		2 98E+01	9 80E+02	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Metal	Zinc	280	J	5 88E+01	1 00E+03	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Pesticide	alpha-BHC	0 02	J	NA	5 00E-04	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Pesticide	alpha-Chlordane	0 017	J	NA	1 00E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Pesticide	beta-BHC	0 26	J	NA	5 00E-04	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Pesticide	Endosulfan I	0 018	J	NA	1 80E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Pesticide	Endosulfan Sulfate	0 044	J	NA	1 80E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Pesticide	gamma-Chlordane	0 07		2 40E-04	1 00E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Semivolatile	1 2-Dichlorobenzene	0 48	J	NA	1 70E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Semivolatile	1 4-Dichlorobenzene	1 3	J	NA	2 00E+00	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Semivolatile	Benzyl Butyl Phthalate	3 6	J	NA	9 30E+02	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P 1-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	2 4	J	6 40E-02	3 60E+03	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Semivolatile	Phenanthrene	1	J	NA	1 20E+04	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	2-Butanone (MEK)	1 4	J	NA	NA	No	Screening Level NA
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	Acetone	1 2	J	NA	1 60E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	Benzene	0 28	J	NA	3 00E-02	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	Chlorobenzene	2 1		NA	1 00E+00	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	Dichloromethane	2 3		6 30E-03	2 00E-02	No	<=BKG
P	SOIL-P 1	Subsurface	SOIL-P-1-6FT	Volatile	Ethylbenzene	0 78		8 37E-04	1 30E+01	No	<=Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	Tetrachloroethene	0 24	J	1 02E-03	6 00E-02	No	<=BKG
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	Toluene	33		NA	1.20E+01	Yes	>Screening Level
P	SOIL-P-1	Subsurface	SOIL-P-1-6FT	Volatile	Xylenes Total	2 4		1 50E-03	1 50E+02	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P 2-0 5	Herbicide	2 4-D	0 0046	J	9 96E-03	1 50E+00	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Herbicide	Dichlorprop	0 0024	J	1 14E-01	NA	No	Screening Level NA
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Herbicide	Pentachlorophenol	0 0043	J	4 57E-03	2 00E-02	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Aluminum	6000		1 38E+04	NA	No	Screening Level NA
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Antimony	0 62	J	2 33E+00	5 00E+00	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Arsenic	9 4		1 24E+01	2 50E+01	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Barium	180	J	3 07E+02	2 60E+02	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Beryllium	0 85		9 02E-01	1 10E+00	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Cadmium	3		3 34E+00	1 00E+00	No	<=BKG
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Calcium	70000		9 74E+04	NA	No	EN
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Chromium	14		2 21E+01	2 10E+01	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Cobalt	7 6	J	9 40E+00	NA	No	Screening Level NA
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Copper	59	J	8 58E+01	3 30E+02	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Iron	11000		2 33E+04	NA	No	EN
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Lead	170	J	1 30E+02	NA	No	Screening Level NA
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Magnesium	4300		1 23E+04	NA	No	EN
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Manganese	360	J	5 52E+02	NA	No	Screening Level NA
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Mercury	0 072	J	1 34E-01	1 00E-02	No	<=BKG
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Nickel	21		3 30E+01	2 00E+01	No	<=BKG
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Potassium	1400	J	3 01E+03	NA	No	EN
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Silver	0 23	J	9 90E-01	2 40E-01	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Sodium	180		1 58E+02	NA	No	EN
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Vanadium	21		3 89E+01	9 80E+02	No	<=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Metal	Zinc	390	J	3 90E+02	1 00E+03	No	<=Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Pesticide	4 4-DDE	0 003	J	1 23E-02	5 40E+01	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Pesticide	4 4-DDT	0 0081	J	4 04E-02	3 20E+01	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Pesticide	alpha-Chlordane	0 0015	J	6 15E-03	1 00E+01	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Pesticide	Dieldrin	0 002	J	1 13E-02	4 00E-03	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Acenaphthene	0 075	J	4 20E-02	5 70E+02	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Anthracene	0.23	J	1 20E-01	1 20E+04	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Benzo(a)anthracene	0 68		2 76E-01	2 00E+00	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Benzo(a)pyrene	0 67		4 06E-01	8 00E+00	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Benzo(b)fluoranthene	0 68		3 66E-01	5 00E+00	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Benzo(g h i)perylene	0 32	J	4 14E-01	4 20E+03	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Benzo(k)fluoranthene	0 57		2 83E-01	4 90E+01	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 035	J	3 53E-01	3 60E+03	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Carbazole	0 073	J	NA	6 00E-01	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Chrysene	0 77		2 99E-01	1 60E+02	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Dibenzo(a h)anthracene	0 11	J	1 20E-01	2 00E+00	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Dibenzofuran	0 029	J	NA	NA	No	Screening Level NA
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Fluoranthene	1 7		4 50E-01	4 30E+03	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Fluorene	0 065	J	NA	5 60E+02	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Indeno(1 2 3-cd)pyrene	0 24	J	NA	1 40E+01	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Phenanthrene	1 1		3 31E-01	1 20E+04	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Phenol	0 36	J	NA	1 00E+02	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Semivolatile	Pyrene	1 8		4 30E-01	4.20E+03	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Volatile	Ethylbenzene	0 00026	J	1 07E-03	1 30E+01	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Volatile	Styrene (Monomer)	0 00034	J	4 47E-03	4 00E+00	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Volatile	Tetrachloroethene	0 0031	J	8 80E-04	6 00E-02	No	</=Screening Level
P	SOIL-P-2	Surface	SOIL-P-2-0 5	Volatile	Trichloroethylene	0 00079	J	NA	6 00E-02	No	</=Screening Level
P	SOIL P 2	Surface	SOIL-P-2-0 5	Volatile	Xylenes Total	0 00097	J	1 61E-03	1 50E+02	No	</=Screening Level
P	SOIL P-2	Subsurface	SOIL-P-2-6FT	Herbicide	Pentachlorophenol	1 2		NA	2 00E-02	Yes	>Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Aluminum	5300		7 86E+03	NA	No	Screening Level NA
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Antimony	1.2	J	1 21E+00	5 00E+00	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Arsenic	12		9 26E+00	2 50E+01	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Barium	110	J	3 28E+02	2 60E+02	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Beryllium	0 41	J	6 28E-01	1 10E+00	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Cadmium	6 8		2 91E-01	1 00E+00	Yes	>Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Calcium	40000		2 48E+04	NA	No	EN
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Chromium	22		1 57E+01	2 10E+01	Yes	>Screening Level
P	SOIL-P 2	Subsurface	SOIL-P-2-6FT	Metal	Cobalt	4 3	J	9 14E+00	NA	No	Screening Level NA
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Copper	52	J	1 35E+01	3 30E+02	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Iron	22000		1 88E+04	NA	No	EN
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Lead	86	J	1 33E+01	NA	No	Screening Level NA
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Magnesium	1800		1 02E+04	NA	No	EN
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Manganese	210	J	4 50E+02	NA	No	Screening Level NA
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Mercury	3 2	J	2 07E-02	1 00E-02	Yes	>Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Nickel	20		2 35E+01	2 00E+01	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Potassium	1200	J	1 75E+03	NA	No	EN
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Selenium	3 4	J	NA	1 30E+00	Yes	>Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Silver	0 8	J	NA	2 40E-01	Yes	>Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Sodium	790		1 25E+02	NA	No	EN
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Vanadium	25		2 98E+01	9 80E+02	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Metal	Zinc	700	J	5 88E+01	1 00E+03	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Pesticide	alpha-BHC	0 01	J	NA	5 00E-04	Yes	>Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	1 2 4-Trichlorobenzene	0 1	J	NA	5 00E+00	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	1 2-Dichlorobenzene	14	J	NA	1 70E+01	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	1,3-Dichlorobenzene	0 46	J	NA	2 00E+00	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	1 4-Dichlorobenzene	160		NA	2 00E+00	Yes	>Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Anthracene	0 34	J	NA	1.20E+04	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Benzo(a)anthracene	0 16	J	NA	2 00E+00	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Benzo(a)pyrene	0 15	J	NA	8 00E+00	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Benzo(b)fluoranthene	0 23	J	NA	5 00E+00	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Benzo(g h,i)perylene	0 15	J	NA	4.20E+03	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Benzo(k)fluoranthene	0 16	J	NA	4 90E+01	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	0 61	J	6 40E-02	3 60E+03	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Chrysene	0 43	J	NA	1 60E+02	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Dibenzofuran	0 38	J	NA	NA	No	Screening Level NA
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Di-n-butylphthalate	0 17	J	NA	2 30E+03	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Di-n-octylphthalate	0 59	J	NA	1 00E+04	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Phenanthrene	0 34	J	NA	1 20E+04	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Phenol	0 78	J	NA	1 00E+02	No	</=Screening Level
P	SOIL-P-2	Subsurface	SOIL-P-2-6FT	Semivolatile	Pyrene	0 33	J	NA	4.20E+03	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Herbicide	Dichlorprop	0 0012	J	1 14E-01	NA	No	Screening Level NA
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Herbicide	MCPP	0 56	J	3 60E+00	NA	No	Screening Level NA
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Herbicide	Pentachlorophenol	0 028		4 57E-03	2 00E-02	No	</=BKG
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Aluminum	3200		1 38E+04	NA	No	Screening Level NA
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Antimony	0 56	J	2 33E+00	5 00E+00	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Arsenic	17	J	1 24E+01	2 50E+01	No	</=Screening Level
P	SOIL-P 3	Surface	SOIL-P-3-0 5	Metal	Barium	87		3 07E+02	2 60E+02	No	</=Screening Level
P	SOIL P-3	Surface	SOIL-P-3-0 5	Metal	Beryllium	1 5		9 02E-01	1 10E+00	Yes	>Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Cadmium	1		3 34E+00	1 00E+00	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Calcium	6600		9 74E+04	NA	No	EN
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Chromium	16		2 21E+01	2 10E+01	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Cobalt	9 7	J	9 40E+00	NA	No	Screening Level NA
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Copper	51		8 58E+01	3 30E+02	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Iron	7300		2 33E+04	NA	No	EN
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Lead	57		1 30E+02	NA	No	Screening Level NA
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Magnesium	780		1 23E+04	NA	No	EN
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Manganese	80		5 52E+02	NA	No	Screening Level NA
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Mercury	0 088		1 34E-01	1 00E-02	No	</=BKG
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Nickel	25		3 30E+01	2 00E+01	No	</=BKG
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Potassium	550	J	3 01E+03	NA	No	EN
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Selenium	1 6		1 08E+00	1 30E+00	Yes	>Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Silver	0 13	J	9 90E-01	2 40E-01	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Sodium	250		1 58E+02	NA	No	EN
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Vanadium	26		3 89E+01	9 80E+02	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Metal	Zinc	190	J	3 90E+02	1 00E+03	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Pesticide	4 4'-DDT	0 0091	J	4 04E-02	3.20E+01	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Pesticide	Dieldrin	0 003	J	1 13E-02	4 00E-03	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Volatile	4-Methyl-2-pentanone (MIBK)	0 017	J	NA	NA	No	Screening Level NA
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Volatile	Benzene	0 0094	J	NA	3 00E-02	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Volatile	Carbon Disulfide	0 0014	J	NA	3 20E+01	No	</=Screening Level
P	SOIL-P-3	Surface	SOIL-P-3-0 5	Volatile	Tetrachloroethene	0 0019	J	8 80E-04	6 00E-02	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Herbicide	Dalapon	0 008	J	NA	8 50E-01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Herbicide	MCPP	1 5	J	NA	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Herbicide	Pentachlorophenol	0 019	J	NA	2 00E-02	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Aluminum	6800		7 86E+03	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Arsenic	8 9	J	9 26E+00	2 50E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Barium	130		3 28E+02	2 60E+02	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Beryllium	0 45	J	6 28E-01	1 10E+00	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Cadmium	3 6		2 91E-01	1 00E+00	Yes	>Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Calcium	40000		2 48E+04	NA	No	EN
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Chromium	14		1 57E+01	2 10E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Cobalt	6 9	J	9 14E+00	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Copper	30		1 35E+01	3 30E+02	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Iron	12000		1 88E+04	NA	No	EN
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Lead	34		1 33E+01	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Magnesium	2600		1 02E+04	NA	No	EN
P	SOIL-P 3	Subsurface	SOIL-P-3-6FT	Metal	Manganese	440		4 50E+02	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Mercury	1 6		2 07E-02	1 00E-02	Yes	>Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Nickel	17		2 35E+01	2 00E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Potassium	930	J	1 75E+03	NA	No	EN
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Silver	0 25	J	NA	2 40E-01	Yes	>Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Sodium	10000		1 25E+02	NA	No	EN
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Vanadium	25		2 98E+01	9 80E+02	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Metal	Zinc	2900	J	5 88E+01	1 00E+03	Yes	>Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Pesticide	4 4'-DDE	0 019	J	NA	5 40E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Pesticide	Dieldrin	0 017	J	NA	4 00E-03	Yes	>Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Pesticide	Endosulfan Sulfate	0 028	J	NA	1 80E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Pesticide	Endrin Aldehyde	0 059	J	NA	1 00E+00	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	1 1-Dichloroethane	0 0024	J	NA	2 30E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	2-Butanone (MEK)	0 2		NA	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	4-Methyl-2-pentanone (MIBK)	1 2	J	2 00E-03	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Acetone	0 39	J	NA	1 60E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Benzene	2 2		NA	3 00E-02	Yes	>Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Chlorobenzene	0 017	J	NA	1 00E+00	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Chloroform	0 002	J	NA	6 00E-01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Ethylbenzene	0 11	J	8 37E-04	1 30E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Methyl N-Butyl Ketone	0 048	J	NA	NA	No	Screening Level NA
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Tetrachloroethene	0 011	J	1 02E-03	6 00E-02	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Toluene	4 8		NA	1.20E+01	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Trichloroethylene	0 0013	J	NA	6 00E-02	No	</=Screening Level
P	SOIL-P-3	Subsurface	SOIL-P-3-6FT	Volatile	Xylenes Total	0 43	J	1 50E-03	1 50E+02	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Herbicide	2 4 5-T	0 0014	J	NA	1 10E+01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Herbicide	2 4-D	0 01	J	9 96E-03	1 50E+00	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Herbicide	Dichlorprop	0 0095	J	1 14E-01	NA	No	Screening Level NA
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Herbicide	MCPP	2 3	J	3 60E+00	NA	No	Screening Level NA
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Herbicide	Pentachlorophenol	0 011	J	4 57E-03	2 00E-02	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Aluminum	6000		1 38E+04	NA	No	Screening Level NA
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Arsenic	4	J	1 24E+01	2 50E+01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Barium	77		3 07E+02	2 60E+02	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Beryllium	0 42		9 02E-01	1 10E+00	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Cadmium	0 62		3 34E+00	1 00E+00	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Calcium	13000		9 74E+04	NA	No	EN
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Chromium	13		2 21E+01	2 10E+01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Cobalt	6 2	J	9 40E+00	NA	No	Screening Level NA
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Copper	21		8 58E+01	3 30E+02	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Iron	12000		2 33E+04	NA	No	EN
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Lead	15		1 30E+02	NA	No	Screening Level NA
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Magnesium	7900		1.23E+04	NA	No	EN
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Manganese	390		5 52E+02	NA	No	Screening Level NA
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Mercury	0 068		1 34E-01	1 00E-02	No	</=BKG
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Nickel	17		3 30E+01	2 00E+01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Potassium	990	J	3 01E+03	NA	No	EN
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Vanadium	25		3 89E+01	9 80E+02	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Metal	Zinc	85	J	3 90E+02	1 00E+03	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Pesticide	4 4 -DDT	1 1	J	4 04E-02	3 20E+01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Pesticide	alpha-Chlordane	0 018	J	6 15E-03	1 00E+01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Pesticide	Endosulfan Sulfate	0 036	J	1 81E-03	1 80E+01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Pesticide	Endrin Aldehyde	0 14	J	5 88E-03	1 00E+00	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Pesticide	Endrin Ketone	0 0097	J	NA	1 00E+00	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Pesticide	Heptachlor Epoxide	0 015	J	1 05E-02	7 00E-01	No	</=Screening Level
P	SOIL-P-4	Surface	SOIL-P-4-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 036	J	3 53E-01	3 60E+03	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Herbicide	2 4 5-T	0 0039	J	NA	1 10E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Herbicide	2 4-D	0 013	J	NA	1 50E+00	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Herbicide	Dalapon	0 003	J	NA	8 50E-01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Herbicide	Dicamba	0 0031	J	NA	NA	No	Screening Level NA
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Herbicide	Pentachlorophenol	0 032		NA	2 00E-02	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Aluminum	4700		7 86E+03	NA	No	Screening Level NA
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Antimony	0 75	J	1 21E+00	5 00E+00	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Arsenic	7 9	J	9 26E+00	2 50E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Barium	94		3.28E+02	2 60E+02	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Beryllium	0 73		6 28E-01	1 10E+00	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Cadmium	1.2		2 91E-01	1 00E+00	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Calcium	59000		2 48E+04	NA	No	EN
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Chromium	31		1 57E+01	2 10E+01	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Cobalt	5 1	J	9 14E+00	NA	No	Screening Level NA
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Copper	36		1 35E+01	3 30E+02	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Iron	8300		1 88E+04	NA	No	EN
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Lead	130		1 33E+01	NA	No	Screening Level NA
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Magnesium	5500		1 02E+04	NA	No	EN
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Manganese	220		4 50E+02	NA	No	Screening Level NA
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Mercury	1 4		2 07E-02	1 00E-02	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Nickel	23		2 35E+01	2 00E+01	No	</=BKG
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Potassium	1100	J	1 75E+03	NA	No	EN
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Selenium	0 75	J	NA	1 30E+00	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Sodium	2400		1 25E+02	NA	No	EN
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Vanadium	18		2 98E+01	9 80E+02	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Metal	Zinc	200	J	5 88E+01	1 00E+03	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	4 4-DDE	0 41	J	NA	5 40E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	4 4-DDT	1 7	J	1 04E-03	3.20E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	alpha-Chlordane	0 028		NA	1 00E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	beta-BHC	0 034	J	NA	5 00E-04	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	Dieldrin	0 56		NA	4 00E-03	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	Endosulfan Sulfate	0 041	J	NA	1 80E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	Endrin Ketone	0 021	J	NA	1 00E+00	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	gamma-BHC (Lindane)	0 066	J	NA	9 00E-03	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	gamma-Chlordane	0 22	J	2 40E-04	1 00E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Pesticide	Methoxychlor	0 1	J	1 02E-03	1 60E+02	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	1 2-Dichloroethene (total)	0 12	J	NA	4 00E-01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	2-Butanone (MEK)	0 36	J	NA	NA	No	Screening Level NA
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Acetone	1 5	J	NA	1 60E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Benzene	0 64		NA	3 00E-02	Yes	>Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Chlorobenzene	1		NA	1 00E+00	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Dichloromethane	1		6 30E-03	2 00E-02	No	</=BKG
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Ethylbenzene	10		8 37E-04	1 30E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Tetrachloroethene	0 4		1 02E-03	6 00E-02	No	</=BKG
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Toluene	10		NA	1.20E+01	No	</=Screening Level
P	SOIL-P-4	Subsurface	SOIL-P-4-6FT	Volatile	Xylenes Total	31		1 50E-03	1 50E+02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Herbicide	2 4-D	0 0089	J	9 96E-03	1 50E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Herbicide	MCPP	1 2	J	3 60E+00	NA	No	Screening Level NA
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Herbicide	Pentachlorophenol	0 099		4 57E-03	2 00E-02	No	</=BKG
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Aluminum	4100		1 38E+04	NA	No	Screening Level NA
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Antimony	0 54	J	2 33E+00	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Arsenic	3 1	J	1 24E+01	2 50E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Barium	85		3 07E+02	2 60E+02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Beryllium	0 23	J	9 02E-01	1 10E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Cadmium	1 3		3 34E+00	1.00E+00	No	</=BKG
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Calcium	230000		9 74E+04	NA	No	EN
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Chromium	16		2.21E+01	2 10E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Cobalt	2 7		9 40E+00	NA	No	Screening Level NA
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Copper	19	J	8 58E+01	3 30E+02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Iron	7100		2 33E+04	NA	No	EN
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Lead	63		1 30E+02	NA	No	Screening Level NA

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Magnesium	6100		1 23E+04	NA	No	EN
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Manganese	290		5 52E+02	NA	No	Screening Level NA
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Mercury	0 076	J	1 34E-01	1 00E-02	No	</=BKG
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Nickel	9 3		3 30E+01	2 00E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Potassium	680		3 01E+03	NA	No	EN
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Vanadium	17		3 89E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Metal	Zinc	150	J	3 90E+02	1 00E+03	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	4 4 -DDD	0 034		7 04E-03	1 60E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	4 4 -DDE	0 05		1 23E-02	5 40E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	4 4 -DDT	0 26	J	4 04E-02	3.20E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	alpha-Chlordane	0 0066	J	6 15E-03	1 00E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	Dieldrin	0 0064	J	1 13E-02	4 00E-03	No	</=BKG
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	Endrin Aldehyde	0 0016	J	5 88E-03	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	Endrin Ketone	0 0061		NA	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	gamma-Chlordane	0 012		4 11E-02	1 00E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	Heptachlor	0 001	J	3 12E-02	2 30E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Pesticide	Heptachlor Epoxide	0 0038	J	1 05E-02	7 00E-01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	2-Methylnaphthalene	0 042	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Acenaphthene	0 18	J	4 20E-02	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Anthracene	0 61		1 20E-01	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Benzo(a)anthracene	1 7		2 76E-01	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Benzo(a)pyrene	1 7		4 06E-01	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Benzo(b)fluoranthene	1 5		3 66E-01	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Benzo(g h i)perylene	0 88		4 14E-01	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Benzo(k)fluoranthene	1 9		2 83E-01	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	bis(2-Ethylhexyl)phthalate	0 054	J	3 53E-01	3 60E+03	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Carbazole	0 28	J	NA	6 00E-01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Chrysene	1 8		2 99E-01	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Dibenzofuran	0 13	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Fluoranthene	3 8		4 50E-01	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Fluorene	0 21	J	NA	5 60E+02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Indeno(1 2 3-cd)pyrene	0 54		NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Naphthalene	0 056	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Phenanthrene	2 7		3 31E-01	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Semivolatile	Pyrene	3 7		4 30E-01	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Volatile	2-Butanone (MEK)	0 0015	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Volatile	Chlorobenzene	0 00052	J	NA	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Volatile	Ethylbenzene	0 00019	J	1 07E-03	1 30E+01	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Volatile	Trichloroethylene	0 00071	J	NA	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-1	Surface	SOIL-Q-1-0 5FT	Volatile	Xylenes Total	0 00066	J	1 61E-03	1 50E+02	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Herbicide	2 4-D	0 0086	J	9 96E-03	1 50E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Herbicide	2 4-DB	0 028	J	NA	1 50E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Aluminum	10000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Antimony	3	J	2 33E+00	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Arsenic	20		1 24E+01	2 50E+01	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Barium	690		3 07E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Beryllium	0 71		9 02E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Cadmium	13		3 34E+00	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Calcium	12000		9 74E+04	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Chromium	51		2 21E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Cobalt	12		9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Copper	300	J	8 58E+01	3 30E+02	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Iron	71000		2 33E+04	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Lead	390		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Magnesium	3100		1 23E+04	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Manganese	670		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Mercury	2 5	J	1 34E-01	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Nickel	61		3 30E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Potassium	900		3 01E+03	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Silver	2		9 90E-01	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Vanadium	30		3 89E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Metal	Zinc	1200	J	3 90E+02	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	4 4 -DDT	0 0053	J	4 04E-02	3 20E+01	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	Dieldrin	0 0026	J	1 13E-02	4 00E-03	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	Endosulfan II	0 001	J	1 16E-03	1 80E+01	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	Endrin	0 0024	J	5 02E-03	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	Endrin Aldehyde	0 0014	J	5 88E-03	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	Endrin Ketone	0 0049	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	gamma-Chlordane	0 0017	J	4 11E-02	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Pesticide	Heptachlor Epoxide	0 00052	J	1 05E-02	7 00E-01	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Acenaphthene	0 037	J	4 20E-02	5 70E+02	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Anthracene	0 2	J	1 20E-01	1 20E+04	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Benzo(a)anthracene	0 53		2 76E-01	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Benzo(a)pyrene	0 65		4 06E-01	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Benzo(b)fluoranthene	0 58		3 66E-01	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Benzo(g h i)perylene	0 37	J	4 14E-01	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Benzo(k)fluoranthene	0 6		2 83E-01	4 90E+01	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 025	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Carbazole	0 081	J	NA	6 00E-01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Chrysene	0 59		2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Dibenzofuran	0 024	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Fluoranthene	0 96		4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Fluorene	0 034	J	NA	5 60E+02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Phenanthrene	0 94		3 31E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Semivolatile	Pyrene	1 3		4 30E-01	4.20E+03	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Volatile	Tetrachloroethene	0 0006	J	8 80E-04	6 00E-02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Volatile	Trichloroethylene	0 0012	J	NA	6 00E-02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5	Volatile	Xylenes Total	0 00085	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Herbicide	2 4 5-T	0 0013	J	NA	1 10E+01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Herbicide	2,4-D	0 015		9 96E-03	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Herbicide	Dichlorprop	0 0015	J	1 14E-01	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Aluminum	11000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Antimony	2 5	J	2 33E+00	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Arsenic	14		1 24E+01	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Barium	730		3 07E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Beryllium	0 79		9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Cadmium	11		3 34E+00	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Calcium	13000		9 74E+04	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Chromium	48		2 21E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Cobalt	11		9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Copper	410	J	8 58E+01	3 30E+02	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Iron	40000		2 33E+04	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Lead	490		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Magnesium	3300		1 23E+04	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Manganese	520		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Mercury	2 7	J	1 34E-01	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Nickel	49		3 30E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Potassium	1000		3 01E+03	NA	No	EN
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Silver	2 5		9 90E-01	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Vanadium	32		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Metal	Zinc	1200	J	3 90E+02	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Pesticide	4 4'-DDT	0 078	J	4 04E-02	3.20E+01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Pesticide	alpha-Chlordane	0 0052	J	6 15E-03	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Pesticide	Dieldrin	0 015	J	1 13E-02	4 00E-03	No	<=BKG
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Pesticide	Endosulfan II	0 0015	J	1 16E-03	1 80E+01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Pesticide	Endrin Aldehyde	0 015	J	5 88E-03	1 00E+00	No	<=Screening Level
Q South	SOIL-Q 10	Surface	SOIL-Q-10-0 5-DUP	Pesticide	gamma-Chlordane	0 024	J	4 11E-02	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Pesticide	Heptachlor Epoxide	0 0048	J	1 05E-02	7 00E-01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Acenaphthene	0 26	J	4 20E-02	5 70E+02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Anthracene	1 4	J	1 20E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Benzo(a)anthracene	4 5		2 76E-01	2 00E+00	Yes	>Screening Level
Q South	SOIL-Q 10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Benzo(a)pyrene	5 3		4 06E-01	8 00E+00	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Benzo(b)fluoranthene	4 8		3 66E-01	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Benzo(g h i)perylene	3 8	J	4 14E-01	4 20E+03	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Benzo(k)fluoranthene	4 4		2 83E-01	4 90E+01	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	bis(2-Ethylhexyl)phthalate	0 3	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Carbazole	0 67	J	NA	6 00E-01	Yes	>Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Chrysene	5 1		2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Fluoranthene	8		4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Phenanthrene	6 3		3 31E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Semivolatile	Pyrene	8 6		4 30E-01	4 20E+03	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Volatile	Tetrachloroethene	0 00047	J	8 80E-04	6 00E-02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Volatile	Trichloroethylene	0 0013	J	NA	6 00E-02	No	<=Screening Level
Q South	SOIL-Q-10	Surface	SOIL-Q-10-0 5-DUP	Volatile	Xylenes Total	0 00093	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Aluminum	9900		7 86E+03	NA	No	Screening Level NA
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Antimony	16	J	1 21E+00	5 00E+00	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Arsenic	19		9 26E+00	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Barium	1200		3 28E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Beryllium	0 34	J	6 28E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Cadmium	17		2 91E-01	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Calcium	16000		2 48E+04	NA	No	EN
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Chromium	98		1 57E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Cobalt	21		9 14E+00	NA	No	Screening Level NA
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Copper	1700	J	1 35E+01	3 30E+02	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Iron	130000		1 88E+04	NA	No	EN
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Lead	1200		1 33E+01	NA	No	Screening Level NA
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Magnesium	1900		1 02E+04	NA	No	EN
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Manganese	870		4 50E+02	NA	No	Screening Level NA
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Mercury	0 49	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Nickel	100		2 35E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Potassium	670		1 75E+03	NA	No	EN
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Selenium	3 7		NA	1 30E+00	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Silver	9 9		NA	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Sodium	410		1 25E+02	NA	No	EN

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Vanadium	16		2 98E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Metal	Zinc	1900	J	5 88E+01	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	4 4 -DDD	0 0078	J	NA	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	4 4'-DDE	0 036		NA	5 40E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	4 4'-DDT	0 074	J	1 04E-03	3.20E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	alpha-BHC	0 0029		NA	5 00E-04	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	alpha-Chlordane	0 0049	J	NA	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	delta-BHC	0 00052	J	NA	5 00E-04	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	Dieldrin	0 034	J	NA	4 00E-03	Yes	>Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	Endosulfan II	0 0039	J	NA	1 80E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	Endosulfan Sulfate	0 006	J	NA	1 80E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	Endrin	0 0068	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	gamma-Chlordane	0 0032	J	2 40E-04	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Pesticide	Heptachlor Epoxide	0 007	J	6 40E-04	7 00E-01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	1 4-Dichlorobenzene	0 052	J	NA	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	4-Chloroaniline	0 16	J	NA	7 00E-01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Benzo(a)anthracene	0 26	J	NA	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Benzo(a)pyrene	0 34	J	NA	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Benzo(b)fluoranthene	0 56		NA	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Benzyl Butyl Phthalate	1 1		NA	9 30E+02	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	bis(2-Ethylhexyl)phthalate	2 5		6 40E-02	3 60E+03	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Chrysene	0 33	J	NA	1 60E+02	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Fluoranthene	0 44	J	NA	4 30E+03	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Phenanthrene	0 22	J	NA	1.20E+04	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Semivolatile	Pyrene	0 52		NA	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	2-Butanone (MEK)	0 015	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Acetone	0 048	J	NA	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Benzene	0 0021	J	NA	3 00E-02	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Carbon Disulfide	0 0035	J	NA	3 20E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Chlorobenzene	0 0045	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Chloroform	0 0013	J	NA	6 00E-01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Ethylbenzene	0 0014	J	8 37E-04	1 30E+01	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Styrene (Monomer)	0 00072	J	3 74E-03	4 00E+00	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Tetrachloroethene	0 0037	J	1 02E-03	6 00E-02	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Trichloroethylene	0 0027	J	NA	6 00E-02	No	</=Screening Level
Q South	SOIL-Q-10	Subsurface	SOIL-Q-10-6	Volatile	Xylenes Total	0 0062	J	1 50E-03	1 50E+02	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Herbicide	Pentachlorophenol	2 3	J	4 57E-03	2 00E-02	No	</=BKG
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Aluminum	11000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Antimony	26	J	2 33E+00	5 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Arsenic	18		1 24E+01	2 50E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Barium	1300		3 07E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Beryllium	0 64		9 02E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Cadmium	30		3 34E+00	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Calcium	70000		9 74E+04	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Chromium	170		2 21E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Cobalt	16		9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Copper	2600		8 58E+01	3 30E+02	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Iron	59000		2 33E+04	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Lead	2600		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Magnesium	4000		1 23E+04	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Manganese	790		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Mercury	2 3		1 34E-01	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Nickel	77		3 30E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Potassium	1100	J	3 01E+03	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Selenium	3	J	1 08E+00	1 30E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Silver	17		9 90E-01	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Sodium	620		1 58E+02	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Vanadium	26		3 89E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Metal	Zinc	3400		3 90E+02	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	4 4'-DDE	0 57	J	1 23E-02	5 40E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	4 4'-DDT	1 5	J	4 04E-02	3 20E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	alpha-BHC	0 17		4 96E-02	5 00E-04	No	</=BKG
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	alpha-Chlordane	0 053	J	6 15E-03	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	Dieldrin	0 4	J	1 13E-02	4 00E-03	No	</=BKG
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	Endosulfan Sulfate	0 032	J	1 81E-03	1 80E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	Endrin Ketone	0 11	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Pesticide	gamma-Chlordane	0 41	J	4 11E-02	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	1,2-Dichlorobenzene	0 031	J	NA	1 70E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	1,4-Dichlorobenzene	0 43	J	NA	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	2-Methylnaphthalene	0 062	J	NA	1.20E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Acenaphthene	0 063	J	4 20E-02	5 70E+02	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Anthracene	0.23	J	1 20E-01	1 20E+04	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Benzo(a)anthracene	0 74		2 76E-01	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Benzo(a)pyrene	0 68		4 06E-01	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Benzo(b)fluoranthene	0 75		3 66E-01	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Benzo(g h i)perylene	0 28	J	4 14E-01	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Benzo(k)fluoranthene	0 7		2 83E-01	4 90E+01	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Benzyl Butyl Phthalate	0 55		NA	9 30E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	13	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Carbazole	0 084	J	NA	6 00E-01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Chrysene	0 71		2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Dibenzo(a h)anthracene	0 086	J	1.20E-01	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Dibenzofuran	0 046	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Diethyl Phthalate	0 078	J	NA	4 70E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Di-n-butylphthalate	0 16	J	NA	2 30E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Fluoranthene	1 9		4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Fluorene	0 096	J	NA	5 60E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	0 18	J	NA	1 40E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Naphthalene	0 49		NA	1 20E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Phenanthrene	0 78	J	3 31E-01	1.20E+04	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Semivolatile	Pyrene	2		4 30E-01	4.20E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Volatile	4-Methyl-2-pentanone (MIBK)	0 0043	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Volatile	Benzene	0 0057	J	NA	3 00E-02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Volatile	Chlorobenzene	0 045	J	NA	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Volatile	Chloroform	0 0018	J	NA	6 00E-01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Volatile	Ethylbenzene	0 005	J	1 07E-03	1 30E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Volatile	Tetrachloroethene	0 00096	J	8 80E-04	6 00E-02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5	Volatile	Xylenes Total	0 067	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Herbicide	2 4 5-T	0 0074	J	NA	1 10E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Herbicide	MCPA	0 72	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Herbicide	MCPP	5.2	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Herbicide	Pentachlorophenol	3 6	J	4 57E-03	2 00E-02	No	<=BKG
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Aluminum	9900		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Antimony	20	J	2 33E+00	5 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Arsenic	17		1 24E+01	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Barium	1500		3 07E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Beryllium	0 62		9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Cadmium	29		3 34E+00	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Calcium	73000		9 74E+04	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Chromium	150		2 21E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Cobalt	16		9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Copper	870		8 58E+01	3 30E+02	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Iron	63000		2 33E+04	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Lead	2000		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Magnesium	5700		1 23E+04	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Manganese	680		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Mercury	4 1		1 34E-01	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Nickel	77		3 30E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Potassium	1100	J	3 01E+03	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Selenium	2 5	J	1 08E+00	1 30E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Silver	8 3		9 90E-01	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Sodium	480		1 58E+02	NA	No	EN
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Vanadium	28		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Metal	Zinc	3600		3 90E+02	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	4 4 -DDE	0 56	J	1 23E-02	5 40E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	4,4'-DDT	1 4	J	4 04E-02	3.20E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	alpha-BHC	0 2	J	4 96E-02	5 00E-04	No	<=BKG
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	alpha-Chlordane	0 06	J	6 15E-03	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	Dieldrin	0 35	J	1 13E-02	4 00E-03	No	<=BKG
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	Endosulfan Sulfate	0 043	J	1 81E-03	1 80E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	Endrin Ketone	0 11	J	NA	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Pesticide	gamma-Chlordane	0 39	J	4 11E-02	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	1,2-Dichlorobenzene	0 031	J	NA	1 70E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	1 4-Dichlorobenzene	0 27	J	NA	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	2-Methylnaphthalene	0 048	J	NA	1 20E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Acenaphthene	0 13	J	4 20E-02	5 70E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Anthracene	0 82		1 20E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Benzo(a)anthracene	2 1		2 76E-01	2 00E+00	No	<=BKG
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Benzo(a)pyrene	1 9		4 06E-01	8 00E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Benzo(b)fluoranthene	2 2		3 66E-01	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Benzo(g h i)perylene	0 72		4 14E-01	4 20E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Benzo(k)fluoranthene	1 7		2 83E-01	4 90E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Benzyl Butyl Phthalate	0 18	J	NA	9 30E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	bis(2-Ethylhexyl)phthalate	4 2	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Carbazole	0 27	J	NA	6 00E-01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Chrysene	2 1		2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Dibenzo(a h)anthracene	0 28	J	1 20E-01	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Dibenzofuran	0 12	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Di-n-butylphthalate	0 066	J	NA	2 30E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Fluoranthene	4 2		4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Fluorene	0.24	J	NA	5 60E+02	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Indeno(1,2 3-cd)pyrene	0 44	J	NA	1 40E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Naphthalene	0 17	J	NA	1 20E+01	No	<=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Phenanthrene	2 8	J	3 31E-01	1 20E+04	No	<=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Semivolatile	Pyrene	4 2		4 30E-01	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Volatile	4-Methyl-2-pentanone (MIBK)	0 003	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Volatile	Chlorobenzene	0 01	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Volatile	Ethylbenzene	0 021		1 07E-03	1 30E+01	No	</=Screening Level
Q South	SOIL-Q-11	Surface	SOIL-Q-11-0 5-DUP	Volatile	Xylenes, Total	0.25	J	1 61E-03	1 50E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Herbicide	Pentachlorophenol	240	J	NA	2 00E-02	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Aluminum	10000		7 86E+03	NA	No	Screening Level NA
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Antimony	14	J	1 21E+00	5 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Arsenic	19		9 26E+00	2 50E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Barium	620		3 28E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Beryllium	0 28	J	6 28E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Cadmium	10		2 91E-01	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Calcium	18000		2 48E+04	NA	No	EN
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Chromium	130		1 57E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Cobalt	25		9 14E+00	NA	No	Screening Level NA
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Copper	570		1 35E+01	3 30E+02	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Iron	210000		1 88E+04	NA	No	EN
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Lead	1500		1 33E+01	NA	No	Screening Level NA
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Magnesium	1700		1 02E+04	NA	No	EN
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Manganese	1400		4 50E+02	NA	No	Screening Level NA
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Mercury	36		2 07E-02	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Nickel	320		2 35E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Potassium	660	J	1 75E+03	NA	No	EN
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Silver	2	J	NA	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Vanadium	12	J	2 98E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Metal	Zinc	2100		5 88E+01	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	4,4'-DDD	1 4	J	NA	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	4,4'-DDT	1 5	J	1 04E-03	3 20E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	Aldrin	0 21	J	NA	5 00E-01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	alpha-BHC	0 05	J	NA	5 00E-04	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	alpha-Chlordane	0 031	J	NA	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	delta-BHC	0.24		NA	5 00E-04	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	Dieldrin	0 46	J	NA	4 00E-03	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	Endosulfan II	0 086	J	NA	1 80E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	Endosulfan Sulfate	0 076	J	NA	1 80E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	Endrin Aldehyde	2 6	J	NA	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Pesticide	Endrin Ketone	0 22	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	1,4-Dichlorobenzene	1 2	J	NA	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	2,4,5-Trichlorophenol	1 1	J	NA	2 70E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Acenaphthene	1 3	J	NA	5 70E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Anthracene	2	J	NA	1 20E+04	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Benzo(a)anthracene	1 8	J	NA	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Benzo(a)pyrene	1 8	J	NA	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Benzo(b)fluoranthene	2 2	J	NA	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Benzo(g,h,i)perylene	1 1	J	NA	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Benzo(k)fluoranthene	1 1	J	NA	4 90E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Benzyl Butyl Phthalate	3 1	J	NA	9 30E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	bis(2-Ethylhexyl)phthalate	11	J	6 40E-02	3 60E+03	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Chrysene	2 1	J	NA	1 60E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Dibenzofuran	0 82	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Di-n-butylphthalate	2 3	J	NA	2 30E+03	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Fluoranthene	4 5	J	NA	4 30E+03	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Fluorene	1 4	J	NA	5 60E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Phenanthrene	6 1	J	NA	1 20E+04	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Phenol	1	J	NA	1 00E+02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Semivolatile	Pyrene	5.2	J	NA	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	2-Butanone (MEK)	0 071	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Acetone	0.23	J	NA	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Benzene	0 46		NA	3 00E-02	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Carbon Disulfide	0 0078	J	NA	3 20E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Chlorobenzene	1 1	J	NA	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Chloroethane	0 026	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Ethylbenzene	0 45		8 37E-04	1 30E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Toluene	0 019	J	NA	1.20E+01	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Trichloroethylene	0 0022	J	NA	6 00E-02	No	</=Screening Level
Q South	SOIL-Q-11	Subsurface	SOIL-Q-11-6	Volatile	Xylenes, Total	2 2	J	1 50E-03	1 50E+02	No	</=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Herbicide	2,4-D	0 0047	J	9 96E-03	1 50E+00	No	</=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Herbicide	Dichlorprop	0 0037	J	1 14E-01	NA	No	Screening Level NA
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Herbicide	MCPA	1 1	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Herbicide	MCPP	2	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Herbicide	Pentachlorophenol	0 036	J	4 57E-03	2 00E-02	No	</=BKG
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Aluminum	12000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Arsenic	6		1 24E+01	2 50E+01	No	</=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Barium	200		3 07E+02	2 60E+02	No	</=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Beryllium	0 82		9 02E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Cadmium	1 4		3 34E+00	1 00E+00	No	</=BKG
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Calcium	9800		9 74E+04	NA	No	EN

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Chromium	20		2 21E+01	2 10E+01	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Cobalt	8 8		9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Copper	33		8 58E+01	3 30E+02	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Iron	19000		2 33E+04	NA	No	EN
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Lead	47		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Magnesium	4300		1.23E+04	NA	No	EN
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Manganese	460		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Mercury	0 059		1 34E-01	1 00E-02	No	<=BKG
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Nickel	22		3 30E+01	2 00E+01	No	<=BKG
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Potassium	1600	J	3 01E+03	NA	No	EN
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Vanadium	30		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Metal	Zinc	210		3 90E+02	1 00E+03	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Pesticide	4 4'-DDT	0 79	J	4 04E-02	3.20E+01	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Pesticide	alpha-Chlordane	0 014	J	6 15E-03	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Pesticide	Dieldrin	0 28		1 13E-02	4 00E-03	No	<=BKG
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Pesticide	Endosulfan Sulfate	0 02	J	1 81E-03	1 80E+01	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	Benzo(a)anthracene	0 03	J	2 76E-01	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	Benzo(b)fluoranthene	0 033	J	3 66E-01	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	Benzo(k)fluoranthene	0 032	J	2 83E-01	4 90E+01	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 78	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	Chrysene	0 042	J	2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	Fluoranthene	0 057	J	4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	Phenanthrene	0 026	J	3 31E-01	1.20E+04	No	<=Screening Level
Q South	SOIL-Q-12	Surface	SOIL-Q-12-0 5	Semivolatile	Pyrene	0 053	J	4 30E-01	4 20E+03	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Herbicide	Pentachlorophenol	0 41	J	NA	2 00E-02	Yes	>Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Aluminum	9600		7 86E+03	NA	No	Screening Level NA
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Arsenic	5 8		9 26E+00	2 50E+01	No	<=Screening Level
Q South	SOIL-Q 12	Subsurface	SOIL-Q-12-6	Metal	Barium	280		3 28E+02	2 60E+02	No	<=BKG
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Beryllium	0 69		6 28E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Cadmium	0 13	J	2 91E-01	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Calcium	15000		2 48E+04	NA	No	EN
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Chromium	16		1 57E+01	2 10E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Cobalt	8 3		9 14E+00	NA	No	Screening Level NA
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Copper	21		1 35E+01	3 30E+02	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Iron	19000		1 88E+04	NA	No	EN
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Lead	14		1 33E+01	NA	No	Screening Level NA
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Magnesium	6700		1 02E+04	NA	No	EN
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Manganese	510		4 50E+02	NA	No	Screening Level NA
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Mercury	0 021	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Nickel	22		2 35E+01	2 00E+01	No	<=BKG
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Potassium	1900	J	1 75E+03	NA	No	EN
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Metal	Vanadium	28		2 98E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q 12	Subsurface	SOIL-Q-12-6	Metal	Zinc	63		5 88E+01	1 00E+03	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Pesticide	4 4 -DDT	0 79	J	1 04E-03	3.20E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Pesticide	gamma-BHC (Lindane)	0 0038	J	NA	9 00E-03	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Pesticide	gamma-Chlordane	0 29		2 40E-04	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Pesticide	Heptachlor	0 0058	J	NA	2.30E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	1 2 4-Trichlorobenzene	0 069	J	NA	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	2-Methylnaphthalene	0 54		NA	1 20E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	3-Methylphenol/4-Methylphenol	0 38	J	NA	1 50E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	Benzyl Butyl Phthalate	0 25	J	NA	9 30E+02	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	bis(2-Ethylhexyl)phthalate	2 9	J	6 40E-02	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	Di-n-butylphthalate	0 13	J	NA	2 30E+03	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	Naphthalene	5 2		NA	1 20E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Semivolatile	Phenanthrene	0 033	J	NA	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	1 1 1-Trichloroethane	0 47		NA	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	1 1-Dichloroethane	0 76	J	NA	2 30E+01	No	<=Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	1 2-Dichloroethene (total)	8 5		NA	4 00E-01	Yes	>Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Benzene	2		NA	3 00E-02	Yes	>Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Chlorobenzene	1 2	J	NA	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Chloroethane	0 19	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Ethylbenzene	270		8 37E-04	1 30E+01	No	<=BKG
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Tetrachloroethene	0 96		1 02E-03	6 00E-02	No	<=BKG
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Toluene	1300		NA	1.20E+01	Yes	>Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Trichloroethylene	0 38		NA	6 00E-02	Yes	>Screening Level
Q South	SOIL-Q-12	Subsurface	SOIL-Q-12-6	Volatile	Xylenes Total	1900	J	1 50E-03	1 50E+02	Yes	>Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Herbicide	2 4-D	0 012	J	9 96E-03	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Herbicide	MCPA	0 6	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Herbicide	MCPP	0 75	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Herbicide	Pentachlorophenol	0 0052	J	4 57E-03	2.00E-02	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Aluminum	14000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Arsenic	7 9		1 24E+01	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Barium	250		3 07E+02	2 60E+02	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Beryllium	0 99		9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Cadmium	2 4		3 34E+00	1 00E+00	No	<=BKG
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Calcium	13000		9 74E+04	NA	No	EN
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Chromium	24		2 21E+01	2 10E+01	Yes	>Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Cobalt	11	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Copper	42		8 58E+01	3 30E+02	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Iron	24000		2 33E+04	NA	No	EN
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Lead	60		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Magnesium	4900		1.23E+04	NA	No	EN
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Manganese	660		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Mercury	0 14		1 34E-01	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Nickel	27		3 30E+01	2 00E+01	No	<=BKG
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Potassium	2300		3 01E+03	NA	No	EN
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Silver	0 18	J	9 90E-01	2 40E-01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Thallium	1 9		NA	1 60E+00	Yes	>Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Vanadium	36		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Metal	Zinc	260		3 90E+02	1 00E+03	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Pesticide	4 4'-DDE	0 043	J	1 23E-02	5 40E+01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Pesticide	4 4'-DDT	0 071	J	4 04E-02	3.20E+01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Pesticide	alpha-Chlordane	0 014	J	6 15E-03	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Pesticide	Dieldrin	0 1		1 13E-02	4 00E-03	No	<=BKG
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Pesticide	Endosulfan Sulfate	0 0055	J	1 81E-03	1 80E+01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Pesticide	Endrin Aldehyde	0 012	J	5 88E-03	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Semivolatile	Benzo(k)fluoranthene	0 039	J	2 83E-01	4 90E+01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 05	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Semivolatile	Chrysene	0 028	J	2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Volatile	Toluene	0 0012	J	NA	1 20E+01	No	<=Screening Level
Q South	SOIL-Q-13	Surface	SOIL-Q-13-0 5	Volatile	Xylenes Total	0 00074	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Herbicide	MCPA	3 7	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Herbicide	MCPP	1 5	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Herbicide	Pentachlorophenol	0 0055	J	4 57E-03	2 00E-02	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Aluminum	7200		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Arsenic	5 1		1 24E+01	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Barium	180		3 07E+02	2 60E+02	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Beryllium	0 53		9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Cadmium	1 8		3 34E+00	1 00E+00	No	<=BKG
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Calcium	11000		9 74E+04	NA	No	EN
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Chromium	17		2 21E+01	2 10E+01	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Cobalt	6 8	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Copper	86		8 58E+01	3 30E+02	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Iron	14000		2 33E+04	NA	No	EN
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Lead	62		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Magnesium	4200		1 23E+04	NA	No	EN
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Manganese	380		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Mercury	0 13		1 34E-01	1 00E-02	No	<=BKG
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Nickel	29		3 30E+01	2 00E+01	No	<=BKG
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Potassium	1300		3 01E+03	NA	No	EN
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Silver	0 11	J	9 90E-01	2 40E-01	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Vanadium	21		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Metal	Zinc	240		3 90E+02	1 00E+03	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Pesticide	4 4'-DDT	0 039	J	4 04E-02	3 20E+01	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Pesticide	Dieldrin	0 0022	J	1 13E-02	4 00E-03	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Pesticide	Heptachlor Epoxide	0 012	J	1 05E-02	7 00E-01	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 063	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Semivolatile	Chrysene	0 023	J	2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Semivolatile	Di-n-butylphthalate	0 055	J	NA	2 30E+03	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Volatile	Ethylbenzene	0 0005	J	1 07E-03	1 30E+01	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Volatile	Toluene	0 0018	J	NA	1.20E+01	No	<=Screening Level
Q South	SOIL-Q-14	Surface	SOIL-Q-14-0 5	Volatile	Xylenes Total	0 0026	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Herbicide	2 4-D	0 0087	J	9 96E-03	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Herbicide	MCPP	1 7	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Herbicide	Pentachlorophenol	0 0024	J	4 57E-03	2 00E-02	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Aluminum	11000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Arsenic	5		1 24E+01	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Barium	180		3 07E+02	2 60E+02	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Beryllium	0 97		9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Cadmium	1 9	J	3 34E+00	1 00E+00	No	<=BKG
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Calcium	9000		9 74E+04	NA	No	EN
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Chromium	20		2 21E+01	2 10E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Cobalt	8 6	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Copper	35		8 58E+01	3 30E+02	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Iron	19000		2 33E+04	NA	No	EN
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Lead	48		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Magnesium	4300		1.23E+04	NA	No	EN
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Manganese	320		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Mercury	0 16		1 34E-01	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Nickel	22		3 30E+01	2 00E+01	No	<=BKG
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Potassium	1600		3 01E+03	NA	No	EN
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Thallium	0 97	J	NA	1 60E+00	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Vanadium	31		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Metal	Zinc	260		3 90E+02	1 00E+03	No	<=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Pesticide	4 4'-DDT	0 53	J	4 04E-02	3 20E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Pesticide	alpha-Chlordane	0 0039	J	6 15E-03	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Pesticide	Dieldrin	0 16		1 13E-02	4 00E-03	No	<=BKG
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Pesticide	Endrin Aldehyde	0 017	J	5 88E-03	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Anthracene	0 065	J	1 20E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Benzo(a)anthracene	0 085	J	2 76E-01	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Benzo(a)pyrene	0 092	J	4 06E-01	8 00E+00	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Benzo(g,h,i)perylene	0 064	J	4 14E-01	4 20E+03	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Benzo(k)fluoranthene	0 079	J	2 83E-01	4 90E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 22	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Chrysene	0 099	J	2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Fluoranthene	0 12	J	4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	0 049	J	NA	1 40E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Phenanthrene	0 065	J	3 31E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Semivolatile	Pyrene	0 14	J	4 30E-01	4.20E+03	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Volatile	2-Butanone (MEK)	0 0023	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Volatile	Acetone	0 02	J	NA	1 60E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Volatile	Ethylbenzene	0 00023	J	1 07E-03	1 30E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Volatile	Methyl N-Butyl Ketone	0 0057	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Volatile	Toluene	0 0013	J	NA	1.20E+01	No	<=Screening Level
Q South	SOIL-Q-15	Surface	SOIL-Q-15-0 5	Volatile	Xylenes Total	0 0008	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Herbicide	2 4-D	0 0069	J	9 96E-03	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Herbicide	MCPA	1 6	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Herbicide	MCPP	2.2	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Herbicide	Pentachlorophenol	0 002	J	4 57E-03	2 00E-02	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Aluminum	7600		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Arsenic	5 5		1 24E+01	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Barium	150		3 07E+02	2 60E+02	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Beryllium	0 54		9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Cadmium	1	J	3 34E+00	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Calcium	11000		9 74E+04	NA	No	EN
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0.5	Metal	Chromium	13		2 21E+01	2 10E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Cobalt	6 8	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Copper	21		8 58E+01	3 30E+02	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Iron	15000		2 33E+04	NA	No	EN
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Lead	27		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Magnesium	5000		1 23E+04	NA	No	EN
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Manganese	380		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Mercury	0 078		1 34E-01	1 00E-02	No	<=BKG
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Nickel	17		3 30E+01	2 00E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Potassium	1400		3 01E+03	NA	No	EN
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Thallium	1 1	J	NA	1 60E+00	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Vanadium	22		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Metal	Zinc	140		3 90E+02	1 00E+03	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Pesticide	4,4'-DDE	0 0015	J	1 23E-02	5 40E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Pesticide	4,4'-DDT	0 0051	J	4 04E-02	3 20E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Pesticide	Dieldrin	0 0033	J	1 13E-02	4 00E-03	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Pesticide	gamma-Chlordane	0 00053	J	4 11E-02	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Benzo(a)anthracene	0 065	J	2 76E-01	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Benzo(a)pyrene	0 075	J	4 06E-01	8 00E+00	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Benzo(b)fluoranthene	0 069	J	3 66E-01	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Benzo(g,h,i)perylene	0 078	J	4 14E-01	4.20E+03	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Benzo(k)fluoranthene	0 071	J	2 83E-01	4 90E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 066	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Chrysene	0 065	J	2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Di-n-butylphthalate	0 051	J	NA	2 30E+03	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Fluoranthene	0 12	J	4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Semivolatile	Phenanthrene	0 058	J	3 31E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	2-Butanone (MEK)	0 011	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	4-Methyl-2-pentanone (MIBK)	0 0075	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	Acetone	0 15	J	NA	1 60E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	Benzene	0 0018	J	NA	3 00E-02	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	Carbon Disulfide	0 0027	J	NA	3.20E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	Ethylbenzene	0 00074	J	1 07E-03	1 30E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	Methyl N-Butyl Ketone	0 15		NA	NA	No	Screening Level NA
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	Toluene	0 0053	J	NA	1.20E+01	No	<=Screening Level
Q South	SOIL-Q-16	Surface	SOIL-Q-16-0 5	Volatile	Xylenes, Total	0 0024	J	1 61E-03	1 50E+02	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Herbicide	2,4-D	170		NA	1 50E+00	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Herbicide	Pentachlorophenol	510		NA	2 00E-02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Aluminum	6000		7 86E+03	NA	No	Screening Level NA
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Antimony	84	J	1.21E+00	5 00E+00	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Arsenic	40		9.26E+00	2 50E+01	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Barium	7200		3 28E+02	2 60E+02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Beryllium	0 23	J	6 28E-01	1 10E+00	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Cadmium	51		2 91E-01	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Calcium	16000		2 48E+04	NA	No	EN
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Chromium	140		1 57E+01	2 10E+01	Yes	>Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Cobalt	21		9 14E+00	NA	No	Screening Level NA
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Copper	3800	J	1 35E+01	3 30E+02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Iron	83000		1 88E+04	NA	No	EN
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Lead	24000		1 33E+01	NA	No	Screening Level NA
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Magnesium	3100		1 02E+04	NA	No	EN
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Manganese	600		4 50E+02	NA	No	Screening Level NA
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Mercury	1 8	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Nickel	110		2 35E+01	2 00E+01	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Potassium	700		1 75E+03	NA	No	EN
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Silver	4		NA	2 40E-01	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Sodium	1200		1 25E+02	NA	No	EN
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Vanadium	24		2 98E+01	9 80E+02	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Metal	Zinc	11000	J	5 88E+01	1 00E+03	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Pesticide	4 4'-DDE	4 9		NA	5 40E+01	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Pesticide	4 4 -DDT	5	J	1 04E-03	3 20E+01	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Pesticide	alpha-BHC	0 064	J	NA	5 00E-04	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Pesticide	Dieldrin	1 2	J	NA	4 00E-03	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Semivolatile	2 4-Dichlorophenol	65	J	NA	4 80E-01	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Semivolatile	Phenol	29	J	NA	1 00E+02	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	1 1 1 Trichloroethane	0 25	J	NA	2 00E+00	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	1 2-Dichloroethane	4		NA	2 00E-02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Acetone	3	J	NA	1 60E+01	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Benzene	8 8		NA	3 00E-02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Chlorobenzene	26		NA	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Ethylbenzene	11		8 37E-04	1 30E+01	No	<=Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Tetrachloroethene	28	J	1 02E-03	6 00E-02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Toluene	47		NA	1.20E+01	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Trichloroethylene	0 73		NA	6 00E-02	Yes	>Screening Level
Q North	SOIL-Q-1	Subsurface	SOIL-Q-1-6FT	Volatile	Xylenes Total	80		1 50E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Herbicide	2 4-D	0 0078	J	9 96E-03	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Herbicide	Dichlorprop	0 0061	J	1 14E-01	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Herbicide	Pentachlorophenol	0 0011	J	4 57E-03	2 00E-02	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Aluminum	4000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Arsenic	4 2		1 24E+01	2 50E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Barium	100		3 07E+02	2 60E+02	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Beryllium	0 31	J	9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Cadmium	0 92		3 34E+00	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Calcium	8400		9 74E+04	NA	No	EN
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Chromium	8 2		2 21E+01	2 10E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Cobalt	5.2	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Copper	10		8 58E+01	3 30E+02	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Iron	9600		2 33E+04	NA	No	EN
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Lead	20		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Magnesium	3000		1 23E+04	NA	No	EN
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Manganese	320		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Mercury	0 036		1 34E-01	1 00E-02	No	<=BKG
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Nickel	12		3 30E+01	2 00E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Potassium	810		3 01E+03	NA	No	EN
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Vanadium	14		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Metal	Zinc	140		3 90E+02	1 00E+03	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Pesticide	4 4 -DDT	0 0021	J	4 04E-02	3 20E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Pesticide	Dieldrin	0 00066	J	1 13E-02	4 00E-03	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Pesticide	gamma-Chlordane	0 00055	J	4 11E-02	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Benzo(a)anthracene	0 21	J	2 76E-01	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Benzo(a)pyrene	0 18	J	4 06E-01	8 00E+00	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Benzo(b)fluoranthene	0 21	J	3 66E-01	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Benzo(g h i)perylene	0 13	J	4 14E-01	4 20E+03	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Benzo(k)fluoranthene	0 24	J	2 83E-01	4 90E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Chrysene	0 24	J	2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Fluoranthene	0 32	J	4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Indeno(1 2 3-cd)pyrene	0 12	J	NA	1 40E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Phenanthrene	0 038	J	3 31E-01	1.20E+04	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Semivolatile	Pyrene	0 28	J	4 30E-01	4 20E+03	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	2-Butanone (MEK)	0 014	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	4-Methyl-2-pentanone (MIBK)	0 0058	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Acetone	0 18	J	NA	1 60E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Benzene	0 0015	J	NA	3 00E-02	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Carbon Disulfide	0 0045	J	NA	3 20E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Chlorobenzene	0 00067	J	NA	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Ethylbenzene	0 00071	J	1 07E-03	1 30E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Methyl N-Butyl Ketone	0 19		NA	NA	No	Screening Level NA
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Toluene	0 0034	J	NA	1.20E+01	No	<=Screening Level
Q South	SOIL-Q-17	Surface	SOIL-Q-17-0 5	Volatile	Xylenes Total	0 0017	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Herbicide	2 4-D	0 0079	J	9 96E-03	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Herbicide	MCPA	0 72	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Aluminum	3800		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Arsenic	3 3		1 24E+01	2 50E+01	No	<=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Barium	86		3 07E+02	2 60E+02	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Beryllium	0 28	J	9 02E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Cadmium	0 41	J	3 34E+00	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Calcium	7400		9 74E+04	NA	No	EN
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Chromium	8		2 21E+01	2 10E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Cobalt	5	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Copper	7		8 58E+01	3 30E+02	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Iron	9200		2 33E+04	NA	No	EN
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Lead	15		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Magnesium	2700		1 23E+04	NA	No	EN
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Manganese	290		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Mercury	0 021	J	1 34E-01	1 00E-02	No	</=BKG
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Nickel	11		3 30E+01	2 00E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Potassium	710		3 01E+03	NA	No	EN
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Vanadium	13		3 89E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Metal	Zinc	100		3 90E+02	1 00E+03	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Pesticide	alpha-Chlordane	0 00015	J	6 15E-03	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Pesticide	Endrin Ketone	0 00069	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Pesticide	Heptachlor Epoxide	0 00023	J	1 05E-02	7 00E-01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Benzo(a)anthracene	0 045	J	2 76E-01	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Benzo(a)pyrene	0 048	J	4 06E-01	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Benzo(g,h,i)perylene	0 052	J	4 14E-01	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Benzo(k)fluoranthene	0 044	J	2 83E-01	4 90E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 032	J	3 53E-01	3 60E+03	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Chrysene	0 068	J	2 99E-01	1 60E+02	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Fluoranthene	0 096	J	4 50E-01	4 30E+03	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	0 045	J	NA	1 40E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Phenanthrene	0 044	J	3 31E-01	1 20E+04	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Semivolatile	Pyrene	0 093	J	4 30E-01	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	2-Butanone (MEK)	0 0064	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Acetone	0 091		NA	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Benzene	0 0024	J	NA	3 00E-02	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Carbon Disulfide	0 0048	J	NA	3 20E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Chlorobenzene	0 00036	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Ethylbenzene	0 00052	J	1 07E-03	1 30E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Methyl N-Butyl Ketone	0 026	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Toluene	0 0042	J	NA	1.20E+01	No	</=Screening Level
Q South	SOIL-Q-18	Surface	SOIL-Q-18-0 5	Volatile	Xylenes Total	0 00078	J	1 61E-03	1 50E+02	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Herbicide	2 4-D	0 0064	J	9 96E-03	1 50E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Herbicide	Dichlorprop	0 0062	J	1 14E-01	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Herbicide	MCPA	2 8	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Herbicide	MCPP	2 6	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Herbicide	Pentachlorophenol	0 0015	J	4 57E-03	2 00E-02	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Aluminum	7400		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Arsenic	4 3		1 24E+01	2 50E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Barium	160		3 07E+02	2 60E+02	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Beryllium	0 54		9 02E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Cadmium	1	J	3 34E+00	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Calcium	9300		9 74E+04	NA	No	EN
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Chromium	13		2 21E+01	2 10E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Cobalt	6 8	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Copper	20		8 58E+01	3 30E+02	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Iron	14000		2 33E+04	NA	No	EN
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Lead	30		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Magnesium	4200		1 23E+04	NA	No	EN
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Manganese	370		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Mercury	0 052		1 34E-01	1 00E-02	No	</=BKG
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Nickel	16		3 30E+01	2 00E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Potassium	1200		3 01E+03	NA	No	EN
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Thallium	0 79	J	NA	1 60E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Vanadium	22		3 89E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Metal	Zinc	160		3 90E+02	1 00E+03	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Pesticide	4 4'-DDD	0 0057	J	7 04E-03	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Pesticide	4 4'-DDE	0 00081	J	1 23E-02	5 40E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Pesticide	4 4'-DDT	0 044	J	4 04E-02	3.20E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Pesticide	Endrin Aldehyde	0 00092	J	5 88E-03	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Pesticide	Endrin Ketone	0 0012	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Pesticide	Heptachlor Epoxide	0 0005	J	1 05E-02	7 00E-01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Semivolatile	Benzo(a)anthracene	0 041	J	2 76E-01	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Semivolatile	Benzo(a)pyrene	0 046	J	4 06E-01	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Semivolatile	Benzo(b)fluoranthene	0 056	J	3 66E-01	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Semivolatile	Benzo(g,h i)perylene	0 043	J	4 14E-01	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Semivolatile	Benzo(k)fluoranthene	0 055	J	2 83E-01	4 90E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Semivolatile	Chrysene	0 059	J	2 99E-01	1 60E+02	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Semivolatile	Fluoranthene	0 06	J	4 50E-01	4 30E+03	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Volatile	2-Butanone (MEK)	0 0046	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Volatile	Ethylbenzene	0 00045	J	1 07E-03	1 30E+01	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Volatile	Methyl N-Butyl Ketone	0 025	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Volatile	Toluene	0 001	J	NA	1.20E+01	No	</=Screening Level
Q South	SOIL-Q-19	Surface	SOIL-Q-19-0 5	Volatile	Xylenes Total	0 00056	J	1 61E-03	1 50E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Herbicide	2 4 5-T	0 0021	J	NA	1 10E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Herbicide	2 4-D	0 005	J	9 96E-03	1 50E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Herbicide	Pentachlorophenol	0 047		4 57E-03	2 00E-02	No	</=BKG
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Aluminum	1200		1 38E+04	NA	No	Screening Level NA
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Antimony	1 6	J	2 33E+00	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Arsenic	6		1 24E+01	2 50E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Barium	61	J	3 07E+02	2 60E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Beryllium	0 3	J	9 02E-01	1 10E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Cadmium	92		3 34E+00	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Calcium	120000		9 74E+04	NA	No	EN
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Chromium	8 9		2 21E+01	2 10E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Cobalt	16	J	9 40E+00	NA	No	Screening Level NA
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Copper	230	J	8 58E+01	3 30E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Iron	14000		2 33E+04	NA	No	EN
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Magnesium	9700		1 23E+04	NA	No	EN
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Manganese	210	J	5 52E+02	NA	No	Screening Level NA
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Mercury	0 076	J	1 34E-01	1 00E-02	No	</=BKG
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Nickel	14		3 30E+01	2 00E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Potassium	330	J	3 01E+03	NA	No	EN
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Silver	5.2		9 90E-01	2 40E-01	Yes	>Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Sodium	560		1 58E+02	NA	No	EN
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Vanadium	8 3		3 89E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Metal	Zinc	8000	J	3 90E+02	1 00E+03	Yes	>Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Pesticide	4 4'-DDT	0 12	J	4 04E-02	3.20E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	1 4-Dichlorobenzene	0 63		NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	2-Methylnaphthalene	0 095	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Acenaphthene	0 09	J	4 20E-02	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Anthracene	0.21	J	1 20E-01	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Benzo(a)anthracene	1 5		2 76E-01	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Benzo(a)pyrene	1 8		4 06E-01	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Benzo(b)fluoranthene	1 8		3 66E-01	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Benzo(g,h i)perylene	1 1		4 14E-01	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Benzo(k)fluoranthene	1 4		2 83E-01	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Benzyl Butyl Phthalate	0 033	J	NA	9 30E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 047	J	3 53E-01	3 60E+03	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Carbazole	0 098	J	NA	6 00E-01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Chrysene	1 7		2 99E-01	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Dibenzo(a h)anthracene	0 37		1 20E-01	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Dibenzofuran	0 06	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q 2	Surface	SOIL-Q-2-0 5	Semivolatile	Fluoranthene	1 6		4 50E-01	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Fluorene	0 053	J	NA	5 60E+02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	1		NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Semivolatile	Naphthalene	0 081	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q 2	Surface	SOIL-Q-2-0 5	Semivolatile	Phenanthrene	0 94		3 31E-01	1.20E+04	No	</=Screening Level
Q North	SOIL-Q 2	Surface	SOIL-Q-2-0 5	Semivolatile	Pyrene	1 8		4 30E-01	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Volatile	Tetrachloroethene	0 0024	J	8 80E-04	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Volatile	Trichloroethylene	0 0015	J	NA	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-2	Surface	SOIL-Q-2-0 5	Volatile	Xylenes Total	0 0022	J	1 61E-03	1 50E+02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Herbicide	2 4-D	0 014	J	9 96E-03	1 50E+00	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Herbicide	MCPP	3 1	J	3 60E+00	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Herbicide	Pentachlorophenol	0 002	J	4 57E-03	2 00E-02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Aluminum	9000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Arsenic	7 1		1 24E+01	2 50E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Barium	170		3 07E+02	2 60E+02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Beryllium	0 71		9 02E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Cadmium	1 6	J	3 34E+00	1 00E+00	No	</=BKG
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Calcium	8900		9 74E+04	NA	No	EN
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Chromium	16		2.21E+01	2 10E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Cobalt	8 4	J	9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Copper	21		8 58E+01	3 30E+02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Iron	17000		2 33E+04	NA	No	EN
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Lead	29		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Magnesium	4100		1 23E+04	NA	No	EN
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Manganese	630		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Mercury	0 065		1 34E-01	1 00E-02	No	</=BKG
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Nickel	19		3 30E+01	2 00E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Potassium	1500		3 01E+03	NA	No	EN
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Vanadium	26		3 89E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Metal	Zinc	270		3 90E+02	1 00E+03	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Pesticide	4 4'-DDD	0 0012	J	7 04E-03	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Pesticide	4,4'-DDE	0 00071	J	1 23E-02	5 40E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Pesticide	Dieldrin	0 00041	J	1 13E-02	4 00E-03	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Pesticide	Endrin Ketone	0 00052	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Pesticide	Heptachlor Epoxide	0 00057	J	1 05E-02	7 00E-01	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Benzo(a)anthracene	0 045	J	2 76E-01	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Benzo(a)pyrene	0 04	J	4 06E-01	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Benzo(b)fluoranthene	0 036	J	3 66E-01	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Benzo(g h i)perylene	0 037	J	4 14E-01	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Benzo(k)fluoranthene	0 047	J	2 83E-01	4 90E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Chrysene	0 045	J	2 99E-01	1 60E+02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Fluoranthene	0 095	J	4 50E-01	4 30E+03	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Semivolatile	Phenanthrene	0 045	J	3 31E-01	1.20E+04	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	2-Butanone (MEK)	0 024	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	4-Methyl-2-pentanone (MIBK)	0 0073	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Acetone	0 26	J	NA	1 60E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Benzene	0 0015	J	NA	3 00E-02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Carbon Disulfide	0 004	J	NA	3 20E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Chlorobenzene	0 0011	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Dichloromethane	0 0036	J	NA	2 00E-02	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Ethylbenzene	0 00048	J	1 07E-03	1 30E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Methyl N-Butyl Ketone	0 12		NA	NA	No	Screening Level NA
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Toluene	0 018		NA	1.20E+01	No	</=Screening Level
Q South	SOIL-Q-20	Surface	SOIL-Q-20-0 5	Volatile	Xylenes Total	0 0018	J	1 61E-03	1 50E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Herbicide	2 4 5-T	0 01		NA	1 10E+01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Herbicide	2 4-D	0 021	J	NA	1 50E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Herbicide	Dalapon	0 0092	J	NA	8 50E-01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Herbicide	Dichlorprop	0 0027	J	5 80E-03	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Herbicide	MCPP	3 6	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Herbicide	Pentachlorophenol	0 17		NA	2 00E-02	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Aluminum	3300		7 86E+03	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Antimony	7 9	J	1 21E+00	5 00E+00	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Arsenic	9 1		9 26E+00	2 50E+01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Barium	230	J	3 28E+02	2 60E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Beryllium	0 64		6 28E-01	1 10E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Cadmium	5 1		2 91E-01	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Calcium	20000		2 48E+04	NA	No	EN
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Chromium	28		1 57E+01	2 10E+01	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Cobalt	4 9	J	9 14E+00	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Copper	120	J	1 35E+01	3 30E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Iron	45000		1 88E+04	NA	No	EN
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Lead	1100	J	1 33E+01	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Magnesium	1600		1 02E+04	NA	No	EN
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Manganese	220	J	4 50E+02	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Mercury	0 98	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Nickel	27		2 35E+01	2 00E+01	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Potassium	430	J	1 75E+03	NA	No	EN
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Silver	3 2		NA	2 40E-01	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Sodium	250		1 25E+02	NA	No	EN
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Vanadium	20		2 98E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Metal	Zinc	730	J	5 88E+01	1 00E+03	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Pesticide	4 4-DDT	0 51	J	1 04E-03	3.20E+01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	1 2 4-Trichlorobenzene	0 05	J	NA	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	1 2-Dichlorobenzene	0 1	J	NA	1 70E+01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	1 3-Dichlorobenzene	0 021	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	1 4-Dichlorobenzene	1 4		NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	2 4-Dichlorophenol	0 03	J	NA	4 80E-01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	2 4-Dimethylphenol	0 037	J	NA	9 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	2-Methylnaphthalene	0 024	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	4-Chloroaniline	30	J	NA	7 00E-01	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Acenaphthene	0 11	J	NA	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Anthracene	0 4		NA	1 20E+04	No	</=Screening Level
Q North	SOIL-Q 2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Benzo(a)anthracene	1 3		NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Benzo(a)pyrene	1 2		NA	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Benzo(b)fluoranthene	1		NA	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Benzo(g h i)perylene	0 56		NA	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Benzo(k)fluoranthene	1 2		NA	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Benzyl Butyl Phthalate	0 023	J	NA	9 30E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	bis(2-Chloroethyl)ether	0 044	J	NA	4 00E-04	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	0 96		6 40E-02	3 60E+03	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Carbazole	0 32	J	NA	6 00E-01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Chrysene	1 4		NA	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Dibenzo(a,h)anthracene	0 2	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Dibenzofuran	0 072	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Diethyl Phthalate	1 6		NA	4 70E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Di-n-butylphthalate	0 036	J	NA	2 30E+03	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Fluoranthene	2 7		NA	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Fluorene	0 088	J	NA	5 60E+02	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Indeno(1,2 3-cd)pyrene	0 5		NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Phenanthrene	2 2		NA	1.20E+04	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Semivolatile	Pyrene	2 9		NA	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	2-Butanone (MEK)	1.2	J	NA	NA	No	Screening Level NA

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	4-Methyl-2-pentanone (MIBK)	0 58	J	2 00E-03	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	Acetone	2 7	J	NA	1 60E+01	No	<=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	Benzene	0 43		NA	3 00E-02	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	Chlorobenzene	36	J	NA	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	Ethylbenzene	0 99	J	8 37E-04	1 30E+01	No	<=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	Methyl N-Butyl Ketone	0 5	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	Toluene	0 33	J	NA	1.20E+01	No	<=Screening Level
Q North	SOIL-Q-2	Subsurface	SOIL-Q-2-6FT	Volatile	Xylenes Total	1 7		1 50E-03	1 50E+02	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Herbicide	2 4-D	0 0042	J	9 96E-03	1 50E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Herbicide	Pentachlorophenol	0 42		4 57E-03	2 00E-02	No	<=BKG
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Aluminum	11000		1 38E+04	NA	No	Screening Level NA
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Arsenic	11	J	1 24E+01	2 50E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Barium	2900		3 07E+02	2 60E+02	Yes	>Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Beryllium	0 82		9 02E-01	1 10E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Cadmium	0 57		3 34E+00	1 00E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Calcium	14000		9 74E+04	NA	No	EN
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Chromium	20		2 21E+01	2 10E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Cobalt	9 6	J	9 40E+00	NA	No	Screening Level NA
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Copper	31		8 58E+01	3 30E+02	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Iron	24000		2 33E+04	NA	No	EN
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Lead	270		1 30E+02	NA	No	Screening Level NA
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Magnesium	3000		1 23E+04	NA	No	EN
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Manganese	530		5 52E+02	NA	No	Screening Level NA
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Mercury	0 4		1 34E-01	1 00E-02	Yes	>Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Nickel	31		3 30E+01	2 00E+01	No	<=BKG
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Potassium	2300	J	3 01E+03	NA	No	EN
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Sodium	180		1 58E+02	NA	No	EN
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Vanadium	28		3 89E+01	9 80E+02	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Metal	Zinc	200	J	3 90E+02	1 00E+03	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	4 4'-DDD	0 039	J	7 04E-03	1 60E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	alpha-Chlordane	0 2		6 15E-03	1 00E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	beta-BHC	0 04	J	NA	5 00E-04	Yes	>Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	Dieldrin	0 077	J	1 13E-02	4 00E-03	No	<=BKG
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	Endosulfan II	0 014	J	1 16E-03	1 80E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	Endrin	0 018	J	5 02E-03	1 00E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	gamma-BHC (Lindane)	0 0057	J	NA	9 00E-03	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Pesticide	gamma-Chlordane	0 21		4 11E-02	1 00E+01	No	<=Screening Level
Q North	SOIL-Q 3	Surface	SOIL-Q-3-0 5	Pesticide	Heptachlor	0 011	J	3 12E-02	2 30E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	2 4-Dichlorophenol	1	J	NA	4 80E-01	Yes	>Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Acenaphthene	0 16	J	4 20E-02	5 70E+02	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Anthracene	0 51	J	1 20E-01	1.20E+04	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Benzo(a)anthracene	1 7	J	2 76E-01	2 00E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Benzo(a)pyrene	1 6	J	4 06E-01	8 00E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Benzo(b)fluoranthene	1 6	J	3 66E-01	5 00E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Benzo(g h i)perylene	0 82	J	4 14E-01	4 20E+03	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Benzo(k)fluoranthene	1 4	J	2 83E-01	4 90E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Chrysene	1 8	J	2 99E-01	1 60E+02	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Dibenzo(a h)anthracene	0 26	J	1 20E-01	2 00E+00	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Fluoranthene	3	J	4 50E-01	4 30E+03	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Indeno(1 2 3-cd)pyrene	0 69	J	NA	1 40E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Phenanthrene	2 5	J	3 31E-01	1 20E+04	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Semivolatile	Pyrene	3 8	J	4 30E-01	4.20E+03	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Volatile	Acetone	0 023	J	NA	1 60E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Volatile	Carbon Disulfide	0 00084	J	NA	3 20E+01	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Volatile	Tetrachloroethene	0 00044	J	8 80E-04	6 00E-02	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Volatile	Trichloroethylene	0 00049	J	NA	6 00E-02	No	<=Screening Level
Q North	SOIL-Q-3	Surface	SOIL-Q-3-0 5	Volatile	Xylenes Total	0 00039	J	1 61E-03	1 50E+02	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Herbicide	Pentachlorophenol	0 013	J	NA	2 00E-02	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Aluminum	4800		7 86E+03	NA	No	Screening Level NA
Q North	SOIL-Q-3	Subsurface	SOIL-Q 3-6	Metal	Antimony	1 8	J	1 21E+00	5 00E+00	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Arsenic	7 9	J	9 26E+00	2 50E+01	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Barium	260		3 28E+02	2 60E+02	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Beryllium	0 53		6 28E-01	1 10E+00	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Cadmium	4		2 91E-01	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Calcium	87000		2 48E+04	NA	No	EN
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Chromium	48		1 57E+01	2 10E+01	Yes	>Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Cobalt	4 9	J	9 14E+00	NA	No	Screening Level NA
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Copper	220		1 35E+01	3 30E+02	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Iron	35000		1 88E+04	NA	No	EN
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Lead	500		1 33E+01	NA	No	Screening Level NA
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Magnesium	3600		1 02E+04	NA	No	EN
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Manganese	240		4 50E+02	NA	No	Screening Level NA
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Mercury	2.2		2 07E-02	1 00E-02	Yes	>Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Nickel	30		2 35E+01	2 00E+01	Yes	>Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Potassium	790	J	1 75E+03	NA	No	EN
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Selenium	1 1	J	NA	1 30E+00	No	<=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Silver	0.26	J	NA	2 40E-01	Yes	>Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Sodium	1400		1 25E+02	NA	No	EN
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Vanadium	15		2 98E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Metal	Zinc	520	J	5 88E+01	1 00E+03	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Pesticide	4,4'-DDT	0 21	J	1 04E-03	3 20E+01	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Pesticide	beta-BHC	0 014	J	NA	5 00E-04	Yes	>Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Pesticide	Dieldrin	0 43	J	NA	4 00E-03	Yes	>Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Pesticide	Endrin Ketone	0 032	J	NA	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Pesticide	Methoxychlor	0 085	J	1 02E-03	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	1,2,4-Trichlorobenzene	0 13	J	NA	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	1,3-Dichlorobenzene	0 11	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	1,4-Dichlorobenzene	0 27	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Acenaphthene	0 15	J	NA	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Anthracene	0 42	J	NA	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Benzo(a)anthracene	1 3	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Benzo(a)pyrene	1 4	J	NA	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Benzo(b)fluoranthene	1 9	J	NA	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Benzo(g,h,i)perylene	0 83	J	NA	4.20E+03	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Benzo(k)fluoranthene	1 2	J	NA	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	bis(2-Ethylhexyl)phthalate	0 12	J	6 40E-02	3 60E+03	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Chrysene	1 8	J	NA	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Fluoranthene	2 4	J	NA	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Indeno(1 2,3-cd)pyrene	0 64	J	NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Phenanthrene	1 5	J	NA	1.20E+04	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Phenol	0 59	J	NA	1 00E+02	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Semivolatile	Pyrene	2 9	J	NA	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Volatile	Benzene	0 00076	J	NA	3 00E-02	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Volatile	Carbon Disulfide	0 0018	J	NA	3 20E+01	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Volatile	Tetrachloroethene	0 0007	J	1 02E-03	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-3	Subsurface	SOIL-Q-3-6	Volatile	Trichloroethylene	0 00076	J	NA	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Herbicide	2 4 5-T	0 002	J	NA	1 10E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Herbicide	MCPP	0 16	J	3 60E+00	NA	No	Screening Level NA
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Herbicide	Pentachlorophenol	0 096		4 57E-03	2 00E-02	No	</=BKG
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Aluminum	3200		1 38E+04	NA	No	Screening Level NA
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Antimony	0 82	J	2 33E+00	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Arsenic	8 9		1 24E+01	2 50E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Barium	81	J	3 07E+02	2 60E+02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Beryllium	0 95		9 02E-01	1 10E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Cadmium	6.2		3 34E+00	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Calcium	52000		9 74E+04	NA	No	EN
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Chromium	10		2 21E+01	2 10E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Cobalt	6 5	J	9 40E+00	NA	No	Screening Level NA
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Copper	39	J	8 58E+01	3 30E+02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Iron	13000		2 33E+04	NA	No	EN
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Lead	85	J	1 30E+02	NA	No	Screening Level NA
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Magnesium	7700		1 23E+04	NA	No	EN
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Manganese	490	J	5 52E+02	NA	No	Screening Level NA
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Mercury	0 15	J	1 34E-01	1 00E-02	Yes	>Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Nickel	20		3 30E+01	2 00E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Potassium	820	J	3 01E+03	NA	No	EN
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Selenium	0 71	J	1 08E+00	1 30E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Silver	0.24	J	9 90E-01	2 40E-01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Sodium	220		1 58E+02	NA	No	EN
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Vanadium	21		3 89E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Metal	Zinc	930	J	3 90E+02	1 00E+03	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Pesticide	4 4 -DDT	0 029	J	4 04E-02	3 20E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	1 4-Dichlorobenzene	0 17	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	2-Methylnaphthalene	0 24	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Acenaphthene	0.2	J	4 20E-02	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Anthracene	0 43		1 20E-01	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Benzo(a)anthracene	1		2 76E-01	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Benzo(a)pyrene	0 98		4 06E-01	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Benzo(b)fluoranthene	0 99		3 66E-01	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Benzo(g h i)perylene	0 52		4 14E-01	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Benzo(k)fluoranthene	0 82		2 83E-01	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 079	J	3 53E-01	3 60E+03	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Carbazole	0 18	J	NA	6 00E-01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Chrysene	1 2		2 99E-01	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Dibenzo(a h)anthracene	0 18	J	1 20E-01	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Dibenzofuran	0 18	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Fluoranthene	1 8		4 50E-01	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Fluorene	0 19	J	NA	5 60E+02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Hexachlorobenzene	0 03	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Indeno(1,2,3-cd)pyrene	0 44		NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Naphthalene	0 26	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Phenanthrene	2		3 31E-01	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Semivolatile	Pyrene	2		4 30E-01	4.20E+03	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Volatile	Ethylbenzene	0 00034	J	1 07E-03	1 30E+01	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Volatile	Methyl N-Butyl Ketone	0 0031	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Volatile	Tetrachloroethene	0 0015	J	8 80E-04	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Volatile	Trichloroethylene	0 0012	J	NA	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-4	Surface	SOIL-Q-4-0 5	Volatile	Xylenes Total	0 0018	J	1 61E-03	1 50E+02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Aluminum	5400		7 86E+03	NA	No	Screening Level NA
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Antimony	0 81	J	1 21E+00	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Arsenic	12		9 26E+00	2 50E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Barium	110	J	3 28E+02	2 60E+02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Beryllium	0 88		6 28E-01	1 10E+00	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Cadmium	1 5		2 91E-01	1 00E+00	Yes	>Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Calcium	73000		2 48E+04	NA	No	EN
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Chromium	12		1 57E+01	2 10E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Cobalt	9 7	J	9 14E+00	NA	No	Screening Level NA
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Copper	28	J	1 35E+01	3 30E+02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Iron	33000		1 88E+04	NA	No	EN
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Lead	64	J	1 33E+01	NA	No	Screening Level NA
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Magnesium	9100		1 02E+04	NA	No	EN
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Manganese	350	J	4 50E+02	NA	No	Screening Level NA
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Mercury	0 099	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Nickel	24		2 35E+01	2 00E+01	Yes	>Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Potassium	800	J	1 75E+03	NA	No	EN
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Sodium	190		1 25E+02	NA	No	EN
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Vanadium	25		2 98E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Metal	Zinc	210	J	5 88E+01	1 00E+03	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Pesticide	4,4'-DDE	0 002	J	NA	5 40E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Pesticide	4,4'-DDT	0 0076	J	1 04E-03	3 20E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Pesticide	Endosulfan II	0 00049	J	NA	1 80E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Pesticide	gamma-Chlordane	0 00021	J	2 40E-04	1 00E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Acenaphthene	0 064	J	NA	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Anthracene	0 16	J	NA	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Benzo(a)anthracene	0 57		NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Benzo(a)pyrene	0 58		NA	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Benzo(b)fluoranthene	0 55		NA	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Benzo(g h i)perylene	0 39	J	NA	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Benzo(k)fluoranthene	0 49		NA	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Carbazole	0 071	J	NA	6 00E-01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Chrysene	0 64		NA	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Dibenzo(a h)anthracene	0 13	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Dibenzofuran	0 042	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Fluoranthene	1 1		NA	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Fluorene	0 054	J	NA	5 60E+02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Indeno(1,2 3-cd)pyrene	0 36	J	NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Phenanthrene	0 84		NA	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Semivolatile	Pyrene	1 3		NA	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Volatile	2-Butanone (MEK)	0 0022	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Volatile	4-Methyl-2-pentanone (MIBK)	0 00099	J	2 00E-03	NA	No	Screening Level NA
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Volatile	Tetrachloroethene	0 00043	J	1 02E-03	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-4	Subsurface	SOIL-Q-4-6	Volatile	Trichloroethylene	0 00051	J	NA	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Herbicide	Pentachlorophenol	0 0055	J	4 57E-03	2 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Aluminum	1400		1 38E+04	NA	No	Screening Level NA
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Antimony	0 71	J	2 33E+00	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Arsenic	5 6	J	1 24E+01	2 50E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Barium	87		3 07E+02	2 60E+02	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Beryllium	0 54		9 02E-01	1 10E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Cadmium	0 66		3 34E+00	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Calcium	5800		9 74E+04	NA	No	EN
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Chromium	9 9		2 21E+01	2 10E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Cobalt	4 2	J	9 40E+00	NA	No	Screening Level NA
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Copper	37		8 58E+01	3 30E+02	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Iron	11000		2 33E+04	NA	No	EN
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Lead	20		1 30E+02	NA	No	Screening Level NA
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Magnesium	940		1 23E+04	NA	No	EN
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Manganese	140		5 52E+02	NA	No	Screening Level NA
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Mercury	0 024		1 34E-01	1 00E-02	No	</=BKG
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Nickel	15		3 30E+01	2 00E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Potassium	290	J	3 01E+03	NA	No	EN
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Sodium	290		1 58E+02	NA	No	EN
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Vanadium	8 2		3 89E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Metal	Zinc	110	J	3 90E+02	1 00E+03	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Pesticide	4,4'-DDE	0 011	J	1 23E-02	5 40E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Pesticide	alpha-Chlordane	0 00086	J	6 15E-03	1 00E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Pesticide	beta-BHC	0 0013	J	NA	5 00E-04	Yes	>Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Pesticide	Dieldrin	0 018	J	1 13E-02	4 00E-03	No	</=BKG
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Pesticide	Endrin	0 0024	J	5 02E-03	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Pesticide	Endrin Ketone	0 0024	J	NA	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Pesticide	gamma-Chlordane	0 01	J	4 11E-02	1 00E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	2-Methylnaphthalene	0 027	J	NA	1 20E+01	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Benzo(a)anthracene	0 11	J	2 76E-01	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Benzo(a)pyrene	0 13	J	4 06E-01	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Benzo(b)fluoranthene	0 11	J	3 66E-01	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Benzo(g,h i)perylene	0 13	J	4 14E-01	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Benzo(k)fluoranthene	0 1	J	2 83E-01	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 035	J	3 53E-01	3 60E+03	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Chrysene	0 13	J	2 99E-01	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Dibenzo(a h)anthracene	0 066	J	1 20E-01	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Fluoranthene	0 12	J	4 50E-01	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Indeno(1 2 3-cd)pyrene	0 11	J	NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Phenanthrene	0 12	J	3 31E-01	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Semivolatile	Pyrene	0 17	J	4 30E-01	4.20E+03	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Volatile	Benzene	0 00076	J	NA	3 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Volatile	Carbon Disulfide	0 0028	J	NA	3 20E+01	No	</=Screening Level
Q North	SOIL-Q-5	Surface	SOIL-Q-5-0 5	Volatile	Tetrachloroethene	0 0028	J	8 80E-04	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Herbicide	Pentachlorophenol	0 002	J	NA	2 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Aluminum	5200		7 86E+03	NA	No	Screening Level NA
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Arsenic	6 3	J	9.26E+00	2 50E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Barium	120		3 28E+02	2 60E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Beryllium	0 53		6.28E-01	1 10E+00	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Cadmium	0 4	J	2 91E-01	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Calcium	71000		2 48E+04	NA	No	EN
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Chromium	17		1 57E+01	2 10E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Cobalt	4 9	J	9 14E+00	NA	No	Screening Level NA
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Copper	32		1 35E+01	3 30E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Iron	14000		1 88E+04	NA	No	EN
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Lead	150		1 33E+01	NA	No	Screening Level NA
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Magnesium	3000		1 02E+04	NA	No	EN
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Manganese	200		4 50E+02	NA	No	Screening Level NA
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Mercury	0 26		2 07E-02	1 00E-02	Yes	>Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Nickel	13		2 35E+01	2 00E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Potassium	740	J	1 75E+03	NA	No	EN
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Silver	0 19	J	NA	2 40E-01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Sodium	180		1 25E+02	NA	No	EN
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Vanadium	27		2 98E+01	9 80E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Metal	Zinc	140	J	5 88E+01	1 00E+03	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	4 4 -DDD	0 012	J	NA	1 60E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	4 4'-DDE	0 0044	J	NA	5 40E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	4 4'-DDT	0 017	J	1 04E-03	3.20E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	alpha-Chlordane	0 014	J	NA	1 00E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	beta-BHC	0 015	J	NA	5 00E-04	Yes	>Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	Dieldrin	0 024	J	NA	4 00E-03	Yes	>Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	Endrin Aldehyde	0 012	J	NA	1 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Pesticide	gamma-Chlordane	0 012	J	2 40E-04	1 00E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	2-Methylnaphthalene	0 12	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Acenaphthene	0 47		NA	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Acenaphthylene	0 069	J	NA	5 70E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Anthracene	1.2		NA	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Benzo(a)anthracene	2 9		NA	2 00E+00	Yes	>Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Benzo(a)pyrene	2 7		NA	8 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Benzo(b)fluoranthene	2 2		NA	5 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Benzo(g h i)perylene	1 2		NA	4 20E+03	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Benzo(k)fluoranthene	2 2		NA	4 90E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	0 082	J	6 40E-02	3 60E+03	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Carbazole	0 38	J	NA	6 00E-01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Chrysene	3 1		NA	1 60E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Dibenzo(a h)anthracene	0 4	J	NA	2 00E+00	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Dibenzofuran	0 34	J	NA	NA	No	Screening Level NA
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Fluoranthene	5 7		NA	4 30E+03	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Fluorene	0 49		NA	5 60E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Indeno(1,2 3-cd)pyrene	1 2		NA	1 40E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Naphthalene	0 18	J	NA	1 20E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Phenanthrene	5.2		NA	1 20E+04	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Phenol	0.27	J	NA	1 00E+02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Semivolatile	Pyrene	6 7		NA	4.20E+03	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Volatile	Benzene	0 0011	J	NA	3 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Volatile	Carbon Disulfide	0 0045	J	NA	3 20E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Volatile	Ethylbenzene	0 00058	J	8 37E-04	1 30E+01	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Volatile	Tetrachloroethene	0 0006	J	1 02E-03	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Volatile	Trichloroethylene	0 00093	J	NA	6 00E-02	No	</=Screening Level
Q North	SOIL-Q-5	Subsurface	SOIL-Q-5-6FT	Volatile	Xylenes Total	0 0016	J	1 50E-03	1 50E+02	No	</=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Herbicide	Pentachlorophenol	2 3		4 57E-03	2 00E-02	No	</=BKG
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Aluminum	5200		1 38E+04	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Antimony	1 9	J	2 33E+00	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Arsenic	13		1 24E+01	2 50E+01	No	</=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Barium	110	J	3 07E+02	2 60E+02	No	</=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Beryllium	0 64		9 02E-01	1 10E+00	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Cadmium	2		3 34E+00	1 00E+00	No	<=BKG
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Calcium	79000		9 74E+04	NA	No	EN
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Chromium	11		2 21E+01	2 10E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Cobalt	5	J	9 40E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Copper	40	J	8 58E+01	3 30E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Iron	16000		2 33E+04	NA	No	EN
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Lead	74	J	1 30E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Magnesium	6200		1 23E+04	NA	No	EN
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Manganese	170	J	5 52E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Mercury	0 15	J	1 34E-01	1 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Nickel	14		3 30E+01	2 00E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Potassium	940	J	3 01E+03	NA	No	EN
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Silver	0 11	J	9 90E-01	2 40E-01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Sodium	240		1 58E+02	NA	No	EN
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Vanadium	18		3 89E+01	9 80E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Metal	Zinc	340	J	3 90E+02	1 00E+03	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	1,4-Dichlorobenzene	0 14	J	NA	2 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	2-Methylnaphthalene	0 069	J	NA	1 20E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Acenaphthene	0 042	J	4 20E-02	5 70E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Anthracene	0 089	J	1 20E-01	1 20E+04	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Benzo(a)anthracene	0 25	J	2 76E-01	2 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Benzo(a)pyrene	0 28	J	4 06E-01	8 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Benzo(b)fluoranthene	0 39		3 66E-01	5 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Benzo(g,h,i)perylene	0 16	J	4 14E-01	4 20E+03	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Benzo(k)fluoranthene	0 29	J	2 83E-01	4 90E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 071	J	3 53E-01	3 60E+03	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Chrysene	0 29	J	2 99E-01	1 60E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Dibenzo(a h)anthracene	0 055	J	1 20E-01	2 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Dibenzofuran	0 046	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Fluoranthene	0 43		4 50E-01	4 30E+03	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Fluorene	0 048	J	NA	5 60E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Indeno(1,2,3-cd)pyrene	0 12	J	NA	1 40E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Naphthalene	0 064	J	NA	1 20E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Phenanthrene	0 37		3 31E-01	1 20E+04	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Semivolatile	Pyrene	0 5		4 30E-01	4 20E+03	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	2-Butanone (MEK)	0 0062	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	Acetone	0 023	J	NA	1 60E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	Carbon Disulfide	0 0013	J	NA	3 20E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	Chlorobenzene	0 0013	J	NA	1 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	Ethylbenzene	0 00053	J	1 07E-03	1 30E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	Tetrachloroethene	0 00046	J	8 80E-04	6 00E-02	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	Trichloroethylene	0 00054	J	NA	6 00E-02	No	<=Screening Level
Q Central	SOIL-Q-6	Surface	SOIL-Q-6-0 5	Volatile	Xylenes Total	0 0022	J	1 61E-03	1 50E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Herbicide	2 4 5-T	0 0091	J	NA	1 10E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Herbicide	2 4-D	0 0075	J	NA	1 50E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Herbicide	Pentachlorophenol	0 012	J	NA	2 00E-02	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Aluminum	3200		7 86E+03	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Antimony	5 8	J	1 21E+00	5 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Arsenic	57		9 26E+00	2 50E+01	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Barium	75	J	3 28E+02	2 60E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Beryllium	2 6		6 28E-01	1 10E+00	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Cadmium	0 41	J	2 91E-01	1 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Calcium	2200		2 48E+04	NA	No	EN
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Chromium	27		1 57E+01	2 10E+01	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Cobalt	11	J	9 14E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Copper	150	J	1 35E+01	3 30E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Iron	6200		1 88E+04	NA	No	EN
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Lead	120	J	1 33E+01	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Magnesium	400		1 02E+04	NA	No	EN
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Manganese	29	J	4 50E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Mercury	0 11	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Nickel	32		2 35E+01	2 00E+01	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Potassium	500	J	1 75E+03	NA	No	EN
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Selenium	6 4		NA	1 30E+00	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Silver	0 55	J	NA	2 40E-01	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Thallium	4 1		NA	1 60E+00	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Vanadium	56		2 98E+01	9 80E+02	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Metal	Zinc	80	J	5 88E+01	1 00E+03	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Pesticide	4,4'-DDT	0 032	J	1 04E-03	3.20E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Pesticide	Dieldrin	0 042	J	NA	4 00E-03	Yes	>Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Pesticide	Endrin Ketone	0 0044	J	NA	1 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	1 4-Dichlorobenzene	0 14	J	NA	2 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	2-Methylnaphthalene	0 052	J	NA	1 20E+01	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Benzo(a)anthracene	0 029	J	NA	2 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Benzo(a)pyrene	0 024	J	NA	8 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Benzo(b)fluoranthene	0 031	J	NA	5 00E+00	No	<=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Benzo(k)fluoranthene	0 029	J	NA	4 90E+01	No	<=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	bis(2-Ethylhexyl)phthalate	0 56		6 40E-02	3 60E+03	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Chrysene	0 032	J	NA	1 60E+02	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Fluoranthene	0 043	J	NA	4 30E+03	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Naphthalene	0 035	J	NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Phenanthrene	0 045	J	NA	1 20E+04	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Phenol	0 085	J	NA	1 00E+02	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Semivolatile	Pyrene	0 053	J	NA	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Volatile	2-Butanone (MEK)	0 034	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Volatile	Acetone	0 16	J	NA	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Volatile	Benzene	0 0078	J	NA	3 00E-02	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Volatile	Carbon Disulfide	0 0026	J	NA	3.20E+01	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Volatile	Chlorobenzene	0 017	J	NA	1 00E+00	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Volatile	Ethylbenzene	0 0012	J	8 37E-04	1 30E+01	No	</=Screening Level
Q Central	SOIL-Q-6	Subsurface	SOIL-Q-6-6	Volatile	Xylenes, Total	0 0054	J	1 50E-03	1 50E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Herbicide	2,4,5-T	0 003	J	NA	1 10E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Herbicide	2 4-D	0 0047	J	9 96E-03	1 50E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Herbicide	Pentachlorophenol	0 045		4 57E-03	2 00E-02	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Aluminum	3200		1 38E+04	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Antimony	1 6	J	2 33E+00	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Arsenic	3 5		1 24E+01	2 50E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Barium	170	J	3 07E+02	2 60E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Beryllium	0.21	J	9 02E-01	1 10E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Cadmium	1 3		3 34E+00	1 00E+00	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Calcium	260000		9 74E+04	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Chromium	14		2 21E+01	2 10E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Cobalt	2 1	J	9 40E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Copper	15	J	8 58E+01	3 30E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Iron	5600		2 33E+04	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Lead	240	J	1 30E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Magnesium	12000		1 23E+04	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Manganese	140	J	5 52E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Nickel	8 9		3 30E+01	2 00E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Potassium	730	J	3 01E+03	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Silver	0 19	J	9 90E-01	2 40E-01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Sodium	340		1 58E+02	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Vanadium	18		3 89E+01	9 80E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Metal	Zinc	320	J	3 90E+02	1 00E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Pesticide	4 4'-DDD	0 029	J	7 04E-03	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Pesticide	4,4'-DDT	0 029	J	4 04E-02	3 20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Pesticide	alpha-BHC	0 096	J	4 96E-02	5 00E-04	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Pesticide	alpha-Chlordane	0 0023	J	6 15E-03	1 00E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Pesticide	Dieldrin	0 048	J	1 13E-02	4 00E-03	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Pesticide	Endosulfan Sulfate	0 0024	J	1 81E-03	1 80E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	1,4-Dichlorobenzene	0 32	J	NA	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Anthracene	0 13	J	1 20E-01	1 20E+04	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Benzo(a)anthracene	0 45	J	2 76E-01	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Benzo(a)pyrene	0 43	J	4 06E-01	8 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Benzo(b)fluoranthene	0 54	J	3 66E-01	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Benzo(g,h i)perylene	0 24	J	4 14E-01	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Benzo(k)fluoranthene	0 36	J	2 83E-01	4 90E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Benzyl Butyl Phthalate	0 32	J	NA	9 30E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 24	J	3 53E-01	3 60E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Chrysene	0 65	J	2 99E-01	1 60E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Fluoranthene	1 3		4 50E-01	4 30E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	0 15	J	NA	1 40E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Phenanthrene	0 59	J	3 31E-01	1 20E+04	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Semivolatile	Pyrene	1 4		4 30E-01	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	2-Butanone (MEK)	0 011	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	4-Methyl-2-pentanone (MIBK)	0 0084	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Acetone	0 061	J	NA	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Benzene	0 0037	J	NA	3 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Carbon Disulfide	0 0056	J	NA	3 20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Chlorobenzene	0 042	J	NA	1 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Ethylbenzene	0 025	J	1 07E-03	1 30E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Tetrachloroethene	0 0036	J	8 80E-04	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Trichloroethylene	0 001	J	NA	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5	Volatile	Xylenes, Total	0 18		1 61E-03	1 50E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Herbicide	2,4,5-T	0 0041	J	NA	1 10E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Herbicide	2,4-DB	0 035	J	NA	1 50E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Herbicide	Pentachlorophenol	0 12	J	4 57E-03	2 00E-02	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Aluminum	6100		1 38E+04	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Antimony	4 9	J	2 33E+00	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Arsenic	7 9		1 24E+01	2 50E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Barium	590	J	3 07E+02	2 60E+02	Yes	>Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Beryllium	0.29	J	9 02E-01	1 10E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Cadmium	1 9		3 34E+00	1 00E+00	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Calcium	220000		9 74E+04	NA	No	EN

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Chromium	26		2 21E+01	2 10E+01	Yes	>Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Cobalt	3.2	J	9 40E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Copper	26	J	8 58E+01	3 30E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Iron	9900		2 33E+04	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Lead	480	J	1 30E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Magnesium	5200		1 23E+04	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Manganese	160	J	5 52E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Mercury	0 052	J	1 34E-01	1 00E-02	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Nickel	13		3 30E+01	2 00E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Potassium	1200	J	3 01E+03	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Silver	0 16	J	9 90E-01	2 40E-01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Sodium	430		1 58E+02	NA	No	EN
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Vanadium	23		3 89E+01	9 80E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Metal	Zinc	1800	J	3 90E+02	1 00E+03	Yes	>Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Pesticide	4 4'-DDT	0 18	J	4 04E-02	3.20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Pesticide	alpha-BHC	0 025	J	4 96E-02	5 00E-04	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Pesticide	alpha-Chlordane	0 0054	J	6 15E-03	1 00E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Pesticide	Dieldrin	0 048	J	1 13E-02	4 00E-03	No	</=BKG
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	1 4-Dichlorobenzene	0 28	J	NA	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	2-Methylnaphthalene	0 035	J	NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	3-Methylphenol/4-Methylphenol	0 066	J	NA	1 50E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Acenaphthene	0 053	J	4 20E-02	5 70E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Anthracene	0 13	J	1 20E-01	1 20E+04	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Benzo(a)anthracene	0 4	J	2 76E-01	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Benzo(a)pyrene	0 38	J	4 06E-01	8 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Benzo(b)fluoranthene	0 45		3 66E-01	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Benzo(g h,i)perylene	0 22	J	4 14E-01	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Benzo(k)fluoranthene	0 38	J	2 83E-01	4 90E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Benzyl Butyl Phthalate	0 12	J	NA	9 30E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	bis(2-Ethylhexyl)phthalate	2 2		3 53E-01	3 60E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Carbazole	0 065	J	NA	6 00E-01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Chrysene	0 49		2 99E-01	1 60E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Dibenzo(a h)anthracene	0 072	J	1 20E-01	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Dibenzofuran	0 043	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Di-n-butylphthalate	0 24	J	NA	2 30E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Fluoranthene	0 85		4 50E-01	4 30E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Fluorene	0 064	J	NA	5 60E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Hexachlorobenzene	0 029	J	NA	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Indeno(1,2 3-cd)pyrene	0 14	J	NA	1 40E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Naphthalene	0 046	J	NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Phenanthrene	0 69		3 31E-01	1 20E+04	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Semivolatile	Pyrene	0 98		4 30E-01	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	2-Butanone (MEK)	0 038	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	4-Methyl-2-pentanone (MIBK)	0 012	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Acetone	0 91	J	NA	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Benzene	0 012	J	NA	3 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Carbon Disulfide	0 0052	J	NA	3.20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Chlorobenzene	0 22	J	NA	1 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Ethylbenzene	0 045	J	1 07E-03	1 30E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Tetrachloroethene	0 0032	J	8 80E-04	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Trichloroethylene	0 001	J	NA	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Surface	SOIL-Q-7-0 5-DUP	Volatile	Xylenes, Total	0 17		1 61E-03	1 50E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Herbicide	Dalapon	0 068	J	NA	8 50E-01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Herbicide	Pentachlorophenol	0 63	J	NA	2 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Aluminum	7800		7 86E+03	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Antimony	3 7	J	1 21E+00	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Arsenic	13		9 26E+00	2 50E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Barium	200	J	3 28E+02	2 60E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Beryllium	0 53	J	6 28E-01	1 10E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Cadmium	3 8		2 91E-01	1 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Calcium	21000		2 48E+04	NA	No	EN
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Chromium	33		1 57E+01	2 10E+01	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Cobalt	6 5	J	9 14E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Copper	20000	J	1 35E+01	3 30E+02	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Iron	54000		1 88E+04	NA	No	EN
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Lead	300	J	1 33E+01	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Magnesium	1700		1 02E+04	NA	No	EN
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Manganese	310	J	4 50E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Mercury	0 049	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Nickel	160		2 35E+01	2 00E+01	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Potassium	490	J	1 75E+03	NA	No	EN
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Silver	2 5		NA	2 40E-01	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Sodium	270		1 25E+02	NA	No	EN
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Vanadium	13		2 98E+01	9 80E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Metal	Zinc	430	J	5 88E+01	1 00E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Pesticide	alpha-Chlordane	0 031	J	NA	1 00E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Pesticide	Endosulfan Sulfate	0 027	J	NA	1 80E+01	No	</=Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	1 2-Dichlorobenzene	0.22	J	NA	1 70E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	1 4-Dichlorobenzene	5 8	J	NA	2 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	2-Methylnaphthalene	0 99	J	NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	3-Methylphenol/4-Methylphenol	0 55	J	NA	1 50E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Benzo(a)anthracene	0 64	J	NA	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Benzo(a)pyrene	0 39	J	NA	8 00E+00	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Benzo(g h i)perylene	0 36	J	NA	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Benzyl Butyl Phthalate	3	J	NA	9 30E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	bis(2-Ethylhexyl)phthalate	21	J	6 40E-02	3 60E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Chrysene	0 68	J	NA	1 60E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Di-n-butylphthalate	2 6	J	NA	2 30E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Di-n-octylphthalate	0 55	J	NA	1 00E+04	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Fluoranthene	0 41	J	NA	4 30E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Naphthalene	1 2	J	NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Phenanthrene	0 65	J	NA	1 20E+04	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Phenol	0 43	J	NA	1 00E+02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Semivolatile	Pyrene	0 94	J	NA	4.20E+03	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	2-Butanone (MEK)	0 026	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	4-Methyl-2-pentanone (MIBK)	0 043	J	2 00E-03	NA	No	Screening Level NA
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Acetone	0 19	J	NA	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Benzene	0.21		NA	3 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Carbon Disulfide	0 052		NA	3.20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Chlorobenzene	40	J	NA	1 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Ethylbenzene	0 039	J	8 37E-04	1 30E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Tetrachloroethene	0 0018	J	1 02E-03	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Toluene	0 064		NA	1.20E+01	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Trichloroethylene	0 0023	J	NA	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-7	Subsurface	SOIL-Q-7-6	Volatile	Xylenes Total	0 16		1 50E-03	1 50E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Herbicide	Pentachlorophenol	0 0033	J	4 57E-03	2 00E-02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Aluminum	3400		1 38E+04	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Antimony	0 94	J	2 33E+00	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Arsenic	3.2		1 24E+01	2 50E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Barium	93	J	3 07E+02	2 60E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Beryllium	0.24	J	9 02E-01	1 10E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Cadmium	0 69		3 34E+00	1 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Calcium	210000		9 74E+04	NA	No	EN
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Chromium	12		2 21E+01	2 10E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Cobalt	2 4	J	9 40E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Copper	54	J	8 58E+01	3 30E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Iron	7100		2 33E+04	NA	No	EN
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Lead	52	J	1 30E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Magnesium	17000		1 23E+04	NA	No	EN
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Manganese	240	J	5 52E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Mercury	0.27	J	1 34E-01	1 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Nickel	9 5		3 30E+01	2 00E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Potassium	1100	J	3 01E+03	NA	No	EN
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Silver	0 14	J	9 90E-01	2 40E-01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Sodium	370		1 58E+02	NA	No	EN
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Vanadium	13		3 89E+01	9 80E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Metal	Zinc	100	J	3 90E+02	1 00E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Pesticide	Aldrin	0 0021	J	3 56E-03	5 00E-01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Pesticide	Dieldrin	0 0052	J	1 13E-02	4 00E-03	No	</=BKG
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Pesticide	Endrin Ketone	0 0011	J	NA	1 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	1 4-Dichlorobenzene	0 045	J	NA	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Acenaphthene	0 03	J	4 20E-02	5 70E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Anthracene	0 078	J	1 20E-01	1.20E+04	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Benzo(a)anthracene	0 29	J	2 76E-01	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Benzo(a)pyrene	0 3	J	4 06E-01	8 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Benzo(b)fluoranthene	0 32	J	3 66E-01	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Benzo(k)fluoranthene	0 28	J	2 83E-01	4 90E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Benzyl Butyl Phthalate	0 023	J	NA	9 30E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 13	J	3 53E-01	3 60E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Chrysene	0 32	J	2 99E-01	1 60E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Dibenzofuran	0 022	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Fluoranthene	0 53		4 50E-01	4 30E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Fluorene	0 034	J	NA	5 60E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	0 088	J	NA	1 40E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Phenanthrene	0 37	J	3 31E-01	1.20E+04	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Semivolatile	Pyrene	0 67		4 30E-01	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	2-Butanone (MEK)	0 0096	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	Acetone	0 068	J	NA	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	Carbon Disulfide	0 00087	J	NA	3 20E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	Chlorobenzene	0 0016	J	NA	1 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	Ethylbenzene	0 00031	J	1 07E-03	1 30E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	Tetrachloroethene	0 00041	J	8 80E-04	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	Trichloroethylene	0 00097	J	NA	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-8	Surface	SOIL-Q-8-0 5	Volatile	Xylenes Total	0 0012	J	1 61E-03	1 50E+02	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Herbicide	Pentachlorophenol	0 056	J	NA	2 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Aluminum	8100		7 86E+03	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Antimony	2 3	J	1 21E+00	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Arsenic	13		9 26E+00	2 50E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Barium	510	J	3 28E+02	2 60E+02	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Beryllium	0 65		6 28E-01	1 10E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Cadmium	14		2 91E-01	1 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Calcium	46000		2 48E+04	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Chromium	85		1 57E+01	2 10E+01	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Cobalt	12	J	9 14E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Copper	260	J	1 35E+01	3 30E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Iron	21000		1 88E+04	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Lead	520	J	1 33E+01	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Magnesium	5800		1 02E+04	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Manganese	3000	J	4 50E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Mercury	0 61	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Nickel	69		2 35E+01	2 00E+01	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Potassium	1500	J	1 75E+03	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Silver	2 6		NA	2 40E-01	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Sodium	1100		1 25E+02	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Vanadium	26		2 98E+01	9 80E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Metal	Zinc	630	J	5 88E+01	1 00E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Pesticide	4 4 -DDD	0 0076	J	NA	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Pesticide	alpha-Chlordane	0 0047	J	NA	1 00E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Pesticide	Dieldrin	0 065	J	NA	4 00E-03	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Pesticide	Endrin Aldehyde	0 016	J	NA	1 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	1 4-Dichlorobenzene	4 3		NA	2 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	2-Methylnaphthalene	0 96	J	NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Acenaphthene	0 38	J	NA	5 70E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Benzo(a)anthracene	0 55	J	NA	2 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Benzo(a)pyrene	0 53	J	NA	8 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Benzo(b)fluoranthene	0 29	J	NA	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Benzo(g h i)perylene	0 31	J	NA	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Benzyl Butyl Phthalate	3 8	J	NA	9 30E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	bis(2-Ethylhexyl)phthalate	25		6 40E-02	3 60E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Chrysene	0 84	J	NA	1 60E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Dibenzofuran	0 38	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Di-n-butylphthalate	1 1	J	NA	2 30E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Fluoranthene	0 83	J	NA	4 30E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Fluorene	0 5	J	NA	5 60E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Naphthalene	1 7	J	NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Phenanthrene	1 6	J	NA	1 20E+04	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Semivolatile	Pyrene	0 98	J	NA	4 20E+03	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	1 2-Dichloroethene (total)	0 0011	J	NA	4 00E-01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	2-Butanone (MEK)	0 05		NA	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Acetone	0 17	J	NA	1 60E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Benzene	0 058		NA	3 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Carbon Disulfide	0 011		NA	3 20E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Chlorobenzene	2 2	J	NA	1 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Ethylbenzene	0 2	J	8 37E-04	1 30E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Tetrachloroethene	0 0014	J	1 02E-03	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Toluene	0 07		NA	1 20E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Trichloroethylene	0 0023	J	NA	6 00E-02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6	Volatile	Xylenes Total	13		1 50E-03	1 50E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Herbicide	Dalapon	0 02	J	NA	8 50E-01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Herbicide	MCPP	1 1	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Herbicide	Pentachlorophenol	0 057	J	NA	2 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Aluminum	7500		7 86E+03	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Antimony	2 2	J	1 21E+00	5 00E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Arsenic	8 6		9 26E+00	2 50E+01	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Barium	280	J	3.28E+02	2 60E+02	No	</=BKG
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Beryllium	0 47	J	6 28E-01	1 10E+00	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Cadmium	5 3		2 91E-01	1 00E+00	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Calcium	63000		2 48E+04	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Chromium	110		1 57E+01	2 10E+01	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Cobalt	18	J	9 14E+00	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Copper	190	J	1 35E+01	3 30E+02	No	</=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Iron	22000		1 88E+04	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Lead	640	J	1 33E+01	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Magnesium	9700		1 02E+04	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Manganese	7900	J	4 50E+02	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Mercury	0 92	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Nickel	67		2 35E+01	2 00E+01	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Potassium	1000	J	1 75E+03	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Silver	4 9		NA	2 40E-01	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Sodium	1600		1 25E+02	NA	No	EN
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Vanadium	19		2 98E+01	9 80E+02	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Metal	Zinc	740	J	5 88E+01	1 00E+03	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Pesticide	alpha-Chlordane	0 0081	J	NA	1 00E+01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Pesticide	Dieldrin	0 052	J	NA	4 00E-03	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	1,4-Dichlorobenzene	1 5	J	NA	2 00E+00	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	2-Methylnaphthalene	0 37	J	NA	1 20E+01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Benzo(a)anthracene	0 22	J	NA	2 00E+00	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Benzyl Butyl Phthalate	2 3	J	NA	9 30E+02	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	bis(2-Ethylhexyl)phthalate	19		6 40E-02	3 60E+03	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Chrysene	0 29	J	NA	1 60E+02	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Di-n-butylphthalate	0 42	J	NA	2 30E+03	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Fluoranthene	0 42	J	NA	4 30E+03	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Naphthalene	0 65	J	NA	1 20E+01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Phenanthrene	0 75	J	NA	1 20E+04	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Semivolatile	Pyrene	0 5	J	NA	4 20E+03	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	1 2-Dichloroethene (total)	0 0016	J	NA	4 00E-01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	2-Butanone (MEK)	0 027	J	NA	NA	No	Screening Level NA
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Acetone	0 1	J	NA	1 60E+01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Benzene	0 041		NA	3 00E-02	Yes	>Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Carbon Disulfide	0 0068		NA	3 20E+01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Chlorobenzene	0 095	J	NA	1 00E+00	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Ethylbenzene	0 03	J	8 37E-04	1 30E+01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Tetrachloroethene	0 00061	J	1 02E-03	6 00E-02	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Toluene	0 097		NA	1 20E+01	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Trichloroethylene	0 0006	J	NA	6 00E-02	No	<=Screening Level
Q Central	SOIL-Q-8	Subsurface	SOIL-Q-8-6-DUP	Volatile	Xylenes Total	0 4		1 50E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Herbicide	2 4-D	0 0067	J	9 96E-03	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Aluminum	11000		1 38E+04	NA	No	Screening Level NA
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Antimony	47	J	2 33E+00	5 00E+00	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Arsenic	33		1 24E+01	2 50E+01	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Barium	1000		3 07E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Beryllium	0 54		9 02E-01	1 10E+00	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Cadmium	22		3 34E+00	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Calcium	22000		9 74E+04	NA	No	EN
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Chromium	660		2 21E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Cobalt	20		9 40E+00	NA	No	Screening Level NA
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Copper	710	J	8 58E+01	3 30E+02	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Iron	90000		2 33E+04	NA	No	EN
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Lead	3100		1 30E+02	NA	No	Screening Level NA
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Magnesium	3800		1 23E+04	NA	No	EN
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Manganese	2100		5 52E+02	NA	No	Screening Level NA
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Mercury	1	J	1 34E-01	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Nickel	500		3 30E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Potassium	970		3 01E+03	NA	No	EN
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Silver	12		9 90E-01	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Sodium	420		1 58E+02	NA	No	EN
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Vanadium	27		3 89E+01	9 80E+02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Metal	Zinc	3000	J	3 90E+02	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Pesticide	4 4'-DDT	2 6	J	4 04E-02	3 20E+01	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Pesticide	alpha-Chlordane	0 033		6 15E-03	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Pesticide	beta-BHC	0 011	J	NA	5 00E-04	Yes	>Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Pesticide	Endrin	0 17	J	5 02E-03	1 00E+00	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Pesticide	gamma-Chlordane	0 15	J	4 11E-02	1 00E+01	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Pesticide	Heptachlor Epoxide	0 076	J	1 05E-02	7 00E-01	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Pesticide	Methoxychlor	0 092	J	5 60E-03	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Acenaphthene	0 051	J	4 20E-02	5 70E+02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Anthracene	0 34	J	1 20E-01	1.20E+04	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Benzo(a)anthracene	1 8	J	2 76E-01	2 00E+00	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Benzo(a)pyrene	1 8	J	4 06E-01	8 00E+00	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Benzo(b)fluoranthene	3 3	J	3 66E-01	5 00E+00	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Benzyl Butyl Phthalate	0 87	J	NA	9 30E+02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 54	J	3 53E-01	3 60E+03	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Carbazole	0 079	J	NA	6 00E-01	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Chrysene	2 4	J	2 99E-01	1 60E+02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Dibenzofuran	0 029	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Di-n-butylphthalate	0 11	J	NA	2 30E+03	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Fluoranthene	3.2	J	4 50E-01	4 30E+03	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Fluorene	0 062	J	NA	5 60E+02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Phenanthrene	1 6	J	3 31E-01	1 20E+04	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Semivolatile	Pyrene	3 3	J	4 30E-01	4.20E+03	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Volatile	Carbon Disulfide	0 00066	J	NA	3.20E+01	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Volatile	Ethylbenzene	0 00038	J	1 07E-03	1 30E+01	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Volatile	Tetrachloroethene	0 0021	J	8 80E-04	6 00E-02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Volatile	Trichloroethylene	0 0017	J	NA	6 00E-02	No	<=Screening Level
Q South	SOIL-Q-9	Surface	SOIL-Q-9-0 5	Volatile	Xylenes Total	0 0012	J	1 61E-03	1 50E+02	No	<=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Herbicide	2 4-D	0 0048	J	NA	1 50E+00	No	<=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Herbicide	MCPP	0 56	J	NA	NA	No	Screening Level NA
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Aluminum	6600		7 86E+03	NA	No	Screening Level NA

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Antimony	27	J	1 21E+00	5 00E+00	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Arsenic	17		9 26E+00	2 50E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Barium	1900		3 28E+02	2 60E+02	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Beryllium	0 32	J	6 28E-01	1 10E+00	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Cadmium	22		2 91E-01	1 00E+00	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Calcium	17000		2 48E+04	NA	No	EN
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Chromium	74		1 57E+01	2 10E+01	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Cobalt	13		9 14E+00	NA	No	Screening Level NA
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Copper	520	J	1 35E+01	3 30E+02	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Iron	79000		1 88E+04	NA	No	EN
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Lead	1600		1 33E+01	NA	No	Screening Level NA
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Magnesium	2500		1 02E+04	NA	No	EN
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Manganese	600		4 50E+02	NA	No	Screening Level NA
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Mercury	0 62	J	2 07E-02	1 00E-02	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Nickel	58		2 35E+01	2 00E+01	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Potassium	740		1 75E+03	NA	No	EN
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Silver	5 1		NA	2 40E-01	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Sodium	370		1 25E+02	NA	No	EN
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Vanadium	17		2 98E+01	9 80E+02	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Metal	Zinc	2300	J	5 88E+01	1 00E+03	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	4 4'-DDE	0.26		NA	5 40E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	4,4'-DDT	0 49	J	1 04E-03	3.20E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	alpha-Chlordane	0 037		NA	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	Dieldrin	0 12	J	NA	4 00E-03	Yes	>Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	Endosulfan II	0 01	J	NA	1 80E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	Endrin	0 039	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	gamma-Chlordane	0 21	J	2 40E-04	1 00E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Pesticide	Heptachlor Epoxide	0 056	J	6 40E-04	7 00E-01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Benzo(a)anthracene	1 2	J	NA	2 00E+00	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Benzo(a)pyrene	1 2	J	NA	8 00E+00	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Benzo(b)fluoranthene	1 4	J	NA	5 00E+00	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Benzo(g,h i)perylene	1 2	J	NA	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Benzo(k)fluoranthene	1 1	J	NA	4 90E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Benzyl Butyl Phthalate	5 4		NA	9 30E+02	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	bis(2-Ethylhexyl)phthalate	0 36	J	6 40E-02	3 60E+03	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Chrysene	1 4	J	NA	1 60E+02	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Fluoranthene	2	J	NA	4 30E+03	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Phenanthrene	0 89	J	NA	1 20E+04	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Semivolatile	Pyrene	1 8	J	NA	4 20E+03	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Volatile	Benzene	0 0015	J	NA	3 00E-02	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Volatile	Chlorobenzene	0 00058	J	NA	1 00E+00	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Volatile	Ethylbenzene	0 00052	J	8 37E-04	1 30E+01	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Volatile	Tetrachloroethene	0 003	J	1 02E-03	6 00E-02	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Volatile	Trichloroethylene	0 0013	J	NA	6 00E-02	No	</=Screening Level
Q South	SOIL-Q-9	Subsurface	SOIL-Q-9-6	Volatile	Xylenes, Total	0 0036	J	1 50E-03	1 50E+02	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Herbicide	Dichlorprop	0 1	J	1 14E-01	NA	No	Screening Level NA
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Herbicide	MCPP	49	J	3 60E+00	NA	No	Screening Level NA
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Aluminum	8700	J	1 38E+04	NA	No	Screening Level NA
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Antimony	0 44	J	2 33E+00	5 00E+00	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Arsenic	7.2		1 24E+01	2.50E+01	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Barium	150	J	3 07E+02	2 60E+02	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Beryllium	0 68		9 02E-01	1 10E+00	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Cadmium	0 49	J	3 34E+00	1 00E+00	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Calcium	4400		9 74E+04	NA	No	EN
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Chromium	17		2 21E+01	2 10E+01	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Cobalt	15	J	9 40E+00	NA	No	Screening Level NA
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Copper	23		8 58E+01	3 30E+02	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Iron	18000		2 33E+04	NA	No	EN
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Lead	33	J	1 30E+02	NA	No	Screening Level NA
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Magnesium	3400	J	1 23E+04	NA	No	EN
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Manganese	1200		5 52E+02	NA	No	Screening Level NA
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Mercury	0 037		1 34E-01	1 00E-02	No	</=BKG
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Nickel	20		3 30E+01	2 00E+01	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Potassium	880	J	3 01E+03	NA	No	EN
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Sodium	90	J	1 58E+02	NA	No	EN
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Vanadium	34	J	3 89E+01	9 80E+02	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Metal	Zinc	91	J	3 90E+02	1 00E+03	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Pesticide	4,4'-DDT	0 0027	J	4 04E-02	3 20E+01	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Pesticide	Dieldrin	0 0014	J	1 13E-02	4 00E-03	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Benzo(a)anthracene	0 03	J	2 76E-01	2 00E+00	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Benzo(a)pyrene	0 026	J	4 06E-01	8 00E+00	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Benzo(b)fluoranthene	0 03	J	3 66E-01	5 00E+00	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Benzo(g,h,i)perylene	0 045	J	4 14E-01	4 20E+03	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Benzo(k)fluoranthene	0 026	J	2 83E-01	4 90E+01	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	0 078	J	3 53E-01	3 60E+03	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Chrysene	0 032	J	2 99E-01	1 60E+02	No	</=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Indeno(1,2,3-cd)pyrene	0 043	J	NA	1 40E+01	No	</=Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Semivolatile	Phenanthrene	0 021	J	3 31E-01	1 20E+04	No	<=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Volatile	2-Butanone (MEK)	0 015	J	NA	NA	No	Screening Level NA
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Volatile	Acetone	0 13		NA	1 60E+01	No	<=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Volatile	Benzene	0 00068	J	NA	3 00E-02	No	<=Screening Level
R	SOIL-R-1	Surface	SOIL-R-1-0 5	Volatile	Ethylbenzene	0 00024	J	1 07E-03	1 30E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Herbicide	2 4 5-T	0 0076	J	NA	1 10E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Herbicide	2 4-D	0 42	J	NA	1 50E+00	No	<=Screening Level
R	SOIL-R 1	Subsurface	SOIL-R-1-6FT	Herbicide	2 4-DB	0 027	J	NA	1 50E+00	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Herbicide	Dichlorprop	0 087	J	5 80E-03	NA	No	Screening Level NA
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Herbicide	MCPP	51	J	NA	NA	No	Screening Level NA
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Herbicide	Pentachlorophenol	0 093	J	NA	2 00E-02	Yes	>Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Aluminum	9600	J	7 86E+03	NA	No	Screening Level NA
R	SOIL-R 1	Subsurface	SOIL-R-1-6FT	Metal	Arsenic	6 4		9 26E+00	2 50E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Barium	130	J	3 28E+02	2 60E+02	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Beryllium	0 59		6 28E-01	1 10E+00	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Cadmium	0 36	J	2 91E-01	1 00E+00	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Calcium	5100		2 48E+04	NA	No	EN
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Chromium	16		1 57E+01	2 10E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Cobalt	7 9	J	9 14E+00	NA	No	Screening Level NA
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Copper	20		1 35E+01	3 30E+02	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Iron	18000		1 88E+04	NA	No	EN
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Lead	17	J	1 33E+01	NA	No	Screening Level NA
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Magnesium	4000	J	1 02E+04	NA	No	EN
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Manganese	520		4 50E+02	NA	No	Screening Level NA
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Mercury	0 19		2 07E-02	1 00E-02	Yes	>Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Nickel	19		2 35E+01	2 00E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Potassium	850	J	1 75E+03	NA	No	EN
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Sodium	130	J	1 25E+02	NA	No	EN
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Vanadium	31	J	2 98E+01	9 80E+02	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Metal	Zinc	74	J	5 88E+01	1 00E+03	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Pesticide	4 4'-DDT	0 012	J	1 04E-03	3 20E+01	No	<=Screening Level
R	SOIL R-1	Subsurface	SOIL-R-1-6FT	Pesticide	Aldrin	0 006	J	NA	5 00E-01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Pesticide	alpha-Chlordane	0 0055	J	NA	1 00E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Pesticide	Dieldrin	0 01	J	NA	4 00E-03	Yes	>Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Pesticide	Endrin Aldehyde	0 016	J	NA	1 00E+00	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Pesticide	gamma-Chlordane	0 0058	J	2 40E-04	1 00E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Pesticide	Heptachlor Epoxide	0 036		6 40E-04	7 00E-01	No	<=Screening Level
R	SOIL-R 1	Subsurface	SOIL-R-1-6FT	Semivolatile	1 2-Dichlorobenzene	0 1	J	NA	1 70E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Semivolatile	2 4-Dimethylphenol	0 1	J	NA	9 00E+00	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Semivolatile	3-Methylphenol/4-Methylphenol	0 065	J	NA	1 50E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Semivolatile	4-Chloroaniline	0 38	J	NA	7 00E-01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	0 038	J	6 40E-02	3 60E+03	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Volatile	1 2-Dichloroethene (total)	0 00048	J	NA	4 00E-01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Volatile	2-Butanone (MEK)	0 0023	J	NA	NA	No	Screening Level NA
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Volatile	Benzene	0 006		NA	3 00E-02	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Volatile	Chlorobenzene	0 0031	J	NA	1 00E+00	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Volatile	Ethylbenzene	0 00044	J	8 37E-04	1 30E+01	No	<=Screening Level
R	SOIL-R-1	Subsurface	SOIL-R-1-6FT	Volatile	Xylenes Total	0 00095	J	1 50E-03	1 50E+02	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Herbicide	2 4-D	0 055	J	9 96E-03	1 50E+00	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Herbicide	2 4-DB	0 029	J	NA	1 50E+00	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Herbicide	Dichlorprop	0 091	J	1 14E-01	NA	No	Screening Level NA
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Herbicide	MCPP	43	J	3 60E+00	NA	No	Screening Level NA
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Aluminum	7600	J	1 38E+04	NA	No	Screening Level NA
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Arsenic	5 5		1 24E+01	2 50E+01	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Barium	110	J	3 07E+02	2 60E+02	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Beryllium	0 48		9 02E-01	1 10E+00	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Cadmium	0 76	J	3 34E+00	1 00E+00	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Calcium	6400		9 74E+04	NA	No	EN
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Chromium	13		2 21E+01	2 10E+01	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Cobalt	6 9	J	9 40E+00	NA	No	Screening Level NA
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Copper	25		8 58E+01	3 30E+02	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Iron	15000		2 33E+04	NA	No	EN
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Lead	19	J	1 30E+02	NA	No	Screening Level NA
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Magnesium	4600	J	1 23E+04	NA	No	EN
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Manganese	560		5 52E+02	NA	No	Screening Level NA
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Mercury	0 076		1 34E-01	1 00E-02	No	<=BKG
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Nickel	17		3 30E+01	2 00E+01	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Potassium	820	J	3 01E+03	NA	No	EN
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Sodium	87	J	1 58E+02	NA	No	EN
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Vanadium	27	J	3 89E+01	9 80E+02	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Metal	Zinc	120	J	3 90E+02	1 00E+03	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	2-Butanone (MEK)	0 0031	J	NA	NA	No	Screening Level NA
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	Acetone	0 011	J	NA	1 60E+01	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	Benzene	0 0021	J	NA	3 00E-02	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	Chlorobenzene	0 064		NA	1 00E+00	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	Ethylbenzene	0 0019	J	1 07E-03	1 30E+01	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	Tetrachloroethene	0 012		8 80E-04	6 00E-02	No	<=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	Trichloroethylene	0 0003	J	NA	6 00E-02	No	<=Screening Level
R	SOIL-R-2	Surface	SOIL-R-2-0 5	Volatile	Xylenes Total	0 0091	J	1 61E-03	1 50E+02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Herbicide	2,4-D	0 28	J	NA	1 50E+00	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Herbicide	2 4-DB	0 045	J	NA	1 50E+00	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Herbicide	Dichlorprop	0 12	J	5 80E-03	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Herbicide	MCPP	85	J	NA	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Aluminum	8100	J	7 86E+03	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Arsenic	6 2		9 26E+00	2 50E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Barium	120	J	3 28E+02	2 60E+02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Beryllium	0 48		6 28E-01	1 10E+00	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Cadmium	0 19	J	2 91E-01	1 00E+00	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Calcium	7500		2 48E+04	NA	No	EN
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Chromium	14		1 57E+01	2 10E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Cobalt	7 6	J	9 14E+00	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Copper	15		1 35E+01	3 30E+02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Iron	16000		1 88E+04	NA	No	EN
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Lead	9 8	J	1 33E+01	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Magnesium	5500	J	1 02E+04	NA	No	EN
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Manganese	650		4 50E+02	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Mercury	0 047		2 07E-02	1 00E-02	Yes	>Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Nickel	18		2 35E+01	2 00E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Potassium	760	J	1 75E+03	NA	No	EN
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Sodium	120	J	1 25E+02	NA	No	EN
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Vanadium	27	J	2 98E+01	9 80E+02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Metal	Zinc	44	J	5 88E+01	1 00E+03	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Pesticide	4 4'-DDE	0 00066	J	NA	5 40E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Pesticide	alpha-Chlordane	0 00037	J	NA	1 00E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Pesticide	Endrin Ketone	0 005	J	NA	1 00E+00	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Pesticide	Heptachlor Epoxide	0 0013	J	6 40E-04	7 00E-01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Pesticide	Methoxychlor	0 0072	J	1 02E-03	1 60E+02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Semivolatile	2 4-Dichlorophenol	0 03	J	NA	4 80E-01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	2-Butanone (MEK)	0 0071	J	NA	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	4-Methyl-2-pentanone (MIBK)	0 15		2 00E-03	NA	No	Screening Level NA
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Acetone	0 033	J	NA	1 60E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Benzene	0 023		NA	3 00E-02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Chlorobenzene	0 055		NA	1 00E+00	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Chloroform	0 0028	J	NA	6 00E-01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Ethylbenzene	0 0066		8 37E-04	1 30E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Tetrachloroethene	0 0036	J	1 02E-03	6 00E-02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Toluene	0 046		NA	1 20E+01	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Trichloroethylene	0 00074	J	NA	6 00E-02	No	<=Screening Level
R	SOIL-R-2	Subsurface	SOIL-R-2-6	Volatile	Xylenes, Total	0 041		1 50E-03	1 50E+02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Herbicide	2 4-DB	0 026	J	NA	1 50E+00	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Herbicide	Dichlorprop	0 075	J	1 14E-01	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Herbicide	MCPP	51	J	3 60E+00	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Aluminum	10000	J	1 38E+04	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Arsenic	6 6		1 24E+01	2 50E+01	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Barium	120	J	3 07E+02	2 60E+02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Beryllium	0 6		9 02E-01	1 10E+00	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Calcium	6100		9 74E+04	NA	No	EN
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Chromium	17		2 21E+01	2 10E+01	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Cobalt	8 3		9 40E+00	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Copper	15		8 58E+01	3 30E+02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Iron	18000		2 33E+04	NA	No	EN
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Lead	10	J	1 30E+02	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Magnesium	4800	J	1 23E+04	NA	No	EN
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Manganese	690		5 52E+02	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Mercury	0 06		1 34E-01	1 00E-02	No	<=BKG
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Nickel	21		3 30E+01	2 00E+01	No	<=BKG
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Potassium	1000	J	3 01E+03	NA	No	EN
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Sodium	120	J	1 58E+02	NA	No	EN
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Vanadium	30	J	3 89E+01	9 80E+02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Metal	Zinc	47	J	3 90E+02	1 00E+03	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Pesticide	Dieldrin	0 00037	J	1 13E-02	4 00E-03	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Semivolatile	Chrysene	0 02	J	2 99E-01	1 60E+02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	1,2-Dichloroethane	0 0026	J	NA	2 00E-02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	1,2-Dichloroethene (total)	0 00094	J	NA	4 00E-01	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	2-Butanone (MEK)	0 016	J	NA	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	4-Methyl-2-pentanone (MIBK)	0 01	J	NA	NA	No	Screening Level NA
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	Acetone	0 15		NA	1 60E+01	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	Benzene	0 0014	J	NA	3 00E-02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	Chlorobenzene	0 0026	J	NA	1 00E+00	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	Ethylbenzene	0 00038	J	1 07E-03	1 30E+01	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	Tetrachloroethene	0 0026	J	8 80E-04	6 00E-02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	Trichloroethylene	0 012		NA	6 00E-02	No	<=Screening Level
R	SOIL-R-3	Surface	SOIL-R-3-0 5FT	Volatile	Xylenes Total	0 0013	J	1 61E-03	1 50E+02	No	<=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Herbicide	2 4-D	0 27	J	NA	1 50E+00	No	<=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Herbicide	Dichlorprop	0 049	J	5 80E-03	NA	No	Screening Level NA
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Herbicide	MCPP	76	J	NA	NA	No	Screening Level NA
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Aluminum	5400	J	7 86E+03	NA	No	Screening Level NA
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Antimony	4	J	1.21E+00	5 00E+00	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Arsenic	12		9 26E+00	2 50E+01	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Barium	160	J	3 28E+02	2 60E+02	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Beryllium	0 78		6 28E-01	1 10E+00	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Cadmium	3 8	J	2 91E-01	1 00E+00	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Calcium	38000		2 48E+04	NA	No	EN
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Chromium	260		1 57E+01	2 10E+01	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Cobalt	7 7		9 14E+00	NA	No	Screening Level NA
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Copper	130		1 35E+01	3 30E+02	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Iron	39000		1 88E+04	NA	No	EN
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Lead	110	J	1 33E+01	NA	No	Screening Level NA
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Magnesium	2100	J	1 02E+04	NA	No	EN
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Manganese	280		4 50E+02	NA	No	Screening Level NA
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Mercury	1 1		2 07E-02	1 00E-02	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Nickel	60		2 35E+01	2 00E+01	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Potassium	890	J	1 75E+03	NA	No	EN
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Silver	1 1		NA	2 40E-01	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Sodium	720	J	1 25E+02	NA	No	EN
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Vanadium	27	J	2 98E+01	9 80E+02	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Metal	Zinc	5900	J	5 88E+01	1 00E+03	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Pesticide	4 4-DDE	0 0016	J	NA	5 40E+01	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Pesticide	alpha-BHC	0 00061	J	NA	5 00E-04	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Pesticide	Endosulfan I	0 00098	J	NA	1 80E+01	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Pesticide	Endrin	0 0019	J	NA	1 00E+00	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Pesticide	gamma-Chlordane	0 0035	J	2 40E-04	1 00E+01	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Pesticide	Heptachlor Epoxide	0 0012	J	6 40E-04	7 00E-01	No	</=Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Semivolatile	2 4,6-Trichlorophenol	0 1	J	NA	2 00E-01	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Semivolatile	2 4-Dichlorophenol	0 29	J	NA	4 80E-01	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Semivolatile	2-Nitroaniline	0 028	J	NA	NA	No	Screening Level NA
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Semivolatile	4-Chloroaniline	0 049	J	NA	7 00E-01	No	</=Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Semivolatile	Benzyl Butyl Phthalate	0 041	J	NA	9 30E+02	No	</=Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	3 3		6 40E-02	3 60E+03	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Semivolatile	Diethyl Phthalate	0 11	J	NA	4 70E+02	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Semivolatile	Dimethyl Phthalate	0 033	J	NA	4 70E+02	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Semivolatile	Di-n-butylphthalate	0 048	J	NA	2 30E+03	No	</=Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Volatile	1 1-Dichloroethylene	3 9	J	NA	6 00E-02	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Volatile	1 2-Dichloroethane	87		NA	2 00E-02	Yes	>Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Volatile	1,2-Dichloroethene (total)	51		NA	4 00E-01	Yes	>Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Volatile	Benzene	22		NA	3 00E-02	Yes	>Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Volatile	Chlorobenzene	27		NA	1 00E+00	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Volatile	Chloroform	5 4	J	NA	6 00E-01	Yes	>Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Volatile	Ethylbenzene	8 5	J	8 37E-04	1 30E+01	No	</=Screening Level
R	SOIL-R 3	Subsurface	SOIL-R-3-6FT	Volatile	Tetrachloroethene	610		1 02E-03	6 00E-02	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Volatile	Toluene	200		NA	1 20E+01	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Volatile	Trichloroethylene	810		NA	6 00E-02	Yes	>Screening Level
R	SOIL-R-3	Subsurface	SOIL-R-3-6FT	Volatile	Xylenes Total	14	J	1 50E-03	1 50E+02	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Herbicide	2 4,5-TP (Silvex)	0 0093	J	NA	1 10E+01	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Herbicide	2 4-DB	0 06	J	NA	1 50E+00	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Herbicide	Dichlorprop	0 044	J	1 14E-01	NA	No	Screening Level NA
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Herbicide	MCPP	5.2	J	3 60E+00	NA	No	Screening Level NA
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Aluminum	8700	J	1 38E+04	NA	No	Screening Level NA
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Arsenic	6 1		1 24E+01	2 50E+01	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Barium	120	J	3 07E+02	2 60E+02	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Beryllium	0 49		9 02E-01	1 10E+00	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Calcium	5500		9 74E+04	NA	No	EN
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Chromium	14		2.21E+01	2 10E+01	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Cobalt	6 8		9 40E+00	NA	No	Screening Level NA
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Copper	15		8 58E+01	3 30E+02	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Iron	16000		2 33E+04	NA	No	EN
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Lead	8 6	J	1 30E+02	NA	No	Screening Level NA
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Magnesium	4500	J	1 23E+04	NA	No	EN
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Manganese	550		5 52E+02	NA	No	Screening Level NA
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Mercury	0 063		1 34E-01	1 00E-02	No	</=BKG
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Nickel	18		3 30E+01	2 00E+01	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Potassium	790	J	3 01E+03	NA	No	EN
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Sodium	110	J	1 58E+02	NA	No	EN
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Vanadium	29	J	3 89E+01	9 80E+02	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Metal	Zinc	43	J	3 90E+02	1 00E+03	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Pesticide	Dieldrin	0 001	J	1 13E-02	4 00E-03	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Pesticide	gamma-Chlordane	0 00023	J	4 11E-02	1 00E+01	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Benzo(a)anthracene	0 033	J	2 76E-01	2 00E+00	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Benzo(a)pyrene	0 033	J	4 06E-01	8 00E+00	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Benzo(b)fluoranthene	0 032	J	3 66E-01	5 00E+00	No	</=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Benzo(g h,i)perylene	0 025	J	4 14E-01	4 20E+03	No	</=Screening Level

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Benzo(k)fluoranthene	0 035	J	2 83E-01	4 90E+01	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Chrysene	0 051	J	2 99E-01	1 60E+02	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Fluoranthene	0 039	J	4 50E-01	4 30E+03	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Phenanthrene	0 03	J	3 31E-01	1 20E+04	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Semivolatile	Pyrene	0 048	J	4 30E-01	4.20E+03	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	1,2-Dichloroethane	0 0015	J	NA	2 00E-02	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	2-Butanone (MEK)	0 015	J	NA	NA	No	Screening Level NA
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Acetone	0 098		NA	1 60E+01	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Benzene	0 0016	J	NA	3 00E-02	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Chlorobenzene	0 0018	J	NA	1 00E+00	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Ethylbenzene	0 00031	J	1 07E-03	1 30E+01	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Tetrachloroethene	0 01		8 80E-04	6 00E-02	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Toluene	0 0018	J	NA	1 20E+01	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Trichloroethylene	0 019		NA	6 00E-02	No	<=Screening Level
R	SOIL-R-4	Surface	SOIL-R-4-0 5FT	Volatile	Xylenes Total	0 00095	J	1 61E-03	1 50E+02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Herbicide	Dichlorprop	0 018	J	5 80E-03	NA	No	Screening Level NA
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Herbicide	MCPP	36	J	NA	NA	No	Screening Level NA
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Aluminum	8400	J	7 86E+03	NA	No	Screening Level NA
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Arsenic	5 4		9 26E+00	2 50E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Barium	120	J	3 28E+02	2 60E+02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Beryllium	0 47		6 28E-01	1 10E+00	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Calcium	5600		2 48E+04	NA	No	EN
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Chromium	13		1 57E+01	2 10E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Cobalt	7 1		9 14E+00	NA	No	Screening Level NA
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Copper	14		1 35E+01	3 30E+02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Iron	16000		1 88E+04	NA	No	EN
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Lead	8 1	J	1 33E+01	NA	No	Screening Level NA
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Magnesium	4600	J	1 02E+04	NA	No	EN
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Manganese	570		4 50E+02	NA	No	Screening Level NA
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Mercury	0 064		2 07E-02	1 00E-02	Yes	>Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Nickel	17		2 35E+01	2 00E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Potassium	800	J	1 75E+03	NA	No	EN
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Sodium	130	J	1 25E+02	NA	No	EN
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Vanadium	29	J	2 98E+01	9 80E+02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Metal	Zinc	40	J	5 88E+01	1 00E+03	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Pesticide	alpha-Chlordane	0 00013	J	NA	1 00E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Pesticide	gamma-Chlordane	0 00046	J	2 40E-04	1 00E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	1 2-Dichloroethane	0 0014	J	NA	2 00E-02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	2-Butanone (MEK)	0 005	J	NA	NA	No	Screening Level NA
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Acetone	0 014	J	NA	1 60E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Benzene	0 0016	J	NA	3 00E-02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Chlorobenzene	0 0014	J	NA	1 00E+00	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Ethylbenzene	0 00044	J	8 37E-04	1 30E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Tetrachloroethene	0 0046	J	1 02E-03	6 00E-02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Toluene	0 0029	J	NA	1 20E+01	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Trichloroethylene	0 016		NA	6 00E-02	No	<=Screening Level
R	SOIL-R-4	Subsurface	SOIL-R-4-6FT	Volatile	Xylenes Total	0 00099	J	1 50E-03	1 50E+02	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Herbicide	2 4,5-TP (Silvex)	0.25	J	NA	1 10E+01	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Herbicide	2 4-D	3 3	J	9 96E-03	1 50E+00	No	<=BKG
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Herbicide	Pentachlorophenol	440		4 57E-03	2 00E-02	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Aluminum	7300	J	1 38E+04	NA	No	Screening Level NA
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Antimony	0 58	J	2 33E+00	5 00E+00	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Arsenic	5 8		1 24E+01	2 50E+01	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Barium	120	J	3 07E+02	2 60E+02	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Beryllium	0 46		9 02E-01	1 10E+00	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Cadmium	0 85	J	3 34E+00	1 00E+00	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Calcium	4900		9 74E+04	NA	No	EN
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Chromium	23		2 21E+01	2 10E+01	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Cobalt	9 4	J	9 40E+00	NA	No	Screening Level NA
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Copper	23		8 58E+01	3 30E+02	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Iron	13000		2 33E+04	NA	No	EN
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Lead	63	J	1 30E+02	NA	No	Screening Level NA
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Magnesium	2600	J	1.23E+04	NA	No	EN
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Manganese	670		5 52E+02	NA	No	Screening Level NA
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Mercury	0 074		1 34E-01	1 00E-02	No	<=BKG
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Nickel	20		3 30E+01	2 00E+01	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Potassium	870	J	3 01E+03	NA	No	EN
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Sodium	79	J	1 58E+02	NA	No	EN
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Vanadium	24	J	3 89E+01	9 80E+02	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Metal	Zinc	110	J	3 90E+02	1 00E+03	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	4 4'-DDD	1 7	J	7 04E-03	1 60E+01	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	4 4'-DDE	3 3	J	1 23E-02	5 40E+01	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	4 4'-DDT	16	J	4 04E-02	3.20E+01	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	beta-BHC	26	J	NA	5 00E-04	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	delta-BHC	0 74	J	1 52E-02	5 00E-04	No	<=BKG
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	Endosulfan II	5 4		1 16E-03	1 80E+01	No	<=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	Endrin	10		5 02E-03	1 00E+00	No	<=BKG

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	gamma-BHC (Lindane)	7 5	J	NA	9 00E-03	Yes	>Screening Level
S	SOIL-S 1	Surface	SOIL-S-1-0 5	Pesticide	gamma-Chlordane	2 7	J	4 11E-02	1 00E+01	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Pesticide	Heptachlor	1 5	J	3 12E-02	2 30E+01	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	1 2 4-Trichlorobenzene	36		NA	5 00E+00	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	1 2-Dichlorobenzene	37		NA	1 70E+01	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	1 3-Dichlorobenzene	1	J	NA	2.00E+00	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	1 4-Dichlorobenzene	7 5	J	NA	2 00E+00	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	2 4 5-Trichlorophenol	1 1	J	NA	2 70E+02	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	2 4 6-Trichlorophenol	8.2	J	NA	2 00E-01	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	2 4-Dichlorophenol	2 3	J	NA	4 80E-01	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	2-Methylnaphthalene	11	J	NA	1 20E+01	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	2-Nitroaniline	4 6	J	NA	NA	No	Screening Level NA
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	4-Nitroaniline	57	J	NA	NA	No	Screening Level NA
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Acenaphthene	1 2	J	4 20E-02	5 70E+02	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Benzo(a)anthracene	8	J	2 76E-01	2 00E+00	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Benzo(a)pyrene	5 4	J	4 06E-01	8 00E+00	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Benzo(b)fluoranthene	6 6	J	3 66E-01	5 00E+00	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Benzo(g h i)perylene	4 2	J	4 14E-01	4 20E+03	No	</=Screening Level
S	SOIL-S 1	Surface	SOIL-S-1-0 5	Semivolatile	Benzo(k)fluoranthene	6 4	J	2 83E-01	4 90E+01	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Benzyl Butyl Phthalate	120		NA	9 30E+02	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	3 9	J	3 53E-01	3 60E+03	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Chrysene	20		2 99E-01	1 60E+02	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Dibenzo(a h)anthracene	1 8	J	1.20E-01	2 00E+00	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Di-n-octylphthalate	1 3	J	NA	1 00E+04	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Dinoseb	1 7	J	NA	2 50E-01	Yes	>Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Fluoranthene	4 2	J	4 50E-01	4 30E+03	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Fluorene	1 2	J	NA	5 60E+02	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Indeno(1 2 3-cd)pyrene	1 3	J	NA	1 40E+01	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Naphthalene	2 1	J	NA	1 20E+01	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Phenanthrene	9 2	J	3 31E-01	1 20E+04	No	</=Screening Level
S	SOIL-S-1	Surface	SOIL-S-1-0 5	Semivolatile	Pyrene	28		4 30E-01	4.20E+03	No	</=Screening Level
S	SOIL-S 1	Surface	SOIL-S-1-0 5	Volatile	Acetone	0 014	J	NA	1 60E+01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Herbicide	2 4 5-T	2 5	J	NA	1 10E+01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Herbicide	2 4 5-TP (Silvex)	0 35	J	NA	1 10E+01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Herbicide	2 4-D	1 8	J	NA	1 50E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Aluminum	3800		7 86E+03	NA	No	Screening Level NA
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Antimony	4 1		1 21E+00	5 00E+00	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Arsenic	4.2		9 26E+00	2 50E+01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Barium	290		3 28E+02	2 60E+02	No	</=BKG
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Beryllium	0 33	J	6 28E-01	1 10E+00	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Cadmium	32		2 91E-01	1 00E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Calcium	170000		2 48E+04	NA	No	EN
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Chromium	480		1 57E+01	2 10E+01	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Cobalt	6 5		9 14E+00	NA	No	Screening Level NA
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Copper	200		1 35E+01	3 30E+02	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Iron	7000		1 88E+04	NA	No	EN
S	SOIL S-1	Subsurface	SOIL-S-1-6FT	Metal	Lead	2400		1 33E+01	NA	No	Screening Level NA
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Magnesium	4500		1 02E+04	NA	No	EN
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Manganese	230		4 50E+02	NA	No	Screening Level NA
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Mercury	2 6	J	2 07E-02	1 00E-02	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Nickel	15	J	2 35E+01	2 00E+01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Potassium	770	J	1 75E+03	NA	No	EN
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Selenium	1 8		NA	1 30E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Silver	2 8		NA	2 40E-01	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Sodium	340		1 25E+02	NA	No	EN
S	SOIL-S 1	Subsurface	SOIL-S-1-6FT	Metal	Vanadium	11		2 98E+01	9 80E+02	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Metal	Zinc	1800		5 88E+01	1 00E+03	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Pesticide	Aldrin	0 19	J	NA	5 00E-01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Pesticide	delta-BHC	0.27		NA	5 00E-04	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Pesticide	gamma-BHC (Lindane)	0 11	J	NA	9 00E-03	Yes	>Screening Level
S	SOIL-S 1	Subsurface	SOIL-S-1-6FT	Pesticide	Heptachlor Epoxide	0 094	J	6 40E-04	7 00E-01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	1 2 4-Trichlorobenzene	7 3	J	NA	5 00E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	1 2-Dichlorobenzene	110		NA	1 70E+01	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	1 3-Dichlorobenzene	12	J	NA	2 00E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	1 4-Dichlorobenzene	200		NA	2 00E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	2-Methylnaphthalene	3 6	J	NA	1 20E+01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	4-Chloroaniline	70	J	NA	7 00E-01	Yes	>Screening Level
[illegible]	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	11	J	6 40E-02	3 60E+03	No	</=Screening Level
[illegible]	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	Isophorone	71		NA	8 00E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Semivolatile	Naphthalene	19	J	NA	1.20E+01	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	1 1,1-Trichloroethane	67		NA	2 00E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	1 1-Dichloroethane	4 7	J	NA	2 30E+01	No	</=Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	1,2-Dichloroethene (total)	2 5	J	NA	4 00E-01	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	2-Butanone (MEK)	290		NA	NA	No	Screening Level NA
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	4-Methyl-2-pentanone (MIBK)	200		2 00E-03	NA	No	Screening Level NA
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Acetone	110	J	NA	1 60E+01	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Benzene	35		NA	3 00E-02	Yes	>Screening Level

TABLE E 2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Chlorobenzene	1200		NA	1 00E+00	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Dichloromethane	26		6 30E-03	2 00E-02	No	</=BKG
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Ethylbenzene	450		8 37E-04	1 30E+01	No	</=BKG
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Tetrachloroethene	5 8		1 02E-03	6 00E-02	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Toluene	1400		NA	1.20E+01	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Trichloroethylene	82		NA	6 00E-02	Yes	>Screening Level
S	SOIL-S-1	Subsurface	SOIL-S-1-6FT	Volatile	Xylenes Total	1800		1 50E-03	1 50E+02	Yes	>Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Herbicide	Pentachlorophenol	0 011	J	4 57E-03	2 00E-02	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Aluminum	5300	J	1 38E+04	NA	No	Screening Level NA
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Antimony	0 8	J	2 33E+00	5 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Arsenic	5 8		1 24E+01	2 50E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Barium	84	J	3 07E+02	2 60E+02	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Beryllium	0 34	J	9 02E-01	1 10E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Cadmium	1 6	J	3 34E+00	1 00E+00	No	</=BKG
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Calcium	200000		9 74E+04	NA	No	EN
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Chromium	22		2 21E+01	2 10E+01	No	</=BKG
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Cobalt	4 1	J	9 40E+00	NA	No	Screening Level NA
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Copper	46		8 58E+01	3 30E+02	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Iron	9400		2 33E+04	NA	No	EN
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Lead	75	J	1 30E+02	NA	No	Screening Level NA
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Magnesium	8900	J	1 23E+04	NA	No	EN
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Manganese	300		5 52E+02	NA	No	Screening Level NA
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Mercury	0 17		1 34E-01	1 00E-02	Yes	>Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Nickel	13		3 30E+01	2 00E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Potassium	910	J	3 01E+03	NA	No	EN
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Sodium	170	J	1 58E+02	NA	No	EN
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Vanadium	17	J	3 89E+01	9 80E+02	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Metal	Zinc	220	J	3 90E+02	1 00E+03	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	4 4-DDD	0 0028	J	7 04E-03	1 60E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	4 4-DDE	0 0036	J	1 23E-02	5 40E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	4 4'-DDT	0 011	J	4 04E-02	3 20E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	beta-BHC	0 00077	J	NA	5 00E-04	Yes	>Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	Dieldrin	0 014		1 13E-02	4 00E-03	No	</=BKG
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	Endosulfan II	0 0012	J	1 16E-03	1 80E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	Endrin	0 0046	J	5 02E-03	1 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	Endrin Aldehyde	0 0074		5 88E-03	1 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Pesticide	gamma-Chlordane	0 0013	J	4 11E-02	1 00E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Benzo(a)anthracene	0 095	J	2 76E-01	2 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Benzo(a)pyrene	0 13	J	4 06E-01	6 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Benzo(b)fluoranthene	0 24	J	3 66E-01	5 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Benzo(g h,i)perylene	0 12	J	4 14E-01	4 20E+03	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	bis(2-Ethylhexyl)phthalate	1 6		3 53E-01	3 60E+03	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Chrysene	0 14	J	2 99E-01	1 60E+02	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Di-n-butylphthalate	0 041	J	NA	2 30E+03	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Di-n-octylphthalate	0 028	J	NA	1 00E+04	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Fluoranthene	0 16	J	4 50E-01	4 30E+03	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Indeno(1,2 3-cd)pyrene	0 11	J	NA	1 40E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Phenanthrene	0 056	J	3 31E-01	1 20E+04	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Semivolatile	Pyrene	0 16	J	4 30E-01	4.20E+03	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	1 1-Dichloroethane	0 00066	J	NA	2 30E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	2-Butanone (MEK)	0 0024	J	NA	NA	No	Screening Level NA
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	Chlorobenzene	0 00047	J	NA	1 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	Ethylbenzene	0 0011	J	1 07E-03	1 30E+01	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	Styrene (Monomer)	0 00037	J	4 47E-03	4 00E+00	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	Tetrachloroethene	0 00083	J	8 80E-04	6 00E-02	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	Trichloroethylene	0 00047	J	NA	6 00E-02	No	</=Screening Level
S	SOIL-S-2	Surface	SOIL-S-2-0 5	Volatile	Xylenes Total	0 0042	J	1 61E-03	1 50E+02	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Herbicide	2 4 5-T	0 0078	J	NA	1 10E+01	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Herbicide	2 4-D	0 0048	J	NA	1 50E+00	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Herbicide	MCPP	0 24	J	NA	NA	No	Screening Level NA
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Aluminum	3300		7 86E+03	NA	No	Screening Level NA
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Antimony	4 1		1 21E+00	5 00E+00	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Arsenic	3 4		9 26E+00	2 50E+01	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Barium	200		3 28E+02	2 60E+02	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Beryllium	0 26	J	6 28E-01	1 10E+00	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Cadmium	3.2		2 91E-01	1 00E+00	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Calcium	220000		2 48E+04	NA	No	EN
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Chromium	260		1 57E+01	2 10E+01	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Cobalt	6 3		9 14E+00	NA	No	Screening Level NA
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Copper	34		1 35E+01	3 30E+02	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Iron	6400		1 88E+04	NA	No	EN
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Lead	1200		1 33E+01	NA	No	Screening Level NA
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Magnesium	14000		1 02E+04	NA	No	EN
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Manganese	110		4 50E+02	NA	No	Screening Level NA
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Mercury	0 4	J	2 07E-02	1 00E-02	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Nickel	11	J	2 35E+01	2 00E+01	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Potassium	950	J	1 75E+03	NA	No	EN

TABLE E-2
COMPARISON OF SOIL SAMPLE DATA TO SOIL-TO-GROUNDWATER (SGW) STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Site	Location	Medium	Sample	Category	Constituent	Result (mg/kg)		Bkg (mg/kg)	SGW Stnd (mg/kg)	COPC?	Reason
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Selenium	0.66	J	NA	1.30E+00	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Sodium	300		1.25E+02	NA	No	EN
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Vanadium	11		2.98E+01	9.80E+02	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Metal	Zinc	230		5.88E+01	1.00E+03	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Pesticide	4,4'-DDT	0.023	J	1.04E-03	3.20E+01	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Pesticide	beta-BHC	0 013		NA	5.00E-04	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Pesticide	delta-BHC	0.0058	J	NA	5.00E-04	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Pesticide	Dieldrin	0 024		NA	4 00E-03	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Pesticide	gamma-Chlordane	0.0037	J	2 40E-04	1.00E+01	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Pesticide	Heptachlor	0 0061	J	NA	2.30E+01	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Semivolatile	2-Methylnaphthalene	9	J	NA	1.20E+01	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Semivolatile	bis(2-Ethylhexyl)phthalate	110		6 40E-02	3.60E+03	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Semivolatile	Di-n-butylphthalate	14	J	NA	2.30E+03	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Semivolatile	Isophorone	13	J	NA	8.00E+00	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Semivolatile	Naphthalene	48		NA	1.20E+01	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	1,1,1-Trichloroethane	1 4	J	NA	2.00E+00	No	</=Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	1,2-Dichloroethene (total)	3 1	J	NA	4.00E-01	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	Dichloromethane	13		6.30E-03	2.00E-02	No	</=BKG
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	Ethylbenzene	200		8 37E-04	1.30E+01	No	</=BKG
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	Tetrachloroethene	33		1 02E-03	6 00E-02	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	Toluene	470		NA	1.20E+01	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	Trichloroethylene	1 4	J	NA	6 00E-02	Yes	>Screening Level
S	SOIL-S-2	Subsurface	SOIL-S-2-6FT	Volatile	Xylenes, Total	1200		1 50E-03	1.50E+02	Yes	>Screening Level

TABLE E-3
SUMMARY OF EXCEEDANCES OF SOIL-TO-GROUNDWATER AND TCLP STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

		Site (a)							
		Soil-to-Groundwater				TCLP			
Category	Constituent	P	Q Central	Q North	Q South	P	Q Central	Q North	Q South
Dioxin	2,3,7,8-TCDD-TEQ								
Herbicide	2,4,5-T								
Herbicide	2,4-D			1				1	
Herbicide	Dichlorprop								
Herbicide	Pentachlorophenol	2	3	2	2	4	1	2	4
Metal	Antimony		1	2	6				
Metal	Arsenic	2	1	1	1	1	2	1	
Metal	Barium		2	2	8		1	2	3
Metal	Beryllium	3	1						
Metal	Cadmium	4	3	6	8			3	3
Metal	Chromium	3	5	3	9				
Metal	Copper		1	1	7				1
Metal	Lead					1	3	4	4
Metal	Manganese					4	3	5	4
Metal	Mercury	5	6	7	11				
Metal	Nickel	2	4	4	8	1	3	3	4
Metal	Selenium	4	1		3				
Metal	Silver	3	4	4	8				
Metal	Thallium		1		1				
Metal	Zinc	1	1	2	8	1		1	4
PCBs	Total PCBs							5	
Pesticide	4,4'-DDT								
Pesticide	Aldrin								
Pesticide	alpha-BHC	2		1	2				
Pesticide	alpha-Chlordane								
Pesticide	beta-BHC	2		4	1				
Pesticide	delta-BHC				2				
Pesticide	Dieldrin	2	3	3	3				
Pesticide	Endosulfan Sulfate								
Pesticide	Endrin Aldehyde				1				
Pesticide	gamma-BHC (Lindane)	1							
Pesticide	Heptachlor					1			
Semivolatile	1,2,4-Trichlorobenzene								
Semivolatile	1,2-Dichlorobenzene								
Semivolatile	1,3-Dichlorobenzene								
Semivolatile	1,4-Dichlorobenzene	1	2			2			
Semivolatile	2,4,6-Trichlorophenol					1	1	2	1
Semivolatile	2,4-Dichlorophenol			2		2		2	1
Semivolatile	2,4-Dimethylphenol								
Semivolatile	2-Chlorophenol							2	
Semivolatile	2-Methylnaphthalene								
Semivolatile	2-Nitroaniline							1	1
Semivolatile	3-Methylphenol/4-Methylphenol								
Semivolatile	4-Chloroaniline			1		3		2	1
Semivolatile	4-Nitroaniline					1		1	
Semivolatile	Benzo(a)anthracene			1	1				
Semivolatile	Benzo(a)pyrene								
Semivolatile	Benzo(b)fluoranthene								
Semivolatile	bis(2-Chloroethyl)ether			1					
Semivolatile	bis(2-Ethylhexyl)phthalate								
Semivolatile	Carbazole				1				
Semivolatile	Cresol o,m,p								
Semivolatile	Dibenzo(a,h)anthracene								
Semivolatile	Di-n-butylphthalate								
Semivolatile	Dinoseb								
Semivolatile	Hexachlorobenzene								
Semivolatile	Isophorone								
Semivolatile	Naphthalene							1	
Semivolatile	Nitrobenzene							1	
Semivolatile	N-Nitrosodiphenylamine								

TABLE E-3
SUMMARY OF EXCEEDANCES OF SOIL-TO-GROUNDWATER AND TCLP STANDARDS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

		Site (a)							
		Soil-to-Groundwater				TCLP			
Category	Constituent	P	Q Central	Q North	Q South	P	Q Central	Q North	Q South
Semivolatile	Phenol					2		2	
Volatile	1,1,1-Trichloroethane								
Volatile	1,1,2,2-Tetrachloroethane							1	
Volatile	1,1,2-Trichloroethane								
Volatile	1,1-Dichloroethylene								
Volatile	1,2-Dichloroethane			1					
Volatile	1,2-Dichloroethene (total)				1				
Volatile	2-Butanone (MEK)								
Volatile	2-Methylphenol								
Volatile	4-Methyl-2-pentanone (MIBK)								
Volatile	Acetone								
Volatile	Benzene	3	3	2	2	3	3	1	
Volatile	Chlorobenzene	1	2	2	2				
Volatile	Chloroform								
Volatile	Chloromethane								1
Volatile	cis-1,3-Dichloropropene								1
Volatile	Dichloromethane								
Volatile	Ethylbenzene								
Volatile	Methyl N Butyl Ketone								
Volatile	Tetrachloroethene			1		2			
Volatile	Toluene	1		1	1				
Volatile	Trichloroethylene			1	1	2		1	1
Volatile	Xylenes Total				1				

Notes
TCLP - Toxicity Characteristic Leaching Procedure
(a) - Numbers represent the number of soil exceedances for each constituent in each Site

APPENDIX F

DEEP GROUNDWATER SCREEN

Appendix F
Deep Groundwater Screen

A comparison of groundwater samples collected at depths greater than 30 feet bgs to drinking water standards is shown in Table F-1. At several locations, groundwater was not encountered within the 30 feet of ground surface. These locations, which are not included in the quantitative risk assessment, are:

- AA-Q-1
- AA-Q-2
- AA-Q-3
- AA-Q-4
- AA-Q-5
- BDRK-O-1
- BDRK-P-1
- BDRK-Q-1
- BDRK-Q-2
- BDRK-R-1
- BDRK-S-1

As noted in the HHRA Workplan, there are no direct contact pathways for deep groundwater. The CSM notes that groundwater could discharge to the Mississippi River and could impact sediment, surface water and fish tissue. Because these latter three media have been measured directly as part of the SSP Program and other environmental programs in the vicinity (Menzie-Cura, 2001), it is not necessary to use the groundwater data in conjunction with models to predict these media concentrations.

A summary of COPCs for the deep groundwater pathway is presented in Table F-2.

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-106													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	9 60E+00	No	3 40E+01	OS - UAA-2/OS-2-110	No	5 00E+00	Yes	No	</=BKG
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+03	No	5 00E+03	OS - UAA-2/OS-2-110	No	1 00E+02	Yes	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 70E+00	No	3 20E+01	OS - UAA-2/OS-2-110	No	6 00E+02	No	No	</=Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	1 1 1	100	1 50E+00	No	9 80E+01	OS - UAA-2/OS-2-110	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	8 00E+01	No	2 40E+03	OS - UAA-2/OS-2-110	No	7 50E+01	Yes	No	</=BKG
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	3 40E+00	No	3 20E+01	OS - UAA-2/OS-2-110	No	2 10E+01	No	No	</=Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 1 1	100	1 40E+00	No	2 80E+01	OS - UAA-2/OS-2-110	No	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 90E+01	No	6 40E+01	OS - UAA-2/OS-2-110	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	4 10E+00	No	1 94E+01	OS - UAA-2/OS-2-110	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-2/OS-2-110	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-116													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	9 00E+02	No	1 52E+03	OS - UAA-2/OS-2-120	No	1 00E+02	Yes	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 30E+00	No	2 80E+01	OS - UAA-2/OS-2-120	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	6 60E+01	No	1 72E+03	OS - UAA-2/OS-2-120	No	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	3 50E+00	No	2 40E+01	OS - UAA-2/OS-2-120	No	2 10E+01	No	No	</=Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 1 1	100	2 10E+00	No	2 40E+01	OS - UAA-2/OS-2-120	No	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 70E+01	No	1 92E+01	OS - UAA-2/OS-2-120	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 80E+00	No	5 60E+00	OS - UAA-2/OS-2-120	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	8 00E+00	No	NA	OS UAA-2/OS-2-120	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-120													
VOCs													
1,1-Dichloroethylene	75-35-4	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-2/OS-2-120	--	7 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 00E+02	No	1 52E+03	OS - UAA-2/OS-2-120	No	1 00E+02	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	1 70E+01	No	NA	OS - UAA-2/OS-2-120	--	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-2/OS-2-120	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-2/OS-2-120	--	2 00E+00	Yes	Yes	>Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 20E+00	No	2 80E+01	OS - UAA-2/OS-2-120	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	2 10E+01	No	1 72E+03	OS - UAA-2/OS-2-120	No	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 20E+00	No	2 40E+01	OS - UAA-2/OS 2-120	No	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	6 50E+00	No	1 92E+01	OS - UAA-2/OS-2-120	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-2/OS-2-120	--	1 40E+02	No	No	</=Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	6 50E-02	No	NA	OS - UAA-2/OS-2-120	--	1 10E 01	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	9 00E-02	No	NA	OS - UAA-2/OS-2-120	--	5 00E-01	No	No	</=Screening Level
Metals													
Barium	7440-39-3	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-2/OS-2-120	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 10E+05	Yes	NA	OS - UAA-2/OS-2-120	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	6 10E+00	No	NA	OS - UAA-2/OS-2-120	--	1 00E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	4 80E+04	Yes	NA	OS - UAA-2/OS-2-120	--	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	7 90E+04	Yes	NA	OS - UAA-2/OS-2-120	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 20E+03	No	NA	OS - UAA-2/OS-2-120	-	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	7 30E+00	No	NA	OS - UAA-2/OS-2-120	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 80E+04	Yes	NA	OS - UAA-2/OS-2-120	--	NA	-	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	6 30E+04	Yes	NA	OS - UAA-2/OS-2-120	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 1 1	100	1 90E+01	No	NA	OS - UAA-2/OS-2-120	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-26													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-2/OS-2-30	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 70E+00	No	NA	OS - UAA-2/OS-2-30	--	7 00E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 30E-01	No	NA	OS - UAA-2/OS-2-30	--	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 40E+00	No	NA	OS - UAA-2/OS-2-30	--	1 00E+02	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	7 60E-01	No	NA	OS - UAA-2/OS-2-30	--	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-36													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 20E+00	No	4 80E+01	OS - UAA-2/OS-2-40	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	6 20E-01	No	1 62E+02	OS - UAA-2/OS-2-40	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 20E+01	No	NA	OS - UAA-2/OS-2-40	--	1 00E+02	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 70E-01	No	4 20E+00	OS - UAA 2/OS 2-40	No	2 00E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	7 40E+00	No	NA	OS - UAA-2/OS-2-40	--	6 00E+02	No	No	</=Screening Level
1,4 Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 50E+00	No	NA	OS - UAA-2/OS-2-40	--	7 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-46													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 45E+00	No	4 60E+02	OS - UAA-2/OS-2-50	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 45E-01	No	1 86E+03	OS - UAA 2/OS-2-50	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	6 90E+00	No	1 04E+02	OS - UAA-2 OS-2-50	No	1 00E+02	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 50E+00	No	5 80E+01	OS - UAA-2 OS-2 50	No	2 00E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 05E+00	No	NA	OS - UAA-2/OS-2-50	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-2/OS-2-50	--	7 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-si e Background Locatic n(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-56													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 80E+00	No	4 60E+02	OS - UAA-2/OS-2-60	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	2 00E+00	No	1 78E+03	OS - UAA-2/OS-2-60	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 60E+00	No	1 58E+02	OS - UAA-2/OS-2-60	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 50E+01	No	1 96E+03	OS - UAA-2/OS-2-60	No	NA	--	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 50E+00	No	6 40E+01	OS - UAA-2/OS-2-60	No	2 00E+00	Yes	No	</=BKG
SVOCs													
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-2/OS-2 60	--	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-2/OS-2-60	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-2/OS-2 60	-	4 30E 01	Yes	Yes	>Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	1 90E-02	No	NA	OS - UAA-2/OS-2-60	--	1 10E 01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 1 1	100	1 80E-01	No	NA	OS - UAA-2/OS-2-60	--	3 60E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 40E+03	No	NA	OS - UAA-2/OS-2-60	-	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	5 70E+01	No	1 18E+01	OS - UAA-2/OS-2-60	Yes	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	3 10E+02	No	7 00E+02	OS - UAA-2/OS-2-60	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 90E+05	Yes	4 60E+05	OS UAA-2/OS-2-60	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-2/OS 2-60	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	7 80E+00	No	NA	OS - UAA 2/OS 2 60	--	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	5 30E+04	Yes	6 00E+04	OS - UAA-2/OS 2 60	No	5 00E+03	Yes	No	EN
Iron, Ferrous (2+)	C-FE+2	ug/L	1 1 1	100	1 40E+04	Yes	6 80E+03	OS - UAA-2/OS-2 60	Yes	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	5 00E+04	Yes	1 10E+05	OS - UAA-2/OS 2-60	No	NA		No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	5 40E+03	No	4 40E+03	OS - UAA-2/OS-2-60	Yes	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA 2/OS 2 60	-	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	9 00E+03	Yes	2 00E+04	OS - UAA-2/OS-2-60	No	NA	--	No	EN
Selenium	7782-49-2	ug/L	1 1 1	100	4 60E+00	No	NA	OS UAA 2/OS 2-60		5 00E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Sodium	7440-23-5	ug/L	1 1 1	100	7 60E+04	Yes	2 00E+05	OS - UAA-2/OS-2-60	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	4 10E+00	No	NA	OS - UAA-2/OS-2-60	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	2 50E+01	No	2 80E+01	OS - UAA-2/OS-2-60	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-66													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 20E+00	No	6 00E+02	OS - UAA-2/OS-2-70	No	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	7 80E+00	No	1 62E+02	OS - UAA-2/OS-2-70	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	4 50E 01	No	NA	OS - UAA-2/OS-2-70	--	1 50E+00	No	No	</=Screening Level
Vinyl chloride	75 01-4	ug/L	1 1 1	100	2 00E+00	No	9 20E+01	OS - UAA-2/OS-2-70	No	2 00E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-2/OS-2-70	--	6 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-76													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 00E+00	No	6 60E+02	OS - UAA-2/OS-2-80	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 70E-01	No	3 60E+03	OS - UAA-2/OS 2-80	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 80E+02	No	1 24E+02	OS - UAA-2/OS-2-80	Yes	1 00E+02	Yes	Yes	>Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	7 20E-01	No	NA	OS - UAA-2/OS-2-80	--	5 00E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	5 20E-01	No	NA	OS - UAA-2/OS-2-80	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75 01-4	ug/L	1 1 1	100	5 40E+00	No	1 04E+02	OS - UAA-2/OS-2-80	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1 2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-2/OS-2 80		6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-2/OS-2-80	-	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 80E+00	No	NA	OS - UAA-2/OS-2-80	--	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 10E+00	No	NA	OS - UAA-2/OS 2-80	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-86													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	6 20E+02	No	3 60E+03	OS - UAA-2/OS-2-90	No	1 00E+02	Yes	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 80E+00	No	2 00E+01	OS - UAA-2/OS-2-90	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1 2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 10E+00	No	1 46E+01	OS - UAA-2/OS-2-90	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 70E+00	No	4 80E+02	OS - UAA-2/OS-2-90	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 10E+01	No	4 80E+01	OS - UAA-2/OS-2-90	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 10E+00	No	1 72E+01	OS - UAA-2/OS-2-90	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	5 70E+00	No	NA	OS - UAA-2/OS-2-90	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-1-96													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 50E+03	No	5 20E+03	OS - UAA-2/OS 2-100	No	1 00E+02	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	6 00E+01	No	1 06E+02	OS - UAA-2/OS-2-100	No	NA	--	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50 1	ug/L	1 1 1	100	3 00E+00	No	1 96E+01	OS - UAA-2/OS-2 100	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	5 10E+01	No	7 40E+02	OS - UAA-2/OS-2-100	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 80E+01	No	3 60E+01	OS - UAA-2/OS-2 100	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	3 40E+00	No	6 20E+00	OS - UAA-2/OS-2-100	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	8 70E+00	No	NA	OS - UAA-2/OS-2-100	--	1 40E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 30E+04	No	1 04E+03	OS - UAA-2/OS-2-100	Yes	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-2/OS-2-100	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	7 20E+02	No	2 40E+02	OS - UAA-2/OS-2-100	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	9 50E-01	No	NA	OS - UAA-2/OS-2-100	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	9 20E-01	No	NA	OS - UAA-2/OS-2-100	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 40E+05	Yes	5 20E+05	OS - UAA-2/OS-2-100	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 40E+02	No	3 00E+01	OS - UAA-2/OS-2-100	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-2/OS-2-100	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	7 10E+01	No	1 18E+01	OS - UAA-2/OS-2-100	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	7 80E+04	Yes	5 60E+04	OS - UAA-2/OS-2-100	Yes	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	2 00E+01	No	NA	OS - UAA-2/OS-2-100	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	7 30E+04	Yes	7 20E+04	OS - UAA-2/OS-2-100	Yes	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 60E+03	No	3 20E+03	OS - UAA-2/OS-2-100	No	1 50E+02	Yes	No	</=BKG
Mercury	7439-97-6	ug/L	1 1 1	100	8 00E-02	No	NA	OS - UAA-2/OS-2-100	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	7 00E+01	No	NA	OS UAA-2/OS 2-100	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 80E+04	Yes	2 00E+04	OS - UAA-2/OS-2-100	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	7 70E+04	Yes	6 60E+04	OS - UAA-2/OS-2-100	Yes	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	4 00E+01	No	3 20E+00	OS - UAA-2/OS-2-100	Yes	4 90E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Zinc	7440-66-6	ug/L	1 1 1	100	1 10E+02	No	1 08E+02	OS - UAA-2/OS-2-100	Yes	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2													
SVOCs													
4-Nitrophenol	100-02-7	ug/L	1 1 . 1	100	1.50E+00	No	NA		--	NA	--	No	Screening Level NA

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-103													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 60E+02	No	5 20E+03	OS - UAA-2/OS-2-100	No	1 00E+02	Yes	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 90E+00	No	1 44E+01	OS - UAA-2/OS-2-100	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 20E+00	No	1 96E+01	OS - UAA-2/OS-2-100	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	8 10E+00	No	7 40E+02	OS - UAA-2/OS-2-100	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	7 50E+00	No	3 60E+01	OS - UAA-2/OS-2-100	No	3 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-113													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	4 50E+00	No	3 40E+01	OS - UAA-2/OS-2-110	No	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 00E+03	No	5 00E+03	OS - UAA-2/OS-2-110	No	1 00E+02	Yes	No	</=BKG
Chloromethane	74-87-3	ug/L	1 1 1	100	3 80E+00	No	1 86E+01	OS - UAA-2/OS 2-110	No	1 50E+00	Yes	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 90E+00	No	3 20E+01	OS - UAA-2/OS-2-110	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106 46-7	ug/L	1 1 1	100	5 10E+01	No	2 40E+03	OS - UAA-2/OS-2-110	No	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 70E+00	No	3 20E+01	OS - UAA-2/OS-2-110	No	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 40E+01	No	6 40E+01	OS - UAA-2/OS 2-110	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 40E+00	No	1 94E+01	OS - UAA-2/OS-2-110	No	2 80E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-121													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-2/OS-2-120	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 60E+02	No	1 52E+03	OS - UAA-2/OS-2-120	No	1 00E+02	Yes	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 50E+00	No	NA	OS - UAA-2/OS-2-120	--	2 00E+00	Yes	Yes	>Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 50E+00	No	2 80E+01	OS - UAA-2/OS-2-120	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	8 20E+00	No	1 72E+03	OS - UAA-2/OS-2-120	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	8 10E+00	No	1 92E+01	OS - UAA-2/OS 2-120	No	3 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Backgrcund Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-124													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	6 40E-01	No	3 20E+01	OS - UAA-2/OS-2-124	No	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	3 30E-01	No	4 80E+01	OS - UAA-2/OS-2-124	No	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	7 00E+01	No	4 00E+03	OS - UAA-2/OS-2-124	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	6 30E-01	No	1 94E+01	OS - UAA-2/OS-2-124	No	1 50E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	5 00E+01	No	2 00E+02	OS - UAA-2/OS-2-124	No	NA	--	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	5 80E-01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-2/OS-2-124	--	5 00E+00	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 90E+00	No	1 30E+01	OS - UAA-2/OS-2-124	No	2 00E+00	No	No	</=Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	4 20E-02	No	NA	OS - UAA-2/OS-2-124	--	1 10E-01	No	No	</=Screening Level
Herbicide													
2,4,5-TP (Silvex)	93-72-1	ug/L	1 1 1	100	2 30E-01	No	NA	OS - UAA-2/OS-2-124	--	5 00E+01	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	8 00E-02	No	NA	OS - UAA-2/OS-2-124	--	5 00E 01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	4 70E+04	No	NA	OS - UAA-2/OS-2-124	--	3 60E+04	Yes	Yes	>Screening Level
Antimony	7440-36-0	ug/L	1 1 1	100	5 50E+00	No	NA	OS - UAA-2/OS-2-124	--	6 00E+00	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	8 70E+01	No	NA	OS - UAA-2/OS-2-124	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	1 : 1 1	100	1 80E+03	No	1 96E+02	OS - UAA-2/OS-2-124	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 50E+00	No	NA	OS - UAA-2/OS-2-124	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-2/OS-2-124	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 40E+05	Yes	6 80E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	5 30E+02	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	5 20E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 30E+02	No	NA	OS - UAA-2/OS-2-124	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 00E+05	Yes	7 40E+04	OS - UAA-2/OS-2-124	Yes	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	6 30E+01	No	NA	OS - UAA-2/OS-2-124	-	7 50E+00	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Magnesium	7439-95-4	ug/L	1 1 1	100	8 20E+04	Yes	1 00E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	6 70E+03	No	3 20E+03	OS - UAA-2/OS-2-124	Yes	1 50E+02	Yes	Yes	>Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	9 80E-02	No	NA	OS - UAA-2/OS-2-124	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	1 90E+02	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	3 00E+04	Yes	2 20E+04	OS - UAA-2/OS-2-124	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	8 30E+04	Yes	7 40E+04	OS - UAA-2/OS-2-124	Yes	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 40E+02	No	2 40E+00	OS - UAA-2/OS-2-124	Yes	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 50E+02	No	8 40E+01	OS - UAA-2/OS-2-124	Yes	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-33													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	9 90E-01	No	NA	OS - UAA-2/OS-2-30	--	7 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 10E-01	No	NA	OS - UAA-2/OS-2-30	--	1 50E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 10E 01	No	NA	OS - UAA-2/OS-2-30	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	4 60E-01	No	NA	OS - UAA-2/OS-2-30	--	1 00E+04	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-53													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 00E+00	No	4 60E+02	OS - UAA-2/OS-2-50	No	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 60E+01	No	1 04E+02	OS - UAA-2/OS-2-50	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 55E+01	No	NA	OS - UAA-2/OS-2-50	--	NA	--	No	No Dose-Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 85E-01	No	5 80E+01	OS - UAA-2/OS-2-50	No	2 00E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 35E+00	No	NA	OS - UAA-2/OS-2-50	--	6 00E+02	No	No	</=Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	8 05E-02	No	NA	OS - UAA-2/OS-2-50	--	1 10E-01	No	No	</=Screening Level
delta-BHC	319-86-8	ug/L	1 1 1	100	3 80E-02	No	NA	OS - UAA-2/OS-2-50	--	2 00E-01	No	No	</=Screening Level
Dieldrin	60-57-1	ug/L	1 1 1	100	1 90E-02	No	NA	OS - UAA-2/OS-2-50	--	9 00E+00	No	No	</=Screening Level
Endosulfan II	33213-65-9	ug/L	1 1 1	100	1 30E-02	No	NA	OS - UAA-2/OS-2-50	--	4 20E+01	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	ug/L	1 1 1	100	7 50E-03	No	NA	OS - UAA-2/OS-2-50	--	2 00E+00	No	No	</=Screening Level
Heptachlor	76-44-8	ug/L	1 1 1	100	1 90E-02	No	NA	OS - UAA-2/OS-2-50	--	4 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 1 1	100	1 35E+00	No	NA	OS - UAA-2/OS-2-50	--	3 60E+02	No	No	</=Screening Level
2,4,5-TP (Silvex)	93-72-1	ug/L	1 1 1	100	6 40E-02	No	NA	OS - UAA-2/OS-2-50	--	5 00E+01	No	No	</=Screening Level
2,4-DB	94-82-6	ug/L	1 1 1	100	2 20E-01	No	NA	OS - UAA-2/OS-2-50	--	2 90E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 45E+02	No	NA	OS - UAA-2/OS-2-50	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 00E+01	No	NA	OS - UAA-2/OS-2-50	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	3 10E+02	No	NA	OS - UAA-2/OS-2-50	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 80E+05	Yes	NA	OS - UAA-2/OS-2-50	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 70E+00	No	NA	OS - UAA-2/OS-2-50	--	1 00E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	4 10E+04	Yes	NA	OS - UAA-2/OS-2-50	--	5 00E+03	Yes	No	EN
Iron, Ferrous (2+)	C-FE+2	ug/L	1 1 1	100	5 95E+03	Yes	NA	OS - UAA-2/OS-2-50	--	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	4 90E+04	Yes	NA	OS - UAA-2/OS-2-50	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	5 10E+03	No	NA	OS - UAA-2/OS-2-50	--	1 50E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Nickel	7440-02-0	ug/L	1 1 · 1	100	5 90E+00	No	NA	OS - UAA-2/OS-2-50	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 60E+04	Yes	NA	OS - UAA-2/OS-2-50	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	7 45E+04	Yes	NA	OS - UAA-2/OS-2-50	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 1 1	100	8 20E+00	No	NA	OS - UAA-2/OS-2-50	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-63													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	6 40E-01	No	4 60E+02	OS - UAA-2/OS-2 60	No	7 00E+02	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	2 00E+01	No	NA	OS - UAA-2/OS-2-60	--	1 90E+03	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 70E-01	No	NA	OS - UAA-2/OS-2-60	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 40E+01	No	1 58E+02	OS - UAA-2/OS-2-60	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	4 40E-01	No	NA	OS - UAA-2/OS-2-60	--	1 50E+00	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	8 40E-01	No	6 40E+01	OS - UAA-2/OS-2-60	No	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-73													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	7 70E-01	No	6 00E+02	OS - UAA-2/OS-2-70	No	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 20E+01	No	1 62E+02	OS - UAA-2/OS-2-70	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	4 10E-01	No	NA	OS - UAA-2/OS-2-70	--	1 50E+00	No	No	</=Screening Level
Vinyl chloride	75 01-4	ug/L	1 1 1	100	1 80E+00	No	9 20E+01	OS - UAA-2/OS-2-70	No	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-83													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 00E+00	No	3 60E+03	OS - UAA-2/OS-2-80	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 80E+02	No	1 24E+02	OS - UAA-2/OS-2-80	Yes	1 00E+02	Yes	Yes	>Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 90E+00	No	1 04E+02	OS - UAA-2/OS-2-80	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-2/OS-2-80	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-2/OS-2-80	--	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	7 60E+00	No	NA	OS - UAA-2/OS-2-80	--	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 30E+00	No	1 20E+01	OS - UAA-2/OS-2-80	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	4 60E+00	No	NA	OS - UAA-2/OS-2-80	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-2-93													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	2 40E+00	No	2 60E+01	OS - UAA-2/OS-2-90	No	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 50E+02	No	3 60E+03	OS - UAA-2/OS 2-90	No	1 00E+02	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	4 50E+01	No	NA	OS - UAA-2/OS-2 90	-	NA		No	No Dose Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 50E+00	No	2 00E+01	OS UAA-2/OS-2-90	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1 2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 90E+00	No	1 46E+01	OS - UAA 2/OS-2-90	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	9 20E+00	No	4 80E+02	OS - UAA-2/OS-2-90	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95 57-8	ug/L	1 1 1	100	1 20E+01	No	4 80E+01	OS - UAA 2/OS 2-90	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 40E+00	No	1 72E+01	OS - UAA-2/OS-2-90	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	8 00E+00	No	NA	OS - UAA-2/OS 2-90	--	1 40E+02	No	No	</=Screening Level
Pesticide													
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	9 40E-03	No	NA	OS - UAA-2/OS-2-90	--	2 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 1 1	100	2 40E-01	No	NA	OS - UAA-2/OS-2-90		3 60E+02	No	No	</=Screening Level
2,4-DB	94-82-6	ug/L	1 1 1	100	2 60E-01	No	NA	OS - UAA-2/OS-2-90	--	2 90E+02	No	No	</=Screening Level
Metals													
Aluminum	7429 90 5	ug/L	1 1 1	100	3 70E+02	No	NA	OS - UAA-2/OS-2-90	--	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 10E+02	No	NA	OS - UAA 2/OS-2-90	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 40E+05	Yes	NA	OS - UAA-2/OS 2-90	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	4 00E+00	No	NA	OS - UAA-2/OS-2-90	--	1 00E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 60E+04	Yes	NA	OS - UAA-2/OS-2-90	--	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	6 00E+04	Yes	NA	OS - UAA 2/OS-2-90	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 60E+03	No	NA	OS - UAA-2/OS-2-90	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	6 50E+00	No	NA	OS - UAA-2/OS-2-90	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	4 50E+04	Yes	NA	OS - UAA-2/OS-2-90	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	7 60E+04	Yes	NA	OS - UAA-2/OS-2-90	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 90E+00	No	NA	OS - UAA-2/OS-2-90	--	4 90E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Zinc	7440-66-6	ug/L	1 1 1	100	1 80E+01	No	NA	OS - UAA-2/OS-2-90	--	5 00E+03	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Backgrcund Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-108													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 90E+02	No	5 00E+03	OS - UAA-2/OS-2-110	No	1 00E+02	Yes	No	</=BKG
Chloromethane	74-87-3	ug/L	1 1 1	100	2 80E+00	No	1 86E+01	OS - UAA-2/OS-2-110	No	1 50E+00	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	8 40E+01	No	NA	OS - UAA-2/OS-2-110	--	NA	--	No	No Dose-Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 50E+00	No	1 90E+01	OS - UAA-2/OS-2-110	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 80E+00	No	3 20E+01	OS - UAA-2/OS 2-110	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	4 20E+00	No	2 40E+03	OS - UAA-2/OS-2-110	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	6 80E+00	No	6 40E+01	OS - UAA-2/OS-2-110	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 20E+00	No	1 94E+01	OS - UAA-2/OS-2-110	No	2 80E+01	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	9 20E-01	No	NA	OS - UAA-2/OS-2-110	--	6 00E+00	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	4 00E+00	No	NA	OS - UAA-2/OS-2-110	--	1 40E+02	No	No	</=Screening Level
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	2 70E 02	No	NA	OS - UAA-2/OS-2-110	--	2 00E-01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	8 50E-03	No	NA	OS - UAA-2/OS-2-110	--	2 00E 01	No	No	</=Screening Level
Herbicide													
2,4,5-TP (Silvex)	93-72-1	ug/L	1 1 1	100	8 60E-02	No	NA	OS - UAA-2/OS-2-110	--	5 00E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	7 80E+01	No	NA	OS - UAA-2/OS-2-110	--	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 50E+02	No	NA	OS - UAA-2/OS-2-110	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 50E+05	Yes	NA	OS - UAA-2/OS-2-110	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 90E+00	No	NA	OS - UAA-2/OS-2-110	--	1 00E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 90E+04	Yes	NA	OS - UAA-2/OS-2-110	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 90E+00	No	NA	OS - UAA-2/OS-2-110	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	6 00E+04	Yes	NA	OS - UAA-2/OS 2-110	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 70E+03	No	NA	OS - UAA-2/OS-2-110	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	6 70E+00	No	NA	OS - UAA-2/OS-2-110	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	4 70E+04	Yes	NA	OS - UAA-2/OS-2-110	--	NA	--	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Sodium	7440-23-5	ug/L	1 1 1	100	6 50E+04	Yes	NA	OS - UAA-2/OS-2-110	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-2/OS-2-110	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-2/OS-2-110	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-118													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 : 1 : 1	100	6 90E+02	No	1 52E+03	OS - UAA-2/OS-2-120	No	1 00E+02	Yes	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 . 1 . 1	100	1 70E+00	No	NA	OS - UAA-2/OS-2-120	--	2 00E+00	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	9 10E+00	No	1 72E+03	OS - UAA-2/OS-2-120	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 . 1	100	1.50E+01	No	1 92E+01	OS - UAA-2/OS-2-120	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 : 1 : 1	100	7 30E+00	No	NA	OS - UAA-2/OS-2-120	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-128													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 20E+02	No	4 00E+03	OS - UAA-2/OS-2-124	No	1 00E+02	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	3 60E+01	No	2 00E+02	OS - UAA-2/OS-2-124	No	NA	--	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 40E+00	No	1 30E+01	OS - UAA-2/OS-2-124	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	5 10E+00	No	8 20E+02	OS - UAA-2/OS-2-124	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 30E+01	No	4 00E+01	OS - UAA-2/OS-2-124	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	6 60E+00	No	2 40E+01	OS - UAA-2/OS-2-124	No	1 40E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 00E+03	No	NA	OS - UAA-2/OS-2-124	-	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 50E+02	No	1 96E+02	OS - UAA-2/OS-2-124	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 70E+05	Yes	6 80E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 30E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	3 10E+00	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	6 40E+04	Yes	7 40E+04	OS - UAA-2/OS-2-124	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	5 10E+00	No	NA	OS - UAA-2/OS-2-124	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	7 60E+04	Yes	1 00E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 60E+03	No	3 20E+03	OS - UAA-2/OS-2-124	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	2 60E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	4 10E+04	Yes	2 20E+04	OS - UAA-2/OS-2-124	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	6 90E+04	Yes	7 40E+04	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	7 30E+00	No	2 40E+00	OS - UAA-2/OS-2-124	Yes	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	5 10E+01	No	8 40E+01	OS - UAA-2/OS-2-124	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-38													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	9 50E-01	No	4 80E+01	OS - UAA-2/OS-2-40	No	7 00E+02	No	No	</=Screening Level
1,1-Dichloroethylene	75-35-4	ug/L	1 1 1	100	3 60E-01	No	3 80E+01	OS - UAA-2/OS-2-40	No	7 00E+00	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 30E+01	No	1 62E+02	OS - UAA-2/OS-2-40	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 10E 01	No	NA	OS - UAA-2/OS-2-40	--	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	4 60E 01	No	NA	OS UAA-2/OS-2-40	--	1 50E+00	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-2/OS 2-40	--	5 00E+00	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 90E-01	No	4 20E+00	OS - UAA-2/OS-2-40	No	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-48													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 : 1 : 1	100	9 20E-01	No	4 60E+02	OS - UAA-2/OS-2-50	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 : 1 : 1	100	1.10E+01	No	1 86E+03	OS - UAA-2/OS-2-50	No	7 00E+01	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 : 1 : 1	100	1 40E+00	No	4 60E+00	OS - UAA-2/OS-2-50	No	5 00E+00	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 . 1 · 1	100	8 60E-01	No	5 80E+01	OS - UAA-2/OS-2-50	No	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-58													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 00E+00	No	4 60E+02	OS - UAA-2/ DS-2-60	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	2 50E+00	No	1 78E+03	OS - UAA-2/ DS-2-60	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 80E+00	No	1 58E+02	OS - UAA-2/ DS-2-60	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	6 00E-01	No	NA	OS - UAA 2/ DS-2-60	--	1 50E+00	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	6 70E-01	No	NA	OS UAA 2/ DS 2-60	--	5 00E+00	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 30E+00	No	6 40E+01	OS - UAA-2/ DS 2-60	No	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-68													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	8 30E 01	No	6 00E+02	OS - UAA-2/OS-2-70	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	9 70E-01	No	2 80E+03	OS - UAA-2/OS-2-70	No	7 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	4 40E-01	No	NA	OS - UAA-2/OS-2-70	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 80E+00	No	1 62E+02	OS - UAA-2/OS 2-70	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	4 40E+01	No	NA	OS - UAA-2/OS-2-70	--	NA	--	No	No Dose-Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	6 80E-01	No	9 20E+01	OS - UAA-2/OS-2-70	No	2 00E+00	No	No	</=Screening Level
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	9 20E-03	No	NA	OS - UAA-2/OS 2-70	--	2 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 1 1	100	4 40E+00	No	NA	OS - UAA-2/OS-2-70	--	3 60E+02	No	No	</=Screening Level
Metals													
Arsenic	7440-38-2	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-2/OS 2-70	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	5 60E+02	No	NA	OS - UAA-2/OS-2-70	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 90E+05	Yes	NA	OS - UAA-2/OS-2-70	--	NA	--	No	EN
Iron	7439-89-6	ug/L	1 1 1	100	3 90E+04	Yes	NA	OS - UAA-2/OS-2-70	--	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	5 30E+04	Yes	NA	OS - UAA-2/OS-2-70	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	3 30E+03	No	NA	OS - UAA-2/OS-2-70	--	1 50E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	8 70E+03	Yes	NA	OS - UAA-2/OS-2 70	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	7 60E+04	Yes	NA	OS - UAA-2/OS-2-70	--	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 1 1	100	1 80E+01	No	NA	OS - UAA-2/OS-2 70	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-78													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	4 80E-01	No	6 60E+02	OS - UAA-2/OS-2-80	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 00E-01	No	3 60E+03	OS - UAA-2/OS-2-80	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 20E+01	No	1 24E+02	OS - UAA-2/OS-2-80	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 40E-01	No	NA	OS - UAA-2/OS-2-80	--	1 50E+00	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 30E-01	No	1 04E+02	OS - UAA-2/OS-2-80	No	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-88													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 20E-01	No	1 14E+02	OS - UAA-2/OS-2-90	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 00E+02	No	3 60E+03	OS - UAA-2/OS-2-90	No	1 00E+02	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 80E+00	No	2 00E+01	OS - UAA-2/OS-2-90	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 30E+00	No	4 80E+02	OS - UAA-2/OS-2-90	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	2 00E+00	No	4 80E+01	OS - UAA-2/OS 2-90	No	3 50E+01	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	3 60E+00	No	NA	OS - UAA-2/OS-2-90	--	6 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - AA-O-3-98													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 40E+02	No	5 20E+03	OS - UAA-2/OS-2-100	No	1 00E+02	Yes	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 80E+00	No	1 44E+01	OS - UAA-2/OS-2-100	No	2 00E+00	Yes	No	</=BKG
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 60E+00	No	1 96E+01	OS - UAA-2/OS-2-100	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	4 30E+00	No	7 40E+02	OS - UAA-2/OS-2-100	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	6 80E+00	No	3 60E+01	OS - UAA-2/OS-2-100	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 30E+00	No	6 20E+00	OS - UAA-2/OS-2-100	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	4 20E+00	No	NA	OS - UAA-2/OS-2-100	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
O - BDRK-O-1-153													
VOCs													
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-2/OS-2-124	--	5 00E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 70E+01	No	2 00E+02	OS - UAA-2/OS-2-124	No	NA	--	No	</=BKG
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 60E+02	No	NA	OS - UAA-2/OS-2-124	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 30E+00	No	NA	OS - UAA-2/OS-2-124	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 40E+02	No	1 96E+02	OS - UAA-2/OS-2-124	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 60E+05	Yes	6 80E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Iron	7439-89-6	ug/L	1 1 1	100	4 10E+02	Yes	7 40E+04	OS - UAA-2/OS-2-124	No	5 00E+03	No	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	6 60E+04	Yes	1 00E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	5 80E+01	No	3 20E+03	OS - UAA-2/OS-2-124	No	1 50E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	7 00E+03	Yes	2 20E+04	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 20E+05	Yes	7 40E+04	OS - UAA-2/OS-2-124	Yes	NA	--	No	EN
Thallium	7440-28-0	ug/L	1 1 1	100	3 80E+00	No	NA	OS - UAA-2/OS-2-124	--	2 00E+00	Yes	Yes	>Screening Level
Vanadium	7440-62-2	ug/L	1 1 1	100	2 60E+00	No	2 40E+00	OS - UAA-2/OS-2-124	Yes	4 90E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-1-104													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	1 90E+02	No	5 00E+00	OS - UAA-1/OS-1-100	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 90E+03	No	8 00E+02	OS - UAA-1/OS-1-100	Yes	1 00E+02	Yes	Yes	>Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 80E+02	No	1 92E+03	OS - UAA-1/OS-1-100	No	NA	--	No	</=BKG
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 00E+01	No	3 60E+01	OS - UAA-1/OS-1-100	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	7 80E+01	No	3 40E+00	OS - UAA-1/OS-1-100	Yes	3 50E+01	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-1/OS-1-100	--	2 80E+01	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	4 20E+00	No	1 36E+00	OS - UAA-1/OS-1-100	Yes	3 00E-01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	3 90E+01	No	NA	OS - UAA-1/OS-1-100	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-1/OS-1-100	--	1 00E+02	No	No	</=Screening Level
Pesticide													
alpha-Chlordane	5103-71-9	ug/L	1 1 1	100	7 20E 03	No	NA	OS - UAA-1/OS-1-100	--	2 00E+00	No	No	</=Screening Level
Herbicide													
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	4 70E+00	No	NA	OS - UAA-1/OS-1-100	--	1 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	1 10E-01	No	NA	OS - UAA-1/OS-1-100	--	5 00E 01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 60E+02	No	1 04E+03	OS - UAA-1/OS-1-100	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	5 90E+02	No	1 02E+02	OS - UAA-1/OS-1-100	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 00E+05	Yes	1 34E+06	OS - UAA-1/OS-1-100	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 10E+01	No	2 60E+01	OS - UAA-1/OS-1-100	No	1 00E+02	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 20E+01	No	3 00E+00	OS - UAA-1/OS-1-100	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 60E+04	Yes	1 62E+05	OS - UAA-1/OS-1-100	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	4 90E+04	Yes	3 40E+05	OS - UAA-1/OS-1-100	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	7 00E+02	No	4 20E+04	OS - UAA-1/OS-1-100	No	1 50E+02	Yes	No	</=BKG
Mercury	7439-97-6	ug/L	1 1 1	100	7 40E-02	No	NA	OS - UAA-1/OS-1-100	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	1 80E+01	No	1 86E+02	OS - UAA-1/OS-1-100	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Potassium	7440-09-7	ug/L	1 1 1	100	2 40E+04	Yes	6 00E+04	OS - UAA-1/OS-1-100	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 30E+05	Yes	4 00E+05	OS - UAA-1/OS-1-100	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 10E+00	No	NA	OS - UAA-1/OS-1-100	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	8 00E+01	No	4 60E+05	OS - UAA-1/OS-1-100	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-1-114													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	6 00E+01	No	6 80E+00	OS - UAA-1/OS-1-110	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 60E+03	No	1 42E+03	OS - UAA-1/OS-1-110	Yes	1 00E+02	Yes	Yes	>Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	9 80E+00	No	7 20E+01	OS - UAA-1/OS 1-110	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 60E+01	No	1 28E+01	OS - UAA-1/OS-1-110	Yes	3 50E+01	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	7 30E+00	No	NA	OS - UAA-1/OS-1-110	--	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-1/OS-1-110	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	3 40E+00	No	NA	OS - UAA-1/OS-1-110	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-1-120													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	7 70E+01	No	6 80E+00	OS - UAA-1/OS-1-110	Yes	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	6 40E+00	No	NA	OS - UAA-1/OS-1-110	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 30E+03	No	1 42E+03	OS - UAA-1/OS-1-110	Yes	1 00E+02	Yes	Yes	>Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 50E+02	No	1 88E+03	OS - UAA-1/OS-1-110	No	NA	--	No	</=BKG
Trichloroethylene	79-01-6	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-1/OS-1-110	--	5 00E+00	Yes	Yes	>Screening Level
SVOCs													
1,4 Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 10E+00	No	7 20E+01	OS - UAA-1/OS-1-110	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	2 20E+01	No	1 28E+01	OS - UAA-1/OS-1-110	Yes	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-1/OS-1-110	--	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA 1/OS 1-110	-	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-1/OS-1-110	--	1 00E+02	No	No	</=Screening Level
Pesticide													
alpha-Chlordane	5103-71-9	ug/L	1 1 1	100	1 10E-02	No	NA	OS UAA-1/OS-1-110	--	2 00E+00	No	No	</=Screening Level
Herbicide													
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	3 90E+00	No	NA	OS - UAA-1/OS-1-110	--	1 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	1 30E-01	No	NA	OS - UAA-1/OS-1-110	--	5 00E-01	No	No	</=Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	6 90E-07	No	NA	OS - UAA-1/OS-1-110	--	3 00E 05	No	No	</=Screening Level
Metals													
Barium	7440-39-3	ug/L	1 1 1	100	4 50E+02	No	3 00E+02	OS - UAA-1/OS-1-110	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 20E+05	Yes	1 44E+06	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	7 10E+00	No	2 40E+02	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 50E+04	Yes	3 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	5 50E+04	Yes	4 00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 00E+03	No	5 60E+04	OS - UAA-1/OS-1-110	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	2 70E+01	No	3 00E+02	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Potassium	7440-09-7	ug/L	1 : 1 : 1	100	1 80E+04	Yes	6 60E+04	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 : 1 : 1	100	2.10E+05	Yes	4.00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 : 1 : 1	100	1.40E+00	No	3.60E+01	OS - UAA-1/OS-1-110	No	4.90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 : 1 : 1	100	6 90E+01	No	6 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-1-64													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 00E+00	No	4 00E+00	OS - UAA-1/OS-1-60	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 00E+01	No	1 82E+01	OS - UAA-1/OS-1-60	Yes	NA	--	No	No Dose-Response Value
SVOCs													
2-Nitroaniline	88-74-4	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-1/OS-1-60		1 00E+00	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-1/OS-1-60	--	3 50E+02	No	No	</=Screening Level
4,6-Dinitro-2-methylphenol	534-52-1	ug/L	1 1 1	100	5 20E+00	No	NA	OS - UAA-1/OS-1-60	--	NA	--	No	Screening Level NA
Anthracene	120-12-7	ug/L	1 1 1	100	8 00E-01	No	NA	OS - UAA-1/OS 1-60	--	2 10E+03	No	No	</=Screening Level
Benzo(a)anthracene	56-55-3	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-1/OS-1-60	--	1 30E-01	Yes	Yes	>Screening Level
Benzo(b)fluoranthene	205-99-2	ug/L	1 1 1	100	4 00E+00	No	NA	OS - UAA-1/OS-1-60	--	1 80E-01	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-1/OS-1-60	--	2 10E+02	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	ug/L	1 1 1	100	8 90E 01	No	NA	OS - UAA-1/OS 1-60	--	1 70E-01	Yes	Yes	>Screening Level
Benzyl Butyl Phthalate	85-68-7	ug/L	1 1 1	100	8 70E-01	No	NA	OS - UAA-1/OS-1-60	--	1 40E+03	No	No	</=Screening Level
bis(2-Chloroethyl)ether	111-44-4	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-1/OS-1-60	--	1 00E+01	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-1/OS-1-60	--	6 00E+00	No	No	</=Screening Level
Chrysene	218-01-9	ug/L	1 1 1	100	9 50E-01	No	NA	OS - UAA-1/OS-1-60	--	1 50E+00	No	No	</=Screening Level
Di-n-butylphthalate	84-74-2	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-1/OS-1-60	--	7 00E+02	No	No	</=Screening Level
Di n-octylphthalate	117-84 0	ug/L	1 1 1	100	7 20E-01	No	NA	OS - UAA-1/OS-1-60	--	1 40E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	2 90E+00	No	NA	OS - UAA-1/OS 1-60	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	8 90E-01	No	NA	OS - UAA-1/OS 1-60	--	4 30E 01	Yes	Yes	>Screening Level
Phenanthrene	85-01-8	ug/L	1 1 1	100	9 80E-01	No	NA	OS - UAA-1/OS-1-60	--	2 10E+03	No	No	</=Screening Level
Pesticide													
Heptachlor	76-44-8	ug/L	1 1 1	100	4 20E 03	No	NA	OS - UAA 1/OS-1-60	--	4 00E-01	No	No	</=Screening Level
Herbicide													
Dichlorprop	120-36-5	ug/L	1 1 1	100	5 50E 01	No	NA	OS - UAA-1/OS-1 60	-	2 92E+02	No	No	</=Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	1 10E-01	No	NA	OS - UAA-1/OS 1-60	-	5 00E 01	No	No	</=Screening Level
Metals													

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Aluminum	7429-90-5	ug/L	1 1 1	100	2 80E+02	No	1 90E+03	OS - UAA-1/OS-1-60	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	3 10E+02	No	2 60E+02	OS - UAA-1/OS-1-60	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 40E+05	Yes	6 60E+05	OS - UAA-1/OS-1-60	No	NA	--	No	EN
Iron	7439-89-6	ug/L	1 1 1	100	4 00E+04	Yes	1 18E+05	OS - UAA-1/OS-1-60	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	5 60E+04	Yes	1 38E+05	OS - UAA-1/OS 1-60	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 30E+03	No	8 40E+03	OS - UAA-1/OS-1-60	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	9 50E+00	No	1 72E+01	OS - UAA-1/OS-1-60	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	9 10E+03	Yes	2 80E+04	OS - UAA-1/OS-1-60	No	NA	-	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	9 60E+04	Yes	2 40E+05	OS - UAA-1/OS-1-60	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-1/OS-1-60	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 30E+01	No	6 80E+01	OS - UAA 1/OS-1-60	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-1-74													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 . 1 . 1	100	5 80E+00	No	4 80E+00	OS - UAA-1/OS-1-70	Yes	1 00E+02	No	No	</=Screening Level
Herbicide													
Pentachlorophenol	87-86-5	ug/L	1 : 1 : 1	100	6 40E+00	No	NA	OS - UAA-1/OS-1-70	--	1 00E+00	Yes	Yes	>Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	1 . 1 1	100	1 43E-05	No	NA	OS - UAA-1/OS-1-70	--	3 00E-05	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-1-84													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 20E+01	No	5 60E+02	OS - UAA-1/OS 1-80	No	1 00E+02	No	No	</=Screening Level
Herbicide													
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	5 90E+00	No	NA	OS - UAA-1/OS-1-80	--	1 00E+00	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-1-94													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 : 1 : 1	100	4 80E+00	No	9 00E+02	OS - UAA-1/OS-1-90	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 : 1 : 1	100	5 30E-01	No	NA	OS - UAA-1/OS-1-90	--	1 50E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-104													
VOCs													
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-1/OS-1-100	--	5 50E-02	Yes	Yes	>Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	7 30E+01	No	NA	OS - UAA-1/OS-1-100	--	1 90E+03	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	6 90E+03	No	5 00E+00	OS - UAA-1/OS-1-100	Yes	5 00E+00	Yes	Yes	>Screening Level
Carbon Tetrachloride	56-23-5	ug/L	1 1 1	100	6 90E+00	No	NA	OS - UAA-1/OS-1-100	--	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 90E+02	No	8 00E+02	OS - UAA-1/OS-1-100	No	1 00E+02	Yes	No	</=BKG
Ethylbenzene	100-41-4	ug/L	1 1 1	100	4 70E+01	No	6 20E-01	OS - UAA-1/OS-1-100	Yes	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 50E+03	No	1 92E+03	OS - UAA-1/OS-1-100	No	NA	--	No	</=BKG
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 00E+02	No	NA	OS UAA-1/OS-1-100	--	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Chlorophenol	95 57-8	ug/L	1 1 1	100	5 30E+00	No	3 40E+00	OS - UAA-1/OS-1-100	Yes	3 50E+01	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 80E+02	No	NA	OS - UAA-1/OS-1-100	--	1 00E+02	Yes	Yes	>Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	8 40E-03	No	NA	OS - UAA-1/OS 1-100	-	1 10E-01	No	No	</=Screening Level
Herbicide													
MCPP	93 65-2	ug/L	1 1 1	100	3 20E+01	No	NA	OS - UAA-1/OS-1-100	--	3 60E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 00E+03	No	1 04E+03	OS - UAA-1/OS-1-100	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 40E+03	No	1 02E+02	OS - UAA-1/OS-1-100	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 00E+05	Yes	1 34E+06	OS - UAA-1/OS-1-100	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 00E+01	No	2 60E+01	OS - UAA-1/OS-1-100	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 90E+00	No	4 00E+02	OS - UAA-1/OS-1-100	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	6 30E+00	No	3 00E+00	OS - UAA-1/OS-1-100	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 90E+04	Yes	1 62E+05	OS - UAA-1/OS 1-100	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	4 90E+04	Yes	3 40E+05	OS - UAA-1/OS-1-100	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	5 30E+02	No	4 20E+04	OS - UAA-1/OS-1-100	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 00E+01	No	1 86E+02	OS - UAA-1/OS-1-100	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 70E+04	Yes	6 00E+04	OS - UAA-1/OS-1-100	No	NA	--	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Sodium	7440-23-5	ug/L	1 : 1 · 1	100	2 50E+05	Yes	4 00E+05	OS - UAA-1/OS-1-100	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 . 1 : 1	100	4.30E+00	No	NA	OS - UAA-1/OS-1-100	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 : 1 . 1	100	1.60E+01	No	4 60E+05	OS - UAA-1/OS-1-100	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-114													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	5 90E+03	No	6 80E+00	OS - UAA-1/OS-1-110	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108 90-7	ug/L	1 1 1	100	2 63E+02	No	1 42E+03	OS - UAA-1/OS-1-110	No	1 00E+02	Yes	No	</=BKG
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 45E+00	No	7 20E+01	OS - UAA-1/OS-1-110	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	3 20E+00	No	1 28E+01	OS - UAA-1/OS-1-110	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-1/OS-1-110	--	2 80E+01	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 70E+02	No	NA	OS - UAA 1/OS-1-110	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-122													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	2 80E+03	No	6 80E+00	OS - UAA-1/OS-1-110	Yes	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-1/OS-1-110	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 80E+02	No	1 42E+03	OS - UAA-1/OS-1-110	No	1 00E+02	Yes	No	</=BKG
Chloromethane	74-87-3	ug/L	1 1 1	100	2 30E+01	No	NA	OS - UAA-1/OS-1-110	--	1 50E+00	Yes	Yes	>Screening Level
Methane	74-82-8	ug/L	1 1 1	100	7 20E+02	No	1 88E+03	OS - UAA-1/OS-1-110	No	NA	-	No	</=BKG
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 60E+00	No	1 28E+01	OS - UAA-1/OS-1-110	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 40E+00	No	NA	OS - UAA-1/OS-1-110	--	2 80E+01	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-1/OS-1-110	--	1 00E+02	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 20E+03	No	1 26E+04	OS - UAA-1/OS-1-110	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	8 10E+02	No	3 00E+02	OS - UAA-1/OS-1-110	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 70E+05	Yes	1 44E+06	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 50E+01	No	2 40E+02	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 40E+00	No	5 20E+02	OS - UAA-1/OS-1-110	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	7 60E+00	No	7 60E+01	OS - UAA-1/OS-1-110	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 30E+04	Yes	3 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	3 90E+04	Yes	4 00E+05	OS - UAA-1/OS-1 110	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	5 90E+02	No	5 60E+04	OS - UAA-1/OS-1-110	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 20E+01	No	3 00E+02	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 20E+04	Yes	6 60E+04	OS - UAA-1/OS 1-110	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 20E+05	Yes	4 00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	4 10E+00	No	3 60E+01	OS - UAA-1/OS-1-110	No	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 80E+01	No	6 00E+05	OS - UAA-1/OS 1-110	No	5 00E+03	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-34													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 30E-01	No	NA	OS - UAA-1/OS-1-30	–	7 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 60E-01	No	NA	OS - UAA-1/OS-1-30	–	1 50E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-44													
VOCs													
Chloromethane	74-87-3	ug/L	1 1 1	100	2 60E-01	No	NA	OS - UAA-1/ OS-1-40	--	1 50E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-54													
VOCs													
Chloromethane	74-87-3	ug/L	1 : 1 : 1	100	3.60E-01	No	NA	OS - UAA-1/OS-1-50	--	1.50E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-64													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 · 1 1	100	1 90E+00	No	NA	OS - UAA-1/OS-1-60	--	1 90E+03	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 . 1 1	100	3 80E+00	No	1 82E+01	OS - UAA-1/OS-1-60	No	NA	--	No	</=BKG
Methyl N-Butyl Ketone	591-78-6	ug/L	1 1 1	100	8 70E-01	No	NA	OS - UAA-1/OS-1-60	--	1 60E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 00E+02	No	1 90E+03	OS - UAA-1/OS-1-60	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	9 40E+00	No	9 40E+00	OS - UAA-1/OS-1-60	No	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 20E+02	No	2 60E+02	OS - UAA-1/OS-1-60	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 10E+05	Yes	6 60E+05	OS - UAA-1/OS-1-60	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	4 60E+00	No	1 36E+01	OS - UAA-1/OS-1-60	No	1 00E+02	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	2 10E+00	No	NA	OS - UAA-1/OS-1-60	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 30E+04	Yes	1 18E+05	OS - UAA-1/OS-1-60	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	2 60E+04	Yes	1 38E+05	OS - UAA-1/OS-1-60	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	4 80E+02	No	8 40E+03	OS - UAA-1/OS-1-60	No	1 50E+02	Yes	No	</=BKG
Potassium	7440-09-7	ug/L	1 1 1	100	5 90E+03	Yes	2 80E+04	OS - UAA-1/OS-1-60	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 00E+04	Yes	2 40E+05	OS - UAA-1/OS-1-60	No	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 1 1	100	4 60E+00	No	6 80E+01	OS - UAA-1/OS-1-60	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-74													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 : 1 : 1	100	6.30E-01	No	NA	OS - UAA-1/OS-1-70	--	7.00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-84													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	6 70E-01	No	NA	OS - UAA-1/OS-1-80	--	7 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-2-94													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	4 20E-01	No	NA	OS - UAA-1/OS-1-90	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 70E+00	No	9 00E+02	OS - UAA-1/OS-1-90	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	4 80E-01	No	NA	OS - UAA-1/OS 1-90		1 50E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-102													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 80E-01	No	NA	OS - UAA-1/OS-1-100	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 50E-01	No	8 00E+02	OS - UAA-1/OS-1-100	No	1 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	5 40E-01	No	6 20E-01	OS - UAA-1/OS 1-100	No	1 00E+03	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-112													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	1 30E+00	No	6 80E+00	OS - UAA-1/OS-1-110	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	5 90E-01	No	NA	OS - UAA-1/OS 1-110	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	6 10E+00	No	1 42E+03	OS - UAA-1/OS-1 110	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 70E+02	No	1 88E+03	OS - UAA-1/OS 1-110	No	NA	--	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	4 70E-01	No	NA	OS - UAA-1/OS 1-110	--	1 00E+03	No	No	</=Screening Level
Metals													
Aluminum	7429 90-5	ug/L	1 1 1	100	1 10E+04	No	1 26E+04	OS - UAA-1/OS 1-110	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	4 70E+00	No	7 20E+01	OS - UAA-1/OS-1-110	No	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	8 80E+02	No	3 00E+02	OS - UAA-1/OS 1-110	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	4 60E-01	No	NA	OS - UAA-1/OS 1-110	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 20E+05	Yes	1 44E+06	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 20E+02	No	2 40E+02	OS - UAA-1/OS-1-110	No	1 00E+02	Yes	No	</=BKG
Cobalt	7440-48-4	ug/L	1 1 1	100	6 30E+00	No	5 20E+02	OS - UAA 1/OS 1-110	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	4 00E+01	No	7 60E+01	OS - UAA-1/OS-1-110	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	5 70E+04	Yes	3 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	7 30E+00	No	1 04E+01	OS - UAA-1/OS 1-110	No	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	5 90E+04	Yes	4 00E+05	OS UAA 1/OS 1-110	No	NA		No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	6 30E+02	No	5 60E+04	OS - UAA-1/OS-1-110	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	3 30E+01	No	3 00E+02	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 80E+04	Yes	6 60E+04	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 40E+05	Yes	4 00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 00E+01	No	3 60E+01	OS - UAA-1/OS-1-110	No	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	9 70E+01	No	6 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-122													
VOCs													
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 : 1 . 1	100	1 30E+00	No	NA	OS - UAA-1/OS-1-110	--	1 60E+02	No	No	</=Screening Level
Methyl N-Butyl Ketone	591-78-6	ug/L	1 : 1 : 1	100	1.50E+00	No	NA	OS - UAA-1/OS-1-110	--	1 60E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-126													
VOCs													
Acetone	67-64-1	ug/L	1 : 1 : 1	100	1 60E+01	No	NA	OS - UAA-1/OS-1-110	--	7 00E+02	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	5 20E-01	No	NA	OS - UAA-1/OS-1-110	--	7 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	7 70E-01	No	NA	OS - UAA-1/OS-1-110	--	1 50E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	5 90E+01	No	1 88E+03	OS - UAA-1/OS 1-110	No	NA	--	No	</=BKG
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 00E+03	No	1 26E+04	OS - UAA-1/OS-1-110	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	4 30E+00	No	7 20E+01	OS - UAA-1/OS-1-110	No	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 50E+02	No	3 00E+02	OS - UAA-1/OS-1-110	No	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 40E-01	No	NA	OS - UAA-1/OS-1-110	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 10E+05	Yes	1 44E+06	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 20E+02	No	2 40E+02	OS - UAA-1/OS-1-110	No	1 00E+02	Yes	No	</=BKG
Cobalt	7440-48-4	ug/L	1 1 1	100	4 50E+00	No	5 20E+02	OS - UAA-1/OS-1-110	No	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	7 50E+04	Yes	3 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	4 20E+00	No	1 04E+01	OS - UAA-1/OS-1-110	No	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	8.00E+04	Yes	4 00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 20E+03	No	5 60E+04	OS - UAA-1/OS-1-110	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	2 80E+01	No	3 00E+02	OS - UAA-1/OS-1 110	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 20E+04	Yes	6 60E+04	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 : 1 : 1	100	1 40E+05	Yes	4 00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 : 1	100	8 00E+00	No	3 60E+01	OS - UAA-1/OS-1-110	No	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 50E+02	No	6 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-42													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	5 55E-01	No	NA	OS - UAA-1/OS-1-40	--	7 00E+02	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-1/OS-1-40	--	5 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-52													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 : 1 : 1	100	2.80E-01	No	NA	OS - UAA-1/ OS-1-50	--	7.00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-62													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	4 80E-01	No	NA	OS - UAA-1/OS-1-60	--	7 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	8 95E-01	No	NA	OS - UAA-1/OS-1-60	--	7 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-72													
VOCs													
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	1 1 1	100	4 20E-01	No	NA	OS - UAA-1/OS-1-70	--	5 50E-02	Yes	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	8 50E-01	No	NA	OS - UAA-1/OS-1-70	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 90E+01	No	NA	OS - UAA-1/OS 1-70		NA		No	No Dose Response Value
Herbicide													
MCPP	93-65 2	ug/L	1 1 1	100	2 20E+01	No	NA	OS - UAA-1/OS-1-70	--	3 60E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 40E+03	No	NA	OS - UAA-1/OS-1-70	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 70E+00	No	NA	OS - UAA-1/OS 1-70	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 80E+02	No	NA	OS - UAA-1/OS-1-70	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 30E+05	Yes	NA	OS - UAA-1/OS-1-70	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 30E+01	No	NA	OS - UAA-1/OS-1-70	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-1/OS-1-70	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	8 50E+00	No	NA	OS - UAA-1/OS-1-70	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 60E+04	Yes	NA	OS - UAA-1/OS-1-70	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	4 90E+00	No	NA	OS - UAA-1/OS-1-70	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	3 20E+04	Yes	NA	OS - UAA-1/OS-1-70	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 10E+03	No	NA	OS - UAA-1/OS 1-70	-	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-1/OS-1-70	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	5 10E+03	Yes	NA	OS - UAA-1/OS-1-70	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 20E+04	Yes	NA	OS - UAA-1/OS-1-70	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	7 90E+00	No	NA	OS - UAA-1/OS-1-70	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 60E+01	No	NA	OS - UAA-1/OS-1-70	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - AA-P-3-82													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	5 40E-01	No	NA	OS - UAA-1/OS-1-80	--	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	5 40E-01	No	NA	OS - UAA-1/OS-1-80	--	7 00E+02	No	No	</=Screening Level
Chloroform	67-66-3	ug/L	1 1 1	100	2 00E-01	No	NA	OS - UAA-1/OS-1-80	--	8 00E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
P - BDRK-P-1-158													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	4 10E+00	No	NA	OS - UAA-1/OS-1-110	--	1 90E+03	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	3 80E+01	No	NA	OS - UAA-1/OS-1-110	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43 2	ug/L	1 1 1	100	2 10E+01	No	6 80E+00	OS - UAA-1/OS-1-110	Yes	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-1/OS-1-110	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	7 80E+00	No	1 42E+03	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level
Chloroform	67-66-3	ug/L	1 1 1	100	7 10E+00	No	NA	OS - UAA-1/OS-1-110	--	8 00E+01	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-1/OS-1-110	-	5 00E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 50E+00	No	1 88E+03	OS - UAA-1/OS-1-110	No	NA	--	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	8 90E 01	No	NA	OS - UAA-1/OS-1-110	--	1 00E+03	No	No	</=Screening Level
SVOCs													
Benzo(a)pyrene	50-32-8	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-1/OS-1-110	--	2 00E-01	Yes	Yes	>Screening Level
Benzo(b)fluoranthene	205-99-2	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-1/OS-1-110	--	1 80E-01	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-1/OS-1-110	--	2 10E+02	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-1/OS-1-110	-	1 70E-01	Yes	Yes	>Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-1/OS-1-110	--	6 00E+00	No	No	</=Screening Level
Chrysene	218-01-9	ug/L	1 1 1	100	6 80E-01	No	NA	OS - UAA-1/OS 1-110	-	1 50E+00	No	No	</=Screening Level
Di-n-octylphthalate	117-84 0	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-1/OS-1-110		1 40E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-1/OS-1-110	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-1/OS-1-110	--	4 30E 01	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 70E+00	No	NA	OS - UAA-1/OS-1-110	--	1 00E+02	No	No	</=Screening Level
Pesticide													
Heptachlor	76-44-8	ug/L	1 1 1	100	6 30E-03	No	NA	OS - UAA-1/OS-1-110	--	4 00E-01	No	No	</=Screening Level
Herbicide													
MCPA	94-74-6	ug/L	1 1 1	100	5 20E+01	No	NA	OS - UAA-1/OS-1-110	--	1 80E+01	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	5 10E+03	No	1 26E+04	OS - UAA-1/OS 1-110	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 30E+02	No	3 00E+02	OS - UAA-1/OS-1-110	No	2 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Beryllium	7440-41-7	ug/L	1 1 1	100	3 60E-01	No	NA	OS - UAA-1/OS-1-110	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	7 30E-01	No	5 40E+03	OS - UAA-1/OS-1-110	No	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	5 20E+05	Yes	1 44E+06	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 40E+01	No	2 40E+02	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 20E+00	No	5 20E+02	OS - UAA-1/OS-1-110	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	2 30E+01	No	7 60E+01	OS - UAA-1/OS-1-110	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	9 30E+03	Yes	3 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 60E+00	No	1 04E+01	OS - UAA-1/OS-1-110	No	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	1 90E+04	Yes	4 00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 30E+02	No	5 60E+04	OS - UAA-1/OS-1-110	No	1 50E+02	Yes	No	</=BKG
Mercury	7439-97-6	ug/L	1 1 1	100	1 10E-01	No	NA	OS - UAA-1/OS-1-110	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	3 20E+01	No	3 00E+02	OS - UAA-1/OS-1-110	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 70E+04	Yes	6 60E+04	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Selenium	7782-49-2	ug/L	1 1 1	100	5 50E+00	No	NA	OS - UAA-1/OS-1-110	--	5 00E+01	No	No	</=Screening Level
Sodium	7440-23-5	ug/L	1 1 1	100	1 40E+05	Yes	4 00E+05	OS - UAA-1/OS-1-110	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 90E+01	No	3 60E+01	OS - UAA-1/OS-1-110	No	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	6 30E+01	No	6 00E+05	OS - UAA-1/OS-1-110	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-100													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 00E+02	No	4 20E+03	OS - UAA-3/OS-3-104	No	1 00E+02	Yes	No	</=BKG
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	7 80E+00	No	4 40E+03	OS - UAA-3/OS-3-104	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 60E+00	No	2 80E+01	OS - UAA-3/OS-3-104	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	5 20E+00	No	4 20E+03	OS - UAA-3/OS-3-104	No	2 80E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-110													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	1 00E+01	No	8 60E+00	OS - UAA-3/OS-3-114	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+02	No	1 14E+03	OS - UAA-3/OS-3-114	No	1 00E+02	Yes	No	</=BKG
Chloromethane	74-87-3	ug/L	1 1 1	100	2 10E-01	No	NA	OS - UAA-3/OS-3-114	-	1 50E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	8 90E-01	No	NA	OS - UAA-3/OS-3-114	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 90E-01	No	NA	OS - UAA-3/OS 3-114	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-3/OS-3 114	-	2 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	2 00E+00	No	NA	OS - UAA-3/OS 3 114	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1 2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	3 00E+00	No	4 60E+01	OS - UAA-3/OS-3-114	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 20E+00	No	3 60E+03	OS - UAA-3/OS-3-114	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	3 60E+00	No	3 40E+01	OS - UAA-3/OS-3-114	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-3/OS-3-114	--	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 00E+00	No	NA	OS - UAA-3/OS-3-114	--	1 40E+02	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-120													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	2 80E+01	No	3 60E+00	OS - UAA-3/OS-3-116	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 10E+02	No	7 20E+02	OS - UAA-3/OS-3 116	No	1 00E+02	Yes	No	</=BKG
Ethylbenzene	100-41-4	ug/L	1 1 1	100	2 10E+00	No	NA	OS - UAA-3/OS-3-116	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	9 80E+01	No	2 80E+01	OS - UAA-3/OS-3-116	Yes	NA	--	No	No Dose Response Value
Vinyl chloride	75 01-4	ug/L	1 1 1	100	2 90E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	Yes	Yes	>Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	7 40E+00	No	3 20E+01	OS - UAA-3/OS-3-116	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	6 10E+00	No	3 00E+03	OS - UAA-3/OS-3-116	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 00E+01	No	1 94E+01	OS - UAA-3/OS-3 116	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 70E+01	No	1 96E+01	OS - UAA-3/OS-3-116	Yes	2 80E+01	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	1 00E+00	No	1 38E+00	OS - UAA-3/OS-3-116	No	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-116	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-116	--	4 30E-01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	5 90E+00	No	NA	OS - UAA-3/OS-3-116	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	3 40E+00	No	NA	OS - UAA-3/OS-3-116	--	1 00E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 00E+04	No	2 40E+03	OS UAA-3/OS 3-116	Yes	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 70E+01	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 10E+03	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	1 90E+00	No	NA	OS - UAA-3/OS-3-116	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	9 40E-01	No	4 00E+00	OS - UAA-3/OS-3-116	No	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 00E+05	Yes	6 80E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	5 30E+02	No	7 60E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	3 20E+01	No	3 00E+00	OS - UAA-3/OS-3-116	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 40E+02	No	5 00E+01	OS - UAA-3/OS-3-116	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 10E+05	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	4 20E+01	No	NA	OS - UAA-3/OS-3-116	--	7 50E+00	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Backgrcund Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Magnesium	7439-95-4	ug/L	1 1 1	100	8 10E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 20E+03	No	2 40E+03	OS - UAA-3/OS-3-116	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 30E+02	No	2 20E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 40E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	6 10E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	7 90E+01	No	NA	OS - UAA-3/OS-3 116	--	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	4 40E+02	No	4 60E+02	OS - UAA-3/OS-3-116	No	5 00E+03	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-127													
SVOCs													
1,2,4-Trichlorobenzene	120-82-1	ug/L	1 : 1 : 1	100	6.10E+00	No	NA	OS - UAA-3/OS-3-116	--	7 00E+01	No	No	</=Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	1 : 1 : 1	100	2.50E+00	No	2.60E+01	OS - UAA-3/OS-3-116	No	6.00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 : 1 : 1	100	2 20E+01	No	3 00E+03	OS - UAA-3/OS-3-116	No	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 : 1 : 1	100	1 20E+01	No	1 06E+02	OS - UAA-3/OS-3-116	No	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 : 1 : 1	100	5.60E+00	No	1 94E+01	OS - UAA-3/OS-3-116	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 : 1 : 1	100	3.10E+00	No	NA	OS - UAA-3/OS-3-116	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 : 1 : 1	100	2 00E+00	No	NA	OS - UAA-3/OS-3-116	--	1 00E+02	No	No	</=Screening Level
Metals													
Arsenic	7440-38-2	ug/L	1 : 1 : 1	100	8 70E+00	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 : 1 : 1	100	2 60E+02	No	3 00E+02	OS - UAA-3/OS-3-116	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 : 1 : 1	100	2 60E+05	Yes	6 80E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Copper	7440-50-8	ug/L	1 : 1 : 1	100	1.20E+00	No	5 00E+01	OS - UAA-3/OS-3-116	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 : 1 : 1	100	1 30E+04	Yes	1.22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 : 1 : 1	100	7 00E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 : 1 : 1	100	7.10E+02	No	2.40E+03	OS - UAA-3/OS-3-116	No	1.50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 : 1 : 1	100	7.30E+00	No	2 20E+01	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 : 1 : 1	100	2 60E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 : 1 : 1	100	6 40E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Thallium	7440-28-0	ug/L	1 : 1 : 1	100	3.70E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	Yes	Yes	>Screening Level
Vanadium	7440-62-2	ug/L	1 : 1 : 1	100	2.80E+00	No	NA	OS - UAA-3/OS-3-116	--	4.90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 : 1 : 1	100	2 30E+01	No	4 60E+02	OS - UAA-3/OS-3-116	No	5.00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-127.5													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	3 30E+01	No	3 60E+00	OS - UAA-3/OS-3-116	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	9 75E+02	No	7 20E+02	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-3/OS-3-116	--	1 50E+00	Yes	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	6 70E+00	No	NA	OS - UAA-3/OS-3-116	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	9 95E+01	No	2 80E+01	OS - UAA-3/OS-3-116	Yes	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3-116	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 55E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 95E+01	No	NA	OS - UAA-3/OS-3-116	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	4 35E+02	No	3 20E+01	OS - UAA-3/OS-3-116	Yes	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 90E+01	No	3 00E+03	OS - UAA-3/OS-3-116	No	7 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 85E+03	No	1 96E+01	OS - UAA-3/OS-3-116	Yes	2 80E+01	Yes	Yes	>Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	5 60E-02	No	NA	OS - UAA-3/OS-3-116	--	1 10E-01	No	No	</=Screening Level
Dieldrin	60-57-1	ug/L	1 1 1	100	6 30E-02	No	NA	OS - UAA-3/OS-3-116	--	9 00E+00	No	No	</=Screening Level
Endosulfan II	33213-65-9	ug/L	1 1 1	100	4 00E-02	No	NA	OS - UAA-3/OS-3-116	--	4 20E+01	No	No	</=Screening Level
Endosulfan Sulfate	1031-07-8	ug/L	1 1 1	100	5 10E-02	No	NA	OS - UAA-3/OS-3-116	--	4 20E+01	No	No	</=Screening Level
Endrin	72-20-8	ug/L	1 1 1	100	5 50E-02	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	ug/L	1 1 1	100	4 50E-01	No	NA	OS - UAA-3/OS-3-116	--	2 00E 01	Yes	Yes	>Screening Level
Herbicide													
2,4-D	94-75-7	ug/L	1 1 1	100	2 40E+00	No	NA	OS - UAA-3/OS-3-116	-	7 00E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 20E+04	No	2 40E+03	OS - UAA-3/OS-3-116	Yes	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 60E+01	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 40E+02	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-3/OS-3-116	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	1 30E+00	No	4 00E+00	OS - UAA-3/OS-3-116	No	5 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Backgrcund Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Calcium	7440-70-2	ug/L	1 1 1	100	3 10E+05	Yes	6 80E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 75E+02	No	7 60E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 30E+01	No	3 00E+00	OS - UAA-3/OS-3-116	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	7 35E+01	No	5 00E+01	OS - UAA-3/OS-3-116	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	8 60E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	4 90E+01	No	NA	OS - UAA-3/OS 3 116	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	7 80E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	3 65E+03	No	2 40E+03	OS - UAA-3/OS-3-116	Yes	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	7 50E+01	No	2 20E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	3 20E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	Yes	NA		No	EN
Selenium	7782-49-2	ug/L	1 1 1	100	5 30E+00	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Sodium	7440-23-5	ug/L	1 1 1	100	6 60E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	7 10E+01	No	NA	OS UAA-3/OS-3-116	--	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 60E+02	No	4 60E+02	OS - UAA-3/OS-3-116	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-50													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 60E+00	No	1 04E+00	OS - UAA-3/OS-3-54	Yes	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	9 60E-01	No	2 80E+00	OS - UAA-3/OS-3-54	No	7 00E+01	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	2 40E+00	No	2 40E+00	OS - UAA-3/OS-3-54	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 70E-01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+02	No	3 20E+02	OS - UAA-3/OS-3-54	No	1 00E+02	Yes	No	</=BKG
Chloroethane	75-00-3	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-54	--	4 60E+00	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	9 60E-01	No	NA	OS - UAA-3/OS-3-54	--	1 50E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-3/OS-3-54	--	NA	--	No	No Dose-Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	7 20E-01	No	NA	OS - UAA-3/OS-3-54	--	2 00E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-54	--	6 00E+02	No	No	</=Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	1 1 1	100	2 50E+00	No	NA	OS - UAA-3/OS-3-54	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 00E+01	No	NA	OS - UAA-3/OS-3-54	--	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-54	--	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-3/OS-3-54	--	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 30E+02	No	NA	OS UAA-3/OS-3-54	--	2 80E+01	Yes	Yes	>Screening Level
Pesticide													
Heptachlor Epoxide	1024-57-3	ug/L	1 1 1	100	1 10E-02	No	NA	OS - UAA-3/OS-3 54	--	2 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-TP (Silvex)	93-72-1	ug/L	1 1 1	100	1 70E-01	No	NA	OS - UAA-3/OS-3-54	--	5 00E+01	No	No	</=Screening Level
2,4-D	94-75-7	ug/L	1 1 1	100	6 70E-01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+01	No	No	</=Screening Level
2,4-DB	94-82-6	ug/L	1 1 1	100	8 90E 01	No	NA	OS - UAA-3/OS-3-54	--	2 90E+02	No	No	</=Screening Level
Dichlorprop	120-36-5	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3-54	--	2 92E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 70E+04	No	NA	OS - UAA-3/OS-3-54	--	3 60E+04	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Antimony	7440-36-0	ug/L	1 1 1	100	5 70E+00	No	NA	OS - UAA-3/OS-3-54	--	6 00E+00	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	1 30E+02	No	NA	OS - UAA-3/OS-3-54	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 70E+02	No	NA	OS - UAA-3/OS-3-54	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	6 30E+00	No	NA	OS - UAA-3/OS-3-54	--	4 00E+00	Yes	Yes	>Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	7 60E+00	No	NA	OS - UAA-3/OS-3-54	--	5 00E+00	Yes	Yes	>Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 80E+05	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 60E+02	No	NA	OS - UAA-3/OS-3-54	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 50E+01	No	NA	OS - UAA-3/OS-3-54	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	8 30E+01	No	NA	OS - UAA-3/OS-3-54	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 10E+05	Yes	NA	OS - UAA-3/OS-3-54	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 60E+02	No	NA	OS - UAA-3/OS-3-54	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 90E+04	Yes	NA	OS - UAA-3/OS-3 54	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	4 80E+03	No	NA	OS - UAA-3/OS-3-54	--	1 50E+02	Yes	Yes	>Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	1 50E-01	No	NA	OS - UAA-3/OS-3-54	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-3/OS-3-54	--	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 10E+04	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Selenium	7782-49-2	ug/L	1 1 1	100	7 40E+00	No	NA	OS - UAA-3/OS-3-54	--	5 00E+01	No	No	</=Screening Level
Sodium	7440-23-5	ug/L	1 1 1	100	6 60E+04	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 70E+02	No	NA	OS - UAA-3/OS 3 54	-	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 00E+03	No	NA	OS - UAA-3/OS-3-54	--	5 00E+03	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-50													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 60E+00	No	1 04E+00	OS - UAA-3/OS-3-54	Yes	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	9 60E-01	No	2 80E+00	OS - UAA-3/OS-3-54	No	7 00E+01	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	2 40E+00	No	2 40E+00	OS - UAA-3/OS-3-54	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 70E-01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+02	No	3 20E+02	OS - UAA-3/OS 3-54	No	1 00E+02	Yes	No	</=BKG
Chloroethane	75-00-3	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-54	--	4 60E+00	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	9 60E-01	No	NA	OS - UAA-3/OS-3-54	--	1 50E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-3/OS-3-54	--	NA	--	No	No Dose-Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	7 20E-01	No	NA	OS - UAA-3/OS-3-54	--	2 00E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-54	--	6 00E+02	No	No	</=Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	1 1 1	100	2 50E+00	No	NA	OS - UAA-3/OS-3-54	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 00E+01	No	NA	OS - UAA-3/OS-3-54	--	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-54	--	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-3/OS-3-54	--	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 30E+02	No	NA	OS UAA-3/OS-3 54	--	2 80E+01	Yes	Yes	>Screening Level
Pesticide													
Heptachlor Epoxide	1024-57-3	ug/L	1 1 1	100	1 10E-02	No	NA	OS - UAA-3/OS-3-54	--	2 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-TP (Silvex)	93-72-1	ug/L	1 1 1	100	1 70E-01	No	NA	OS - UAA-3/OS-3-54	-	5 00E+01	No	No	</=Screening Level
2,4-D	94-75-7	ug/L	1 1 1	100	6.70E-01	No	NA	OS - UAA-3/OS 3 54	--	7 00E+01	No	No	</=Screening Level
2,4-DB	94-82-6	ug/L	1 1 1	100	8 90E-01	No	NA	OS - UAA-3/OS 3-54	-	2 90E+02	No	No	</=Screening Level
Dichlorprop	120-36 5	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3-54	-	2 92E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 70E+04	No	NA	OS - UAA-3/OS-3-54	--	3 60E+04	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-70													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 10E+00	No	8 80E-01	OS - UAA-3/OS-3-74	Yes	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 00E+02	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	4 00E+00	No	NA	OS - UAA-3/OS-3-74	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	9 60E+00	No	NA	OS - UAA-3/OS-3-74	--	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-3/OS-3-74	--	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-3/OS-3-74	--	2 80E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-80													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-3/OS-3-84	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+02	No	2 60E+03	OS - UAA-3/OS-3-84	No	1 00E+02	Yes	No	</=BKG
Chloroethane	75-00-3	ug/L	1 1 1	100	6 90E-01	No	NA	OS - UAA-3/OS-3 84	--	4 60E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	6 70E+01	No	NA	OS - UAA-3/OS-3 84	--	NA	--	No	No Dose-Response Value
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	5 60E+00	No	1 00E+01	OS - UAA-3/OS-3-84	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 20E+01	No	3 40E+02	OS - UAA-3/OS-3-84	No	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 00E+00	No	4 40E+00	OS - UAA-3/OS-3-84	No	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	2 40E+00	No	2 80E+01	OS - UAA-3/OS-3-84	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	5 50E+01	No	9 40E+02	OS - UAA-3/OS-3-84	No	2 80E+01	Yes	No	</=BKG
Anthracene	120-12-7	ug/L	1 1 1	100	6 20E-01	No	NA	OS - UAA-3/OS-3-84	--	2 10E+03	No	No	</=Screening Level
Benzo(b)fluoranthene	205-99-2	ug/L	1 1 1	100	3 70E+00	No	NA	OS - UAA-3/OS-3-84	--	1 80E-01	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-84	--	2 10E+02	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	ug/L	1 1 1	100	8 40E-01	No	NA	OS - UAA-3/OS-3-84	--	1 70E-01	Yes	Yes	>Screening Level
Benzyl Butyl Phthalate	85-68-7	ug/L	1 1 1	100	6 60E-01	No	NA	OS - UAA-3/OS-3-84	--	1 40E+03	No	No	</=Screening Level
Chrysene	218-01-9	ug/L	1 1 1	100	5 80E-01	No	NA	OS - UAA-3/OS-3-84	--	1 50E+00	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-3/OS-3-84	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	8 80E-01	No	NA	OS - UAA-3/OS-3-84	--	4 30E-01	Yes	Yes	>Screening Level
N-Nitroso-di-n-propylamine	621-64-7	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3 84	--	1 80E+00	No	No	</=Screening Level
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	1 70E-01	No	NA	OS - UAA-3/OS-3-84	--	2 00E-01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	2 60E-02	No	NA	OS - UAA-3/OS-3 84	--	2 00E-01	No	No	</=Screening Level
Heptachlor	76-44-8	ug/L	1 1 1	100	1 60E-02	No	NA	OS - UAA 3/OS-3-84	--	4 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 1 1	100	1 90E-01	No	NA	OS - UAA-3/OS-3-84	--	3 60E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	5 80E+03	No	NA	OS - UAA-3/OS 3-84	--	3 60E+04	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Arsenic	7440-38-2	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-3/OS-3-84	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 30E+02	No	NA	OS - UAA-3/OS-3-84	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 90E-01	No	NA	OS - UAA-3/OS-3-84	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 40E+05	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	4 80E+01	No	NA	OS - UAA-3/OS-3-84	-	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	5 10E+00	No	NA	OS UAA-3/OS-3-84	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	3 50E+01	No	NA	OS - UAA-3/OS-3-84	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	4 90E+04	Yes	NA	OS - UAA-3/OS-3-84	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-84	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	5 00E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	3 00E+03	No	NA	OS - UAA-3/OS-3-84	--	1 50E+02	Yes	Yes	>Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	2 10E-01	No	NA	OS - UAA-3/OS-3-84	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	5 70E+01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 30E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	4 90E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-3/OS-3-84	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 60E+02	No	NA	OS - UAA-3/OS-3-84	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-1-90													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 90E+00	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 40E+00	No	1 10E+02	OS - UAA-3/OS-3-94	No	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 20E+02	No	4 20E+03	OS - UAA-3/OS-3-94	No	1 00E+02	Yes	No	</=BKG
Chloroethane	75-00-3	ug/L	1 1 1	100	8 40E-01	No	NA	OS - UAA-3/OS-3-94	--	4 60E+00	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 20E+01	No	2 00E+03	OS - UAA-3/OS-3-94	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95 57-8	ug/L	1 1 1	100	3 70E+00	No	1 90E+01	OS - UAA-3/OS-3-94	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 10E+02	No	1 60E+03	OS - UAA-3/OS-3-94	No	2 80E+01	Yes	No	</=BKG

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-100													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 30E-01	No	NA	OS - UAA-3/OS-3-104	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 . 1 1	100	5 40E-01	No	NA	OS - UAA-3/OS-3-104	--	7 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 20E-01	No	NA	OS - UAA-3/OS-3-104	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 10E+01	No	4 20E+03	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 · 1	100	2 40E+00	No	5 00E+01	OS - UAA-3/OS-3-104	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	5 30E+00	No	4 40E+03	OS - UAA-3/OS-3-104	No	7 50E+01	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	1 10E+00	No	1 56E+01	OS - UAA-3/OS-3-104	No	1 00E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	4 90E+00	No	1 04E+02	OS - UAA-3/OS 3-104	No	2 10E+01	No	No	</=Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	4 62E-07	No	NA	OS - UAA-3/OS-3-104	--	3 00E-05	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-110													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	2 60E-01	No	8 60E+00	OS - UAA-3/OS-3-114	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-3/OS-3-114	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 65E+00	No	1 14E+03	OS - UAA-3/OS-3-114	No	1 00E+02	No	No	</=Screening Level
Chloroform	67-66-3	ug/L	1 1 1	100	2 45E-01	No	NA	OS - UAA-3/OS-3-114	--	8 00E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	4 30E-01	No	NA	OS - UAA-3/OS-3-114	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	8 55E-01	No	NA	OS - UAA-3/OS-3-114	--	2 00E+00	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 50E+00	No	3 60E+03	OS - UAA-3/OS 3-114	No	7 50E+01	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	6 70E 01	No	NA	OS - UAA-3/OS 3-114	--	2 10E+02	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-120													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	6 90E-01	No	NA	OS - UAA-3/OS-3-116	--	7 00E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 90E-01	No	3 60E+00	OS - UAA-3/OS-3-116	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3 116	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 70E+00	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	7 70E+00	No	2 80E+01	OS - UAA-3/OS-3-116	No	NA	--	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	7 50E-01	No	NA	OS - UAA-3/OS-3-116	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 30E+00	No	3 20E+01	OS UAA-3/OS-3-116	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 90E+00	No	3 00E+03	OS - UAA-3/OS-3-116	No	7 50E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	4 00E+04	No	2 40E+03	OS - UAA-3/OS-3-116	Yes	3 60E+04	Yes	Yes	>Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 40E+01	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 10E+03	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-3/OS-3-116	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	7 70E-01	No	4 00E+00	OS - UAA-3/OS-3-116	No	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 60E+05	Yes	6 80E+05	OS UAA-3/OS 3 116	No	NA		No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 00E+02	No	7 60E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	8 70E+01	No	3 00E+00	OS - UAA-3/OS-3-116	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	2 30E+02	No	5 00E+01	OS - UAA-3/OS-3-116	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 30E+05	Yes	1 22E+05	OS - UAA-3/OS-3-116	Yes	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 60E+02	No	NA	OS - UAA-3/OS-3-116	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	1 10E+05	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	6 20E+03	No	2 40E+03	OS - UAA-3/OS-3-116	Yes	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	1 90E+02	No	2 20E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 70E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Selenium	7782-49-2	ug/L	1 1 1	100	7 70E+00	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Sodium	7440-23-5	ug/L	1 1 1	100	3 40E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 40E+02	No	NA	OS - UAA-3/OS-3-116	--	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 20E+02	No	4 60E+02	OS - UAA-3/OS-3-116	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-130													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	3 60E-01	No	NA	OS - UAA-3/OS-3-116	--	7 00E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	3 50E-01	No	3 60E+00	OS - UAA-3/OS-3-116	No	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	9 30E+00	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	8 70E-01	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-130B													
VOCs													
Methane	74-82-8	ug/L	1 1 . 1	100	1 20E+01	No	2 80E+01	OS - UAA-3/OS-3-116	No	NA	--	No	</=BKG
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	7 60E+02	No	2 40E+03	OS - UAA-3/OS-3-116	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	4 10E+02	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 00E+05	Yes	6 80E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	6 30E+00	No	7 60E+01	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 40E+00	No	3 00E+00	OS - UAA-3/OS-3-116	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	6 20E+00	No	5 00E+01	OS - UAA-3/OS-3-116	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 50E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	5 50E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	4 10E+02	No	2 40E+03	OS - UAA-3/OS-3-116	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	5 00E+00	No	2 20E+01	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	8 60E+03	Yes	2 20E+04	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	3 50E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	5 10E+00	No	NA	OS - UAA-3/OS-3-116	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 20E+01	No	4 60E+02	OS - UAA-3/OS-3-116	No	5 00E+03	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-60													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-64	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	4 60E-01	No	2 60E+00	OS - UAA-3/OS-3-64	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 10E+01	No	6 20E+01	OS - UAA-3/OS-3-64	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 07E+01	No	3 40E+02	OS - UAA-3/OS 3 64	No	NA	--	No	</=BKG
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 30E+00	No	NA	OS - UAA-3/OS-3-64	--	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	4 30E+01	No	NA	OS - UAA-3/OS-3-64	-	2 10E+01	Yes	Yes	>Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	7 80E+00	No	NA	OS - UAA-3/OS-3-64	--	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-3/OS-3-64	--	1 40E+02	No	No	</=Screening Level
Phenol	108 95-2	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-3/OS-3-64	-	1 00E+02	No	No	</=Screening Level
Dioxin													
2,3,7,8-TCDD-TEQ	1746-01-6	ug/L	1 1 1	100	2 00E-08	No	NA	OS - UAA-3/OS-3-64	--	3 00E 05	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 70E+04	No	5 00E+02	OS - UAA-3/OS-3-64	Yes	3 60E+04	Yes	Yes	>Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	4 80E+01	No	NA	OS - UAA-3/OS-3-64	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 30E+03	No	2 00E+02	OS - UAA-3/OS-3-64	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	3 00E+00	No	NA	OS UAA 3/OS 3 64		4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-64	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	4 50E+05	Yes	4 40E+05	OS - UAA-3/OS-3-64	Yes	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 30E+02	No	1 64E+01	OS - UAA-3/OS-3-64	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	4 60E+01	No	1 08E+01	OS - UAA-3/OS-3 64	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	5 50E+01	No	NA	OS - UAA-3/OS-3-64	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 20E+05	Yes	1 96E+04	OS - UAA-3/OS-3-64	Yes	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 20E+01	No	NA	OS - UAA-3/OS-3-64	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	1 20E+05	Yes	1 26E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	7 40E+03	No	8 20E+03	OS - UAA-3/OS-3-64	No	1 50E+02	Yes	No	</=BKG
Mercury	7439-97-6	ug/L	1 1 1	100	2 80E-01	No	NA	OS - UAA-3/OS-3-64	--	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Nickel	7440-02-0	ug/L	1 1 1	100	1 20E+02	No	2 60E+01	OS - UAA-3/ DS-3 64	Yes	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 00E+04	Yes	1 00E+05	OS - UAA-3/ DS-3-64	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	8 20E+04	Yes	1 76E+05	OS - UAA-3/ DS-3-64	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-3/ DS-3-64	--	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	2 30E+02	No	9 00E+01	OS - UAA-3/ DS-3-64	Yes	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-70													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 90E-01	No	7 00E+00	OS - UAA-3/OS-3-74	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+01	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 40E-01	No	6 00E 01	OS - UAA-3/OS-3-74	No	1 00E+03	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	4 60E+00	No	NA	OS - UAA-3/OS-3-74	--	7 50E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	7 80E+00	No	NA	OS - UAA-3/OS-3-74	--	2 10E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-80													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	9 20E-01	No	NA	OS - UAA-3/OS-3-84	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	3 50E-01	No	NA	OS - UAA-3/OS-3-84	--	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 60E+01	No	2 60E+03	OS - UAA-3/OS-3-84	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	3 30E+01	No	NA	OS - UAA-3/OS-3-84	--	NA	--	No	No Dose-Response Value
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	6 80E+00	No	3 40E+02	OS - UAA-3/OS-3-84	No	7 50E+01	No	No	</=Screening Level
2 4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	1 90E+01	No	NA	OS - UAA-3/OS-3 84	--	1 00E+01	Yes	Yes	>Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	4 60E+01	No	4 40E+00	OS - UAA-3/OS-3-84	Yes	2 10E+01	Yes	Yes	>Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	5 00E+00	No	2 80E+01	OS - UAA-3/OS-3 84	No	3 50E+01	No	No	</=Screening Level
Herbicide													
Dichlorprop	120-36-5	ug/L	1 1 1	100	5 60E-01	No	NA	OS - UAA-3/OS-3-84	--	2 92E+02	No	No	</=Screening Level
MCPA	94-74-6	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-3/OS-3 84	--	1 80E+01	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	3 13E-01	No	NA	OS - UAA-3/OS 3-84		5 00E 01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	8 60E+02	No	NA	OS - UAA-3/OS 3-84	--	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	3 10E+02	No	NA	OS - UAA-3/OS-3-84	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 10E+05	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	5 90E+01	No	NA	OS - UAA-3/OS-3 84	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS 3-84	--	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	4 30E+04	Yes	NA	OS - UAA-3/OS-3-84	-	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-3/OS-3-84	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	5 10E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	3 30E+03	No	NA	OS - UAA-3/OS-3-84		1 50E+02	Yes	Yes	>Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	4 80E-01	No	NA	OS - UAA-3/OS-3-84	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	3 70E+01	No	NA	OS - UAA 3/OS 3 84		1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 10E+04	Yes	NA	OS - UAA-3/OS 3 84		NA		No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Sodium	7440-23-5	ug/L	1 : 1 : 1	100	5.10E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 : 1 . 1	100	2 60E+00	No	NA	OS - UAA-3/OS-3-84	--	4.90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	6 10E+01	No	NA	OS - UAA-3/OS-3-84	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-2-90													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	6 50E-01	No	NA	OS - UAA-3/OS-3-94	--	7 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	7 30E-01	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 50E+01	No	4 20E+03	OS - UAA-3/OS-3-94	No	1 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	5 40E-01	No	NA	OS - UAA-3/OS-3-94	--	1 00E+03	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 60E+00	No	3 40E+01	OS - UAA-3/OS-3-94	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	6 20E+00	No	2 00E+03	OS - UAA-3/OS-3-94	No	7 50E+01	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS 3-94	--	1 00E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	5 60E+00	No	1 88E+01	OS - UAA-3/OS-3-94	No	2 10E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	3 90E+00	No	1 60E+03	OS - UAA-3/OS-3-94	No	2 80E+01	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	5 20E+00	No	NA	OS - UAA-3/OS-3-94	--	1 00E+02	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-100													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 50E+00	No	4 20E+03	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 40E+00	No	4 40E+03	OS - UAA-3/OS-3-104	No	7 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-110													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 60E+00	No	1 14E+03	OS - UAA-3/OS-3-114	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-120													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 40E-01	No	NA	OS - UAA-3/OS-3-116	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 20E+00	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 00E 01	No	NA	OS - UAA-3/OS-3-116	--	1 50E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	6 30E+01	No	2 80E+01	OS - UAA 3/OS-3-116	Yes	NA		No	No Dose-Response Value
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 50E+00	No	3 00E+03	OS - UAA-3/OS 3-116	No	7 50E+01	No	No	</=Screening Level
Herbicide													
2,4-D	94-75-7	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA 3/OS 3-116		7 00E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	8 30E+03	No	2 40E+03	OS - UAA-3/OS 3-116	Yes	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	7 30E+00	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	4 10E+02	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	4 10E-01	No	NA	OS - UAA-3/OS-3 116	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 80E+05	Yes	6 80E+05	OS - UAA-3/OS 3 116	No	NA		No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 20E+02	No	7 60E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	7 00E+00	No	3 00E+00	OS - UAA-3/OS-3-116	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 00E+02	No	5 00E+01	OS - UAA-3/OS-3-116	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	6 40E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	9 30E+00	No	NA	OS - UAA-3/OS-3-116	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 60E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	9 40E+02	No	2 40E+03	OS - UAA-3/OS 3-116	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	4 80E+01	No	2 20E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 10E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 20E+04	Yes	1 22E+05	OS - UAA-3/OS 3-116	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-3/OS-3-116	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 50E+02	No	4 60E+02	OS - UAA-3/OS 3-116	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-50													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	3 80E-01	No	2 80E+00	OS - UAA-3/OS-3-54	No	7 00E+01	No	No	<=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 60E-01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	<=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 70E+02	No	3 20E+02	OS - UAA-3/OS-3-54	No	1 00E+02	Yes	No	<=BKG
Methane	74-82-8	ug/L	1 1 1	100	6 70E+02	No	NA	OS - UAA-3/OS-3-54	--	NA	--	No	No Dose Response Value
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	2 70E+00	No	NA	OS - UAA-3/OS-3-54	--	7 50E+01	No	No	<=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-3/OS-3-54	--	1 00E+01	No	No	<=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	6 80E+00	No	NA	OS - UAA-3/OS-3-54	--	2 10E+01	No	No	<=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 10E+00	No	NA	OS - UAA-3/OS-3-54	--	3 50E+01	No	No	<=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 50E+00	No	NA	OS - UAA-3/OS-3-54	--	1 40E+02	No	No	<=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-3/OS-3-54	--	1 00E+02	No	No	<=Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	5 40E-03	No	NA	OS - UAA-3/OS-3-54	--	1 10E-01	No	No	<=Screening Level
beta-BHC	319-85-7	ug/L	1 1 1	100	6 00E-02	No	NA	OS - UAA-3/OS-3-54	--	2 00E-01	No	No	<=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 30E+04	No	NA	OS - UAA-3/OS-3-54	--	3 60E+04	No	No	<=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	5 40E+01	No	NA	OS - UAA-3/OS-3-54	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 90E+02	No	NA	OS - UAA-3/OS-3-54	--	2 00E+03	No	No	<=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-3/OS-3-54	--	4 00E+00	No	No	<=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 40E+05	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	9 80E+01	No	NA	OS - UAA-3/OS-3-54	--	1 00E+02	No	No	<=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-3/OS-3-54	--	1 00E+03	No	No	<=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-3/OS-3-54	--	6 50E+02	No	No	<=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	8 30E+04	Yes	NA	OS - UAA-3/OS-3-54	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	2 80E+01	No	NA	OS - UAA-3/OS-3-54	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	5 60E+04	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	3 80E+03	No	NA	OS - UAA-3/OS-3-54	--	1 50E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Mercury	7439-97-6	ug/L	1 1 1	100	8 50E-02	No	NA	OS - UAA-3/OS-3-54	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	8 70E+01	No	NA	OS - UAA-3/OS-3-54	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 50E+04	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 30E+05	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	4 60E+01	No	NA	OS - UAA-3/OS-3-54	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 50E+02	No	NA	OS - UAA-3/OS-3-54	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-60													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 10E+01	No	6 20E+01	OS - UAA-3/OS-3 64	No	1 00E+02	No	No	<=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-3/OS-3-64	--	7 50E+01	No	No	<=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	6 00E+00	No	NA	OS - UAA-3/OS-3-64	--	1 00E+01	No	No	<=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 90E+01	No	NA	OS - UAA-3/OS-3 64	--	2 10E+01	No	No	<=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	3 60E+00	No	NA	OS - UAA-3/OS 3-64	--	3 50E+01	No	No	<=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	5 80E+00	No	NA	OS - UAA-3/OS-3-64	--	2 80E+01	No	No	<=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-70													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	4 40E-01	No	NA	OS - UAA-3/OS-3-74	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 40E+00	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 60E 01	No	6 00E-01	OS - UAA-3/OS-3-74	No	1 00E+03	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 60E+00	No	NA	OS - UAA-3/OS-3-74	--	7 50E+01	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-74	--	1 00E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	3 80E+00	No	NA	OS - UAA-3/OS-3-74	--	2 10E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	4 10E+00	No	NA	OS - UAA-3/OS-3-74	--	2 80E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-80													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 25E+01	No	2 60E+03	OS - UAA-3/OS-3-84	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	3 35E+01	No	NA	OS - UAA-3/OS-3-84	--	NA	--	No	No Dose-Response Value
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 20E+00	No	1 00E+01	OS - UAA-3/OS-3-84	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 35E+00	No	3 40E+02	OS - UAA-3/OS-3-84	No	7 50E+01	No	No	</=Screening Level
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	1 75E+00	No	NA	OS - UAA-3/OS-3-84	--	1 00E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	5 30E+00	No	4 40E+00	OS - UAA-3/OS-3-84	Yes	2 10E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	5 75E+00	No	9 40E+02	OS - UAA-3/OS 3-84	No	2 80E+01	No	No	</=Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	6 80E-01	No	NA	OS - UAA-3/OS-3-84	--	2 10E+02	No	No	</=Screening Level
Pesticide													
Endrin Ketone	53494-70-5	ug/L	1 1 1	100	1 95E-02	No	NA	OS - UAA-3/OS-3-84	--	2 00E+00	No	No	</=Screening Level
Herbicide													
2,4-D	94-75-7	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-3/OS-3 84	--	7 00E+01	No	No	</=Screening Level
MCPP	93-65-2	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-84	--	3 60E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	1 80E-01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+00	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	4 60E+03	No	NA	OS - UAA-3/OS-3-84	--	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	4 75E+02	No	NA	OS - UAA-3/OS 3-84	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 50E-01	No	NA	OS - UAA-3/OS-3-84	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 60E+05	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 00E+01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+02	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-84	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 10E+04	Yes	NA	OS - UAA-3/OS-3-84	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	2 65E+00	No	NA	OS - UAA-3/OS-3-84	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 50E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 10E+03	No	NA	OS - UAA-3/OS-3 84	--	1 50E+02	Yes	Yes	>Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	3 15E-01	No	NA	OS - UAA-3/OS-3 84	--	2 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Nickel	7440-02-0	ug/L	1 1 1	100	1 80E+01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	9 80E+03	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 10E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-84	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	6 30E+01	No	NA	OS - UAA-3/OS-3-84	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-3-90													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 00E-01	No	NA	OS - UAA-3/ OS-3-94	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 30E+00	No	4 20E+03	OS - UAA-3/ OS-3-94	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 10E 01	No	NA	OS - UAA-3/ OS-3-94	--	1 50E+00	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 70E+00	No	2 00E+03	OS - UAA-3/ OS-3-94	No	7 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-4-100													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	1 80E-01	No	4 80E+01	OS - UAA-3/OS-3-104	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	2 35E+00	No	NA	OS - UAA-3/OS-3-104	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	6 95E+00	No	4 20E+03	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-4-110													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 30E-01	No	NA	OS - UAA-3/OS-3-114	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+00	No	1 14E+03	OS - UAA-3/OS-3-114	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 90E+01	No	NA	OS - UAA-3/OS-3-114	--	NA	--	No	No Dose-Response Value
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	9 30E-03	No	NA	OS - UAA-3/OS-3-114	--	2 00E-01	No	No	</=Screening Level
Heptachlor	76-44-8	ug/L	1 1 1	100	4 30E-03	No	NA	OS - UAA-3/OS-3-114	--	4 00E-01	No	No	</=Screening Level
Herbicide													
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	4 90E-01	No	NA	OS - UAA-3/OS-3-114	--	1 00E+00	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	9 30E+04	No	NA	OS - UAA-3/OS-3-114	--	3 60E+04	Yes	Yes	>Screening Level
Antimony	7440-36-0	ug/L	1 1 1	100	6 10E+00	No	NA	OS - UAA-3/OS-3-114	--	6 00E+00	Yes	Yes	>Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	4 70E+01	No	NA	OS - UAA-3/OS-3-114	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 30E+03	No	NA	OS - UAA-3/OS-3-114	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	4 80E+00	No	NA	OS - UAA-3/OS-3-114	--	4 00E+00	Yes	Yes	>Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-114	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 60E+05	Yes	NA	OS - UAA-3/OS-3-114	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 80E+02	No	NA	OS - UAA-3/OS-3-114	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	8 70E+01	No	NA	OS - UAA-3/OS-3-114	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 50E+02	No	NA	OS - UAA-3/OS-3-114	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 90E+05	Yes	NA	OS - UAA-3/OS-3-114	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-3/OS-3-114	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	8 50E+04	Yes	NA	OS - UAA-3/OS-3-114	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 40E+04	No	NA	OS - UAA-3/OS-3-114	--	1 50E+02	Yes	Yes	>Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	8 40E-02	No	NA	OS - UAA-3/OS-3-114	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	2 00E+02	No	NA	OS - UAA-3/OS-3-114	-	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 60E+04	Yes	NA	OS - UAA-3/OS-3-114	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 00E+04	Yes	NA	OS - UAA-3/OS-3-114	-	NA	-	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Vanadium	7440-62-2	ug/L	1 1 1	100	3 00E+02	No	NA	OS - UAA-3/OS-3-114	--	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 70E+02	No	NA	OS - UAA-3/OS-3-114	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-4-50													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 90E+01	No	3 20E+02	OS - UAA-3/OS-3-54	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 50E+02	No	NA	OS - UAA-3/OS-3 54	--	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	3 60E 01	No	NA	OS - UAA-3/OS 3-54	--	1 00E+03	No	No	</=Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	7 60E+00	No	NA	OS - UAA-3/OS-3-54	--	3 50E+01	No	No	</=Screening Level
bis(2-Chloroethyl)ether	111-44-4	ug/L	1 1 1	100	3 80E+00	No	NA	OS - UAA-3/OS-3-54	--	1 00E+01	No	No	</=Screening Level
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	1 60E-01	No	NA	OS - UAA-3/OS-3-54	--	2 00E-01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	8 50E+03	No	NA	OS - UAA-3/OS-3-54	-	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	5 00E+01	No	NA	OS - UAA-3/OS-3-54	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 10E+03	No	NA	OS - UAA-3/OS-3-54	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	5 30E-01	No	NA	OS - UAA-3/OS-3-54	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 70E+05	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 30E+02	No	NA	OS - UAA-3/OS-3-54	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-54	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-3/OS-3-54	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	8 10E+04	Yes	NA	OS - UAA-3/OS-3-54	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 20E+01	No	NA	OS - UAA-3/OS-3-54	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 80E+04	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 60E+03	No	NA	OS - UAA-3/OS-3-54	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	6 90E+01	No	NA	OS - UAA-3/OS-3-54	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 10E+04	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 30E+05	Yes	NA	OS - UAA-3/OS-3-54	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 50E+01	No	NA	OS - UAA-3/OS-3-54	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	8 80E+01	No	NA	OS - UAA-3/OS-3-54	--	5 00E+03	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-4-60													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	6 50E-01	No	7 00E-01	OS - UAA-3/OS-3-64	No	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	9 80E+00	No	6 20E+01	OS - UAA-3/OS-3-64	No	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	8 20E-01	No	NA	OS - UAA-3/OS-3-64	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 40E-01	No	NA	OS - UAA-3/OS-3-64	--	1 00E+03	No	No	</=Screening Level
SVOCs													
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-3/OS-3-64	--	2 10E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-4-70													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 20E-01	No	NA	OS - UAA-3/OS-3-74	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 60E+00	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 80E-01	No	6 00E-01	OS - UAA-3/OS-3-74	No	1 00E+03	No	No	</=Screening Level
SVOCs													
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	2 00E+00	No	NA	OS - UAA-3/OS-3-74	--	2 10E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-4-80													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	3 80E-01	No	1 26E+02	OS - UAA-3/OS-3-84	No	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 50E+01	No	2 60E+03	OS - UAA-3/OS-3-84	No	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	9 00E-01	No	NA	OS UAA 3/OS 3 84		7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	6 90E+02	No	NA	OS - UAA-3/OS-3-84	--	NA		No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	3 20E-01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+03	No	No	</=Screening Level
SVOCs													
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	2 10E+00	No	4 40E+00	OS - UAA-3/OS-3-84	No	2 10E+01	No	No	</=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	8 70E-01	No	NA	OS - UAA-3/OS-3-84	--	6 00E+00	No	No	</=Screening Level
Pesticide													
beta BHC	319-85-7	ug/L	1 1 1	100	2 70E 02	No	NA	OS - UAA-3/OS-3 84		2 00E 01	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	ug/L	1 1 1	100	5 60E-03	No	NA	OS - UAA 3/OS 3 84	--	2 00E 01	No	No	</=Screening Level
Herbicide													
2,4-D	94-75-7	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-84	--	7 00E+01	No	No	</=Screening Level
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	4 10E-01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+00	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	5 30E+03	No	NA	OS - UAA-3/OS-3-84	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-3/OS-3-84		5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	8 20E+02	No	NA	OS - UAA-3/OS-3 84	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	3 60E-01	No	NA	OS - UAA-3/OS-3-84	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 70E+05	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	5 50E+01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	6 20E+00	No	NA	OS - UAA-3/OS-3-84	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 80E+01	No	NA	OS UAA 3/OS 3 84	-	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 90E+04	Yes	NA	OS - UAA-3/OS-3-84	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	9 90E+00	No	NA	OS UAA 3/OS 3 84	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 10E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	-	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 40E+03	No	NA	OS - UAA-3/OS-3-84	--	1 50E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Mercury	7439-97-6	ug/L	1 1 1	100	1 80E-01	No	NA	OS - UAA-3/OS-3-84	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	3 90E+01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	9 40E+03	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	3 90E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-3/OS-3-84	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-3/OS-3-84	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-4-90													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 : 1	100	1 80E+00	No	NA	OS - UAA-3/OS-3-94	--	1.90E+03	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 : 1 1	100	5 20E+01	No	4 20E+03	OS - UAA-3/OS-3-94	No	1 00E+02	No	No	</=Screening Level
SVOCs													
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	2 40E+00	No	1 88E+01	OS - UAA-3/OS-3-94	No	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 80E+00	No	1 90E+01	OS - UAA-3/OS-3-94	No	3 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-5-106													
VOCs													
Methane	74-82-8	ug/L	1 1 1	100	9 00E+02	No	3 40E+02	OS - UAA-3/OS-3-104	Yes	NA	--	No	No Dose-Response Value
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 10E+03	No	6 20E+03	OS - UAA-3/OS-3-104	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 30E+00	No	NA	OS - UAA-3/OS-3-104	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 00E+02	No	2 00E+03	OS - UAA-3/OS-3-104	No	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 20E-01	No	NA	OS - UAA-3/OS-3-104	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 30E+05	Yes	5 20E+05	OS - UAA-3/OS-3-104	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 30E+01	No	1 48E+02	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 40E+00	No	6 60E+00	OS - UAA-3/OS-3-104	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	8 40E+00	No	1 10E+02	OS - UAA-3/OS-3-104	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 10E+04	Yes	5 00E+04	OS - UAA-3/OS-3-104	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 10E+00	No	6 20E+00	OS - UAA-3/OS-3-104	No	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	3 80E+04	Yes	1 48E+05	OS - UAA-3/OS-3-104	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 20E+03	No	2 20E+03	OS - UAA-3/OS-3-104	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 10E+01	No	5 40E+01	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	9 50E+03	Yes	2 40E+04	OS - UAA-3/OS-3-104	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 70E+04	Yes	1 60E+05	OS - UAA-3/OS-3-104	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	6 60E+00	No	NA	OS - UAA-3/OS-3-104	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	8 30E+00	No	7 20E+02	OS - UAA-3/OS-3 104	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-5-45													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	1 50E+01	No	7 20E+00	OS - UAA-3/OS-3-44	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 60E+02	No	3 20E+02	OS - UAA-3/OS-3-44	Yes	1 00E+02	Yes	Yes	>Screening Level
Methane	74-82-8	ug/L	1 1 1	100	7 00E+02	No	NA	OS - UAA-3/OS-3-44	--	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-44	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	6 80E+00	No	NA	OS - UAA-3/OS-3-44	--	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-44	--	3 50E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	4 70E+00	No	NA	OS - UAA-3/OS-3-44	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	9 10E+01	No	NA	OS - UAA-3/OS-3-44	--	2 80E+01	Yes	Yes	>Screening Level
bis(2-Chloroethyl)ether	111-44-4	ug/L	1 1 1	100	2 90E+00	No	NA	OS - UAA-3/OS-3-44	--	1 00E+01	No	No	</=Screening Level
Diethyl Phthalate	84-66-2	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-44	--	5 60E+03	No	No	</=Screening Level
N-Nitrosodiphenylamine	86-30-6	ug/L	1 . 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3-44	--	3 20E+00	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-3/OS-3-44	--	1 00E+02	No	No	</=Screening Level
Pesticide													
Aldrin	309-00-2	ug/L	1 1 1	100	6 80E-03	No	NA	OS - UAA-3/OS-3-44	--	1 40E+01	No	No	</=Screening Level
alpha-BHC	319-84-6	ug/L	1 1 1	100	1 20E-02	No	NA	OS - UAA-3/OS 3-44	--	1 10E-01	No	No	</=Screening Level
beta-BHC	319 85-7	ug/L	1 1 1	100	9 60E 02	No	NA	OS UAA-3/OS-3-44	--	2 00E-01	No	No	</=Screening Level
Herbicide													
MCPA	94-74-6	ug/L	1 1 1	100	2 70E+01	No	NA	OS - UAA-3/OS-3-44	--	1 80E+01	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 : 1 1	100	7 10E+03	No	NA	OS - UAA-3/OS-3-44	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	7 60E+01	No	NA	OS - UAA-3/OS-3-44	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	9 00E+02	No	NA	OS - UAA-3/OS-3-44	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	3 80E-01	No	NA	OS - UAA-3/OS-3-44	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-3/OS-3-44	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 80E+05	Yes	NA	OS - UAA-3/OS 3-44	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	5 80E+01	No	NA	OS - UAA-3/OS-3-44	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Cobalt	7440-48-4	ug/L	1 1 1	100	9 90E+00	No	NA	OS - UAA-3/ OS-3-44	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-3/OS-3-44	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	7 30E+04	Yes	NA	OS - UAA-3/OS-3-44	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 70E+01	No	NA	OS - UAA-3/OS-3-44	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 40E+04	Yes	NA	OS - UAA-3/ OS 3-44	--	NA	-	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 40E+03	No	NA	OS - UAA-3/ OS 3-44	--	1 50E+02	Yes	Yes	>Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	1 90E-01	No	NA	OS - UAA-3/ OS-3-44	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	4 90E+01	No	NA	OS - UAA-3/ OS 3-44	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 60E+04	Yes	NA	OS - UAA-3/ OS-3-44	-	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	8 00E+04	Yes	NA	OS - UAA-3/OS-3-44	--	NA	-	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 80E+01	No	NA	OS - UAA-3/OS-3-44	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 00E+03	No	NA	OS - UAA-3/OS-3-44	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-5-55													
VOCs													
Acetone	67-64-1	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 · 1	100	1 01E+00	No	2 40E+00	OS - UAA-3/OS-3-54	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 · 1	100	7 45E-01	No	NA	OS - UAA-3/OS-3-54	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 40E+02	No	3 20E+02	OS - UAA-3/OS-3-54	No	1 00E+02	Yes	No	</=BKG
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 65E+00	No	NA	OS - UAA 3/OS-3-54	--	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 55E+00	No	NA	OS - UAA-3/OS-3-54	--	3 50E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-3/OS-3-54	--	3 50E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-5-65													
VOCs													
4-Methyl 2 pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	8 60E-01	No	NA	OS - UAA-3/OS-3-64	--	1 60E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	2 60E+01	No	2 80E-01	OS - UAA-3/OS-3-64	Yes	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	7 50E-01	No	7 00E-01	OS - UAA-3/OS-3-64	Yes	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 80E+01	No	6 20E+01	OS - UAA-3/OS-3 64	No	1 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-3/OS-3-64	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-3/OS-3-64	--	1 00E+04	No	No	</=Screening Level
SVOCs													
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	1 20E+01	No	NA	OS - UAA-3/OS-3-64	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	5 00E+02	No	NA	OS - UAA-3/OS-3-64	--	2 80E+01	Yes	Yes	>Screening Level
Diethyl Phthalate	84-66-2	ug/L	1 1 1	100	2 40E+00	No	NA	OS - UAA-3/OS-3-64	--	5 60E+03	No	No	</=Screening Level
N-Nitrosodiphenylamine	86-30-6	ug/L	1 1 1	100	3 30E+00	No	NA	OS - UAA-3/OS-3 64	-	3 20E+00	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-3/OS-3-64	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-5-75													
VOCs													
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 37E+00	No	NA	OS - UAA-3/OS-3-74	--	1 60E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	2 45E+00	No	1 48E+01	OS - UAA-3/OS-3-74	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	6 10E-01	No	NA	OS UAA-3/OS-3-74	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 10E+00	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level
Methyl N-Butyl Ketone	591-78-6	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-3/OS-3-74	--	1 60E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	1 15E+00	No	6 00E-01	OS - UAA-3/OS-3-74	Yes	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-3/OS-3-74	--	1 00E+04	No	No	</=Screening Level
SVOCs													
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	9 50E+00	No	NA	OS - UAA-3/OS-3-74	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 40E+02	No	NA	OS - UAA-3/OS-3-74	--	2 80E+01	Yes	Yes	>Screening Level
N-Nitrosodiphenylamine	86-30-6	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS-3-74	--	3 20E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-5-85													
VOCs													
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	1 1 1	100	3 70E-01	No	NA	OS - UAA-3/OS-3-84	--	5 50E-02	Yes	Yes	>Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-3/OS-3-84	--	1 60E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 50E+01	No	1 26E+02	OS - UAA-3/OS-3-84	No	5 00E+00	Yes	No	</=BKG
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 80E-01	No	NA	OS - UAA-3/OS-3-84	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 60E+01	No	2 60E+03	OS - UAA-3/OS-3-84	No	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS-3-84	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	4 00E+03	No	NA	OS - UAA-3/OS-3-84	--	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-84	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	6 60E+00	No	NA	OS - UAA-3/OS-3-84	--	1 00E+04	No	No	</=Screening Level
SVOCs													
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	7 00E+00	No	NA	OS - UAA-3/OS-3-84	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	3 80E+02	No	9 40E+02	OS - UAA-3/OS-3-84	No	2 80E+01	Yes	No	</=BKG
N-Nitrosodiphenylamine	86-30-6	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3-84	--	3 20E+00	No	No	</=Screening Level
Pesticide													
Aldrin	309-00-2	ug/L	1 1 1	100	1 20E-02	No	NA	OS - UAA-3/OS-3-84	--	1 40E+01	No	No	</=Screening Level
beta-BHC	319-85-7	ug/L	1 1 1	100	2 80E-02	No	NA	OS - UAA-3/OS-3-84	--	2 00E-01	No	No	</=Screening Level
Herbicide													
MCPA	94-74-6	ug/L	1 1 1	100	3 30E+01	No	NA	OS - UAA-3/OS-3-84	--	1 80E+01	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 90E+04	No	NA	OS - UAA-3/OS-3-84	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	1 80E+01	No	NA	OS - UAA-3/OS-3-84	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 20E+03	No	NA	OS - UAA-3/OS-3-84	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-84	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	6 20E-01	No	NA	OS - UAA-3/OS-3-84	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 10E+05	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-3/OS-3-84	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 30E+01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Copper	7440-50-8	ug/L	1 1 1	100	2 00E+01	No	NA	OS - UAA-3/OS-3-84	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	9 70E+04	Yes	NA	OS - UAA-3/OS-3-84	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 00E+01	No	NA	OS - UAA-3/OS-3-84	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	5 90E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 60E+03	No	NA	OS - UAA-3/OS-3-84	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	9 90E+01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 90E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	3 60E+04	Yes	NA	OS - UAA-3/OS-3-84	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	6 10E+01	No	NA	OS - UAA-3/OS-3-84	--	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	2 00E+02	No	NA	OS - UAA-3/OS-3-84	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-5-95													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	9 40E+00	No	NA	OS - UAA-3/OS-3-94	--	1 90E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-3/OS-3-94	--	1 60E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	2 20E+01	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	3 90E+00	No	1 10E+02	OS - UAA-3/OS-3-94	No	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 30E+01	No	4 20E+03	OS - UAA-3/OS-3-94	No	1 00E+02	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS-3-94	--	5 00E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
Methyl N-Butyl Ketone	591-78-6	ug/L	1 1 1	100	3 80E-01	No	NA	OS - UAA-3/OS-3-94	--	1 60E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	6 90E+00	No	NA	OS - UAA-3/OS-3-94	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	9 00E+00	No	NA	OS - UAA-3/OS-3-94	--	1 00E+04	No	No	</=Screening Level
SVOCs													
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	5 20E+01	No	NA	OS - UAA-3/OS-3-94	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	8 20E+01	No	1 60E+03	OS - UAA-3/OS-3-94	No	2 80E+01	Yes	No	</=BKG
Diethyl Phthalate	84-66-2	ug/L	1 1 1	100	2 40E+00	No	3 40E+01	OS - UAA-3/OS-3-94	No	5 60E+03	No	No	</=Screening Level
N Nitrosodiphenylamine	86-30 6	ug/L	1 1 1	100	4 10E+00	No	NA	OS - UAA-3/OS-3-94	--	3 20E+00	Yes	Yes	>Screening Level
Phenol	108 95 2	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-3/OS-3-94	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-104													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-4/OS-4-100	--	1 90E+03	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-4/OS-4-100	--	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 30E-01	No	NA	OS - UAA-4/OS-4-100	--	7 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-4/OS-4 100	--	7 00E+02	No	No	</=Screening Level
Methane	74 82-8	ug/L	1 1 1	100	2 40E+02	No	2 60E+01	OS - UAA-4/OS-4-100	Yes	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	6 60E-01	No	NA	OS - UAA-4/OS-4-100	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	9 00E-01	No	NA	OS - UAA-4/OS-4-100	-	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-4/OS-4-100	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	7 00E+00	No	NA	OS - UAA-4/OS-4-100	-	1 00E+02	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 70E+03	No	4 20E+03	OS - UAA-4/OS-4-100	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 00E+00	No	9 80E+00	OS - UAA-4/OS-4-100	No	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 90E+02	No	6 80E+02	OS - UAA-4/OS-4-100	No	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	4 80E-01	No	NA	OS - UAA-4/OS-4-100	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 60E+05	Yes	3 00E+05	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 80E+01	No	3 80E+01	OS - UAA-4/OS-4-100	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 90E+00	No	3 80E+00	OS - UAA-4/OS-4-100	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	8 60E+00	No	1 36E+01	OS - UAA-4/OS-4-100	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 00E+04	Yes	4 00E+04	OS - UAA-4/OS-4-100	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	4 70E+00	No	6 80E+00	OS - UAA-4/OS-4-100	No	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 30E+04	Yes	7 80E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 20E+03	No	1 54E+03	OS - UAA-4/OS-4-100	Yes	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	7 80E+00	No	1 80E+01	OS - UAA-4/OS-4-100	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 20E+04	Yes	1 24E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 40E+04	Yes	3 60E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	8 00E+00	No	1 34E+01	OS - UAA-4/OS-4-100	No	4 90E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Zinc	7440-66-6	ug/L	1 1 1	100	2 10E+01	No	4 60E+01	OS - UAA-4/OS-4-100	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-110													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-4/OS-4-110	--	1 90E+03	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	3 90E+01	No	NA	OS UAA-4/OS-4-110	--	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15 0	ug/L	1 1 1	100	3 80E-01	No	6 40E 01	OS - UAA-4/OS-4-110	No	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 50E 01	No	NA	OS - UAA-4/OS-4-110	--	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 10E+00	No	1 84E+00	OS - UAA-4/OS-4-110	No	7 00E+02	No	No	</=Screening Level
Methane	74-82 8	ug/L	1 1 1	100	9 00E+02	No	NA	OS - UAA-4/OS-4-110	--	NA	--	No	No Dose Response Value
Toluene	108 88-3	ug/L	1 1 1	100	4 80E-01	No	7 20E-01	OS - UAA-4/OS-4-110	No	1 00E+03	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	2 00E+00	No	NA	OS - UAA-4/OS-4-110	-	1 40E+02	No	No	</=Screening Level
Phenol	108 95-2	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-4/OS-4-110	--	1 00E+02	No	No	</=Screening Level
Herbicide													
2,4 D	94-75-7	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-4/OS-4-110	--	7 00E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 30E+04	No	NA	OS - UAA-4/OS-4-110	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	6 60E+00	No	NA	OS - UAA-4/OS-4-110	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	5 70E+02	No	NA	OS - UAA-4/OS-4-110	-	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-4/OS-4-110	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 10E+05	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-4/OS-4-110	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	5 00E+00	No	NA	OS - UAA-4/OS-4-110	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	2 80E+01	No	NA	OS - UAA-4/OS-4-110	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	7 80E+04	Yes	NA	OS - UAA-4/OS-4-110	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	9 50E+00	No	NA	OS - UAA-4/OS-4-110	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	8 60E+04	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	4 90E+03	No	NA	OS - UAA-4/OS-4-110	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-4/OS-4-110	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 50E+04	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Sodium	7440-23-5	ug/L	1 1 1	100	5 20E+04	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 30E+01	No	NA	OS - UAA-4/OS-4-110	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	5 10E+01	No	NA	OS - UAA-4/OS-4-110	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-34													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	1 20E+04	No	NA	OS - UAA-4/OS-4-30	--	5 00E+00	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 20E+04	No	NA	OS - UAA-4/OS-4-30	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88 3	ug/L	1 1 1	100	5 05E+01	No	NA	OS - UAA-4/OS-4-30	--	1 00E+03	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	5 05E+01	No	NA	OS - UAA-4/OS-4-30	--	1 00E+03	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	1 45E+02	No	NA	OS - UAA-4/OS-4-30	--	1 40E+02	Yes	Yes	>Screening Level
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	1 45E+02	No	NA	OS - UAA-4/OS-4-30	--	1 40E+02	Yes	Yes	>Screening Level
4,6-Dinitro-2-methylphenol	534-52-1	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-4/OS-4-30	--	NA	--	No	Screening Level NA
4 6-Dinitro-2-methylphenol	534-52-1	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-4/OS-4-30	--	NA	--	No	Screening Level NA
Acenaphthene	83-32-9	ug/L	1 1 1	100	2 55E+00	No	NA	OS - UAA-4/OS-4-30	--	4 20E+02	No	No	</=Screening Level
Acenaphthene	83-32-9	ug/L	1 1 1	100	2 55E+00	No	NA	OS - UAA-4/OS-4-30	--	4 20E+02	No	No	</=Screening Level
Carbazole	86-74-8	ug/L	1 1 1	100	4 70E+00	No	NA	OS - UAA-4/OS-4-30	--	3 40E+00	Yes	Yes	>Screening Level
Carbazole	86-74-8	ug/L	1 1 1	100	4 70E+00	No	NA	OS - UAA-4/OS-4-30	--	3 40E+00	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 20E+02	No	NA	OS - UAA-4/OS-4-30	--	1 00E+02	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 20E+02	No	NA	OS - UAA-4/OS-4-30	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-44													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	5 20E+02	No	NA	OS - UAA-4/ OS-4-40	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	4 70E+00	No	NA	OS - UAA-4/ OS-4-40	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-4/ OS-4-40	--	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	1 60E+01	No	NA	OS UAA-4/ OS-4-40	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	4 60E+01	No	NA	OS - UAA-4/ OS-4-40	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-54													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-4/OS-4-50	--	1 90E+03	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 10E+03	No	NA	OS - UAA-4/OS-4-50	--	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-4/OS-4-50	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-4/OS-4-50	--	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	2 30E+00	No	1 78E+00	OS - UAA-4/OS-4-50	Yes	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 80E+00	No	9 00E-01	OS - UAA-4/OS-4-50	Yes	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	4 00E+00	No	4 00E+00	OS - UAA-4/OS-4-50	No	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	7 90E+00	No	NA	OS - UAA-4/OS-4-50	--	1 40E+02	No	No	</=Screening Level
Phenol	108 95-2	ug/L	1 1 1	100	3 80E+01	No	NA	OS - UAA-4/OS-4-50	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-64													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-4/OS-4-60	--	1 90E+03	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-4/OS-4-60	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	7 20E+01	No	NA	OS - UAA-4/OS-4-60	--	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-4/OS-4-60	--	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	4 20E+00	No	NA	OS - UAA-4/OS-4-60	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	5 40E+03	No	8 80E+02	OS - UAA-4/OS-4-60	Yes	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	8 80E-01	No	7 20E-01	OS - UAA-4/OS-4-60	Yes	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	3 80E+00	No	NA	OS - UAA-4/OS-4-60	--	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	3 20E+01	No	NA	OS - UAA-4/OS-4-60	--	1 40E+02	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-4/OS-4-60	--	1 40E+02	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/L	1 1 1	100	5 00E+00	No	NA	OS - UAA-4/OS-4-60	--	2 10E+03	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	4 00E+00	No	NA	OS - UAA-4/OS-4-60	--	1 00E+02	No	No	</=Screening Level
Pesticide													
Aldrin	309-00-2	ug/L	1 1 1	100	1 40E-02	No	NA	OS - UAA-4/OS-4-60	--	1 40E+01	No	No	</=Screening Level
alpha-BHC	319-84-6	ug/L	1 1 1	100	3 30E-02	No	NA	OS - UAA-4/OS-4-60	--	1 10E-01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	7 30E-03	No	NA	OS - UAA-4/OS-4-60	--	2 00E-01	No	No	</=Screening Level
Heptachlor	76-44-8	ug/L	1 1 1	100	1 50E-02	No	NA	OS - UAA-4/OS-4-60	--	4 00E-01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	5 00E+03	No	1 38E+03	OS - UAA-4/OS-4-60	Yes	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	6 10E+00	No	NA	OS - UAA-4/OS-4-60	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 00E+03	No	1 14E+03	OS - UAA-4/OS-4 60	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 00E+05	Yes	2 60E+05	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	3 30E+01	No	1 56E+01	OS - UAA-4/OS-4-60	Yes	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 90E+00	No	NA	OS - UAA-4/OS-4-60	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-4/OS-4-60	-	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 80E+04	Yes	4 20E+04	OS - UAA-4/OS-4-60	No	5 00E+03	Yes	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Lead	7439-92-1	ug/L	1 1 1	100	8 40E+00	No	NA	OS - UAA-4/OS-4-60	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 50E+04	Yes	7 80E+04	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 80E+03	No	3 80E+03	OS - UAA-4/OS-4-60	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 40E+01	No	2 60E+01	OS - UAA-4/OS-4-60	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 70E+04	Yes	1 40E+04	OS - UAA-4/OS-4-60	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 80E+04	Yes	2 80E+04	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 10E+01	No	2 40E+00	OS - UAA-4/OS-4-60	Yes	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-4/OS-4-60	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-74													
VOCs													
Acetone	67-64-1	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-4/ OS-4-70	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	5 60E+01	No	NA	OS - UAA-4/ OS-4-70	--	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15 0	ug/L	1 1 1	100	5 70E-01	No	NA	OS - UAA-4/OS-4-70	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-4/OS-4-70	--	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 60E+00	No	NA	OS - UAA-4/OS-4-70	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	6 90E-01	No	NA	OS - UAA-4/OS-4-70	--	1 00E+03	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-4/OS-4-70	--	1 40E+02	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-4/OS-4-70	--	1 40E+02	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/L	1 1 1	100	2 40E+00	No	NA	OS - UAA-4/OS-4-70	--	2 10E+03	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	3 40E+00	No	NA	OS - UAA-4/OS-4-70	--	1 00E+02	No	No	</=Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-84													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	5 80E+02	No	NA	OS - UAA-4/OS-4-80	--	5 00E+00	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-4/OS-4-80	--	1 50E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	9 10E+00	No	NA	OS - UAA-4/OS-4-80	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88 3	ug/L	1 1 1	100	9 40E+00	No	NA	OS - UAA-4/OS-4-80	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-4/OS-4-80	--	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	2 00E+01	No	NA	OS - UAA-4/OS-4-80	-	1 40E+02	No	No	</=Screening Level
Carbazole	86-74-8	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-4/OS-4-80	--	3 40E+00	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-4/OS-4-80	--	1 40E+02	No	No	</=Screening Level
Phenol	108 95-2	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-4/OS-4-80	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-6-94													
VOCs													
1,1-Dichloroethylene	75-35-4	ug/L	1 1 1	100	3 70E-01	No	NA	OS - UAA-4/OS-4-90	--	7 00E+00	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	3 70E-01	No	NA	OS - UAA-4/OS-4-90	--	7 00E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	3 10E+00	No	NA	OS - UAA-4/OS-4-90	--	1 90E+03	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	8 40E+01	No	NA	OS - UAA-4/OS-4-90	--	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	6 70E-01	No	1 00E+00	OS - UAA-4/OS-4-90	No	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 80E-01	No	NA	OS - UAA-4/OS-4-90	--	1 00E+02	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-4/OS-4-90	--	5 00E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-4/OS-4-90	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-4/OS-4-90	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	7 60E-01	No	NA	OS - UAA-4/OS-4-90	--	5 00E+00	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	2 80E+00	No	NA	OS - UAA-4/OS-4-90	--	1 00E+04	No	No	</=Screening Level
SVOCs													
2-Methylnaphthalene	91-57-6	ug/L	1 1 1	100	2 00E+00	No	NA	OS - UAA-4/OS-4-90	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	3 20E+00	No	NA	OS - UAA-4/OS-4-90	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-104													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	3 30E-01	No	NA	OS - UAA-4/OS-4-100	--	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 70E+00	No	NA	OS - UAA-4/OS-4-100	--	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	5 00E-01	No	7 60E-01	OS - UAA-4/OS-4-100	No	1 50E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	9 25E-01	No	NA	OS - UAA-4/OS-4-100	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	5 65E+02	No	2 60E+01	OS - UAA-4/OS-4-100	Yes	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	3 50E-01	No	NA	OS - UAA-4/OS-4-100	--	1 00E+03	No	No	</=Screening Level
SVOCs													
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	6 30E 01	No	NA	OS - UAA-4/OS-4-100	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	6 70E-01	No	NA	OS - UAA-4/OS-4-100	-	4 30E-01	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	4 00E-02	No	7 60E-02	OS - UAA-4/OS-4-100	No	5 00E-01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 65E+02	No	4 20E+03	OS - UAA-4/OS-4-100	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	9 65E+00	No	9 80E+00	OS - UAA-4/OS-4-100	No	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 30E+02	No	6 80E+02	OS - UAA-4/OS-4-100	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 45E+05	Yes	3 00E+05	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	7 80E+00	No	3 80E+01	OS UAA-4/OS-4-100	No	1 00E+02	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	3 05E+00	No	1 36E+01	OS - UAA-4/OS-4-100	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 50E+04	Yes	4 00E+04	OS - UAA-4/OS-4-100	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	3 35E+04	Yes	7 80E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 25E+03	No	1 54E+03	OS - UAA-4/OS-4-100	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	5 35E+00	No	1 80E+01	OS - UAA-4/OS-4-100	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 00E+04	Yes	1 24E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 50E+04	Yes	3 60E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 55E+00	No	1 34E+01	OS - UAA-4/OS-4-100	No	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 50E+01	No	4 60E+01	OS - UAA-4/OS 4-100	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-34													
VOCs													
1,1,1-Trichloroethane	71-55-6	ug/L	1 1 1	100	4 70E-01	No	NA	OS - UAA-4/OS-4-30	--	2 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	4 20E-01	No	NA	OS - UAA-4/OS-4-30	--	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 70E+02	No	NA	OS - UAA-4/OS-4-30	--	1 00E+02	Yes	Yes	>Screening Level
Chloroethane	75-00-3	ug/L	1 1 1	100	3 10E+00	No	NA	OS - UAA-4/OS-4-30	--	4 60E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-4/OS-4-30	--	7 00E+02	No	No	</=Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	3 60E+00	No	NA	OS - UAA-4/OS-4-30	--	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-4/OS-4-30	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-44													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	3 80E-01	No	NA	OS - UAA-4/OS-4-40	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-4/OS-4-40	--	1 00E+02	No	No	</=Screening Level
Chloroethane	75-00-3	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-4/OS-4-40	--	4 60E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 00E+00	No	2 40E+00	OS - UAA-4/OS-4-40	No	5 00E+00	No	No	</=Screening Level
SVOCs													
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-4/OS-4-40	--	2 10E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-54													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 40E-01	No	NA	OS - UAA-4/OS-4-50	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	3 10E-01	No	NA	OS - UAA-4/OS-4-50	--	7 00E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	5 40E-01	No	NA	OS - UAA-4/OS-4-50	--	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 20E+00	No	NA	OS - UAA-4/OS-4-50	--	1 00E+02	No	No	</=Screening Level
Chloroethane	75-00-3	ug/L	1 1 1	100	3 40E-01	No	NA	OS - UAA-4/OS-4-50	--	4 60E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-4/OS-4-50	--	5 00E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	9 20E-01	No	1 78E+00	OS - UAA-4/OS-4-50	No	7 00E+02	No	No	</=Screening Level
Toluene	108 88-3	ug/L	1 1 1	100	3 00E-01	No	9 00E 01	OS - UAA-4/OS-4 50	No	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	5 40E-01	No	4 00E+00	OS - UAA-4/OS-4-50	No	1 00E+04	No	No	</=Screening Level
SVOCs													
2,4,6-Trichlorophenol	88-06-2	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-4/OS-4-50	--	1 00E+01	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-4/OS-4-50	--	2 10E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-64													
VOCs													
Benzene	71-43-2	ug/L	1 1 1	100	2 20E-01	No	NA	OS - UAA-4/OS-4-60	--	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 00E+01	No	NA	OS - UAA-4/OS-4-60	--	1 00E+02	No	No	</=Screening Level
Chloroethane	75-00-3	ug/L	1 1 1	100	3 50E 01	No	NA	OS UAA-4/OS-4 60	-	4 60E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	8 50E-01	No	NA	OS - UAA-4/OS-4-60	-	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 90E+03	No	8 80E+02	OS - UAA-4/OS-4-60	Yes	NA	--	No	No Dose-Response Value
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	2 00E+00	No	NA	OS - UAA-4/OS-4-60	--	1 00E+04	No	No	</=Screening Level
Pesticide													
Heptachlor	76-44-8	ug/L	1 1 1	100	7 80E-03	No	NA	OS - UAA-4/OS-4-60	--	4 00E-01	No	No	</=Screening Level
Herbicide													
2,4-D	94-75-7	ug/L	1 1 1	100	4 80E-01	No	NA	OS - UAA-4/OS-4-60	--	7 00E+01	No	No	</=Screening Level
Metals													
Arsenic	7440-38-2	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-4/OS-4-60	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	7 50E+02	No	1 14E+03	OS - UAA-4/OS-4-60	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 60E+05	Yes	2 60E+05	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Iron	7439-89-6	ug/L	1 1 1	100	2 50E+04	Yes	4 20E+04	OS - UAA-4/OS-4-60	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	3 20E+04	Yes	7 80E+04	OS - UAA-4/OS 4-60	No	NA	--	No	EN
Manganese	7439 96-5	ug/L	1 1 1	100	1 60E+03	No	3 80E+03	OS - UAA-4/OS-4-60	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	4 90E+00	No	2 60E+01	OS - UAA-4/OS-4-60	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 00E+04	Yes	1 40E+04	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 50E+04	Yes	2 80E+04	OS - UAA-4/OS-4-60	No	NA	--	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-74													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-4/OS-4-70	--	1 00E+02	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-4/OS-4-70	--	5 00E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	6 70E-01	No	NA	OS - UAA-4/OS-4-70	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 70E-01	No	NA	OS - UAA-4/OS-4-70	--	1 00E+03	No	No	</=Screening Level
SVOCs													
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-4/OS-4-70	--	2 10E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-84													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 30E+01	No	NA	OS - UAA-4/OS-4-80	--	1 00E+02	No	No	</=Screening Level
Chloroethane	75-00-3	ug/L	1 1 1	100	8 20E-01	No	NA	OS - UAA-4/OS-4-80	--	4 60E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-4/OS-4 80	--	5 00E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	9 50E-01	No	NA	OS - UAA-4/OS-4-80	--	7 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-7-94													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 70E+00	No	NA	OS - UAA-4/OS-4-90	--	1 00E+02	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 · 1 · 1	100	8 90E-01	No	NA	OS - UAA-4/OS-4-90	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 00E-01	No	NA	OS - UAA-4/OS-4-90	--	1 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-8-104													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	3 50E-01	No	NA	OS - UAA-4/OS-4-100	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 40E-01	No	NA	OS - UAA-4/OS-4-100	--	7 00E+01	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	2 40E-01	No	7 60E-01	OS - UAA 4/OS-4-100	No	1 50E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 00E+02	No	2 60E+01	OS - UAA-4/OS-4-100	Yes	NA	-	No	No Dose Response Value
Metals													
Barium	7440-39-3	ug/L	1 1 1	100	2 40E+02	No	6 80E+02	OS - UAA-4/OS-4 100	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 30E+05	Yes	3 00E+05	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Copper	7440-50-8	ug/L	1 1 1	100	2 70E+00	No	1 36E+01	OS - UAA-4/OS-4-100	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 00E+04	Yes	4 00E+04	OS - UAA-4/OS-4-100	No	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	3 10E+04	Yes	7 80E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	6 40E+02	No	1 54E+03	OS - UAA-4/OS-4-100	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	6 40E+00	No	1 80E+01	OS - UAA-4/OS-4-100	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	5 80E+03	Yes	1 24E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 70E+04	Yes	3 60E+04	OS - UAA-4/OS-4-100	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 40E+00	No	1 34E+01	OS - UAA-4/OS-4-100	No	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 50E+01	No	4 60E+01	OS - UAA-4/OS-4 100	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-8-111													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 30E-01	No	NA	OS - UAA-4/OS-4-110	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 70E+00	No	NA	OS - UAA-4/OS-4-110	--	7 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	4 20E-01	No	6 40E 01	OS - UAA-4/OS-4-110	No	7 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	2 20E-01	No	1 18E+00	OS - UAA-4/OS-4-110	No	1 50E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	4 70E+01	No	NA	OS - UAA-4/OS-4-110	--	NA	--	No	No Dose-Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-4/OS-4-110	--	2 00E+00	No	No	</=Screening Level
SVOCs													
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	8 10E-01	No	NA	OS - UAA-4/OS-4-110	--	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	6 40E-01	No	NA	OS - UAA-4/OS-4-110	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	9 40E-01	No	NA	OS - UAA-4/OS-4-110	--	4 30E-01	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	3 00E+03	No	NA	OS - UAA-4/OS-4-110	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	6 50E+00	No	NA	OS - UAA-4/OS-4-110	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	3 90E+02	No	NA	OS - UAA-4/OS-4-110	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	2 50E-01	No	NA	OS - UAA-4/OS-4-110	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 30E+05	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-4/OS-4-110	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	4 40E+00	No	NA	OS - UAA-4/OS-4-110	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	2 60E+01	No	NA	OS - UAA-4/OS-4-110	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	4 20E+04	Yes	NA	OS - UAA-4/OS-4-110	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	4 50E+00	No	NA	OS - UAA-4/OS-4-110	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	3 30E+04	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 30E+03	No	NA	OS - UAA-4/OS-4-110	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-4/OS-4-110	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 20E+04	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 60E+04	Yes	NA	OS - UAA-4/OS-4-110	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	6 70E+00	No	NA	OS - UAA-4/OS 4-110	-	4 90E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Zinc	7440-66-6	ug/L	1 : 1 : 1	100	3.20E+01	No	NA	OS - UAA-4/OS-4-110	--	5.00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-8-34													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	6 15E-01	No	NA	OS - UAA-4/OS-4-30	--	7 00E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 10E-01	No	NA	OS - UAA-4/OS-4-30	--	5 00E+00	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	6 20E-01	No	NA	OS - UAA-4/OS-4-30	--	1 00E+02	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	2 20E-01	No	NA	OS - UAA-4/OS-4-30	--	5 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - ~~AA-Q-8-44~~													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 . 1 1	100	5 20E-01	No	NA	OS - UAA-4/OS-4-40	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-4/OS-4-40	--	7 00E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	2 90E-01	No	NA	OS - UAA-4/OS-4-40	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75 01-4	ug/L	1 1 1	100	3 80E+00	No	NA	OS - UAA-4/OS-4-40	--	2 00E+00	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-8-54													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 70E-01	No	NA	OS - UAA-4/OS-4-50	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-4/OS-4-50	--	7 00E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	2 40E-01	No	NA	OS - UAA-4/OS-4-50	--	5 00E+00	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	8 80E-01	No	NA	OS - UAA-4/OS-4-50	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 80E-01	No	9 00E-01	OS - UAA-4/OS-4-50	No	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	1 80E-01	No	NA	OS - UAA-4/OS-4-50	--	5 00E+00	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 60E+00	No	NA	OS - UAA-4/OS-4-50	--	2 00E+00	Yes	Yes	>Screening Level
SVOCs													
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	8 40E-01	No	NA	OS - UAA-4/OS-4-50	--	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	6 40E-01	No	NA	OS - UAA-4/OS-4-50	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	7 70E-01	No	NA	OS - UAA-4/OS-4-50	--	4 30E-01	Yes	Yes	>Screening Level

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-8-64													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 40E+00	No	NA	OS - UAA-4/OS-4-60	--	7 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	3 60E-01	No	NA	OS UAA-4/OS-4-60	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	5 50E+00	No	8 80E+02	OS - UAA-4/OS-4 60	No	NA	--	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	9 80E-01	No	NA	OS - UAA-4/OS-4-60	--	2 00E+00	No	No	</=Screening Level
SVOCs													
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	7 70E-01	No	NA	OS - UAA-4/OS-4-60	--	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	5 80E-01	No	NA	OS - UAA-4/OS-4-60	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	6 80E-01	No	NA	OS - UAA-4/OS-4-60	--	4 30E-01	Yes	Yes	>Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	4 60E+02	No	1 38E+03	OS - UAA-4/OS-4-60	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-4/OS-4-60	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	4 20E+02	No	1 14E+03	OS - UAA-4/OS-4-60	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 10E+05	Yes	2 60E+05	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 00E+01	No	1 56E+01	OS - UAA-4/OS-4-60	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-4/OS-4-60	--	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 50E+04	Yes	4 20E+04	OS - UAA-4/OS-4-60	No	5 00E+03	Yes	No	EN
Lead	7439 92-1	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-4/OS-4-60	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	3 00E+04	Yes	7 80E+04	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 30E+03	No	3 80E+03	OS - UAA-4/OS-4-60	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	8 10E+00	No	2 60E+01	OS - UAA-4/OS-4-60	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	7 90E+03	Yes	1 40E+04	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 80E+04	Yes	2 80E+04	OS - UAA-4/OS-4-60	No	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-4/OS-4-60	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-8-74													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 20E-01	No	NA	OS - UAA-4/OS-4-70	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-4/OS-4-70	--	7 00E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - ~~AA-Q-8-84~~													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 : 1 · 1	100	3.20E-01	No	NA	OS - UAA-4/OS-4-80	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 : 1 · 1	100	1.40E+00	No	NA	OS - UAA-4/OS-4-80	--	7 00E+01	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	4 10E-01	No	NA	OS - UAA-4/OS-4-80	--	5 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - AA-Q-8-94													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 : 1 : 1	100	4.30E-01	No	NA	OS - UAA-4/OS-4-90	--	7.00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 : 1 : 1	100	1.10E+00	No	NA	OS - UAA-4/OS-4-90	--	7.00E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - BDRK-Q-1-163													
VOCs													
Chloroform	67-66-3	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-116	--	8 00E+01	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	5 80E+00	No	2 80E+01	OS - UAA-3/OS-3-116	No	NA	--	No	</=BKG
Methyl N-Butyl Ketone	591-78-6	ug/L	1 1 1	100	6 00E 01	No	NA	OS - UAA-3/OS-3-116	--	1 60E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	7 30E 01	No	NA	OS - UAA-3/OS-3-116	--	1 00E+03	No	No	</=Screening Level
SVOCs													
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	1 00E+00	No	1 38E+00	OS - UAA-3/OS-3-116	No	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	6 40E-01	No	NA	OS - UAA-3/OS-3-116	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	7 20E-01	No	NA	OS - UAA-3/OS-3-116	--	4 30E-01	Yes	Yes	>Screening Level
Metals													
Aluminum	7429 90-5	ug/L	1 1 1	100	4 00E+04	No	2 40E+03	OS - UAA-3/OS 3-116	Yes	3 60E+04	Yes	Yes	>Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	6 40E+01	No	NA	OS - UAA-3/OS-3 116	--	5 00E+01	Yes	Yes	>Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	5 80E+02	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-3/OS-3-116	--	4 00E+00	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	3 20E+00	No	4 00E+00	OS - UAA-3/OS 3-116	No	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 50E+06	Yes	6 80E+05	OS - UAA-3/OS 3-116	Yes	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	8 80E+01	No	7 60E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 80E+01	No	3 00E+00	OS - UAA-3/OS-3-116	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	5 80E+01	No	5 00E+01	OS - UAA-3/OS-3-116	Yes	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	5 10E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	2 70E+01	No	NA	OS - UAA-3/OS-3-116	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	7 80E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	5 30E+02	No	2 40E+03	OS - UAA-3/OS-3-116	No	1 50E+02	Yes	No	</=BKG
Mercury	7439-97-6	ug/L	1 1 1	100	2 40E-01	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	1 30E+02	No	2 20E+01	OS - UAA-3/OS 3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 60E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN
Selenium	7782-49-2	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Sodium	7440-23-5	ug/L	1 1 1	100	1 30E+05	Yes	1 22E+05	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Vanadium	7440-62-2	ug/L	1 : 1 : 1	100	1 00E+02	No	NA	OS - UAA-3/OS-3-116	--	4.90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 : 1 : 1	100	1 70E+02	No	4 60E+02	OS - UAA-3/OS-3-116	No	5.00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Q - BDRK-Q-2-143													
VOCs													
Methane	74-82-8	ug/L	1 1 1	100	1 30E+01	No	2 20E+01	OS - UAA-4/OS-4-113	No	NA	--	No	</=BKG
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 20E+02	No	1 66E+04	OS - UAA-4/OS-4-113	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 35E+02	No	1 00E+03	OS - UAA-4/OS-4-113	No	2 00E+03	No	No	</=Screening Level
Calcium	7440-70 2	ug/L	1 1 1	100	7 65E+04	Yes	3 20E+05	OS - UAA-4/OS-4-113	No	NA	--	No	EN
Copper	7440-50-8	ug/L	1 1 1	100	9 65E-01	No	1 88E+02	OS - UAA-4/OS-4-113	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	4 10E+02	Yes	1 72E+05	OS - UAA-4/OS-4-113	No	5 00E+03	No	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	4 25E+04	Yes	8 40E+04	OS - UAA-4/OS-4-113	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 20E+01	No	7 20E+03	OS - UAA-4/OS-4-113	No	1 50E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	4 40E+03	Yes	1 58E+04	OS - UAA-4/OS-4-113	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	5 55E+04	Yes	3 20E+04	OS - UAA-4/OS-4-113	Yes	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 05E+00	No	5 20E+01	OS - UAA-4/OS-4-113	No	4 90E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-108													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 . 1 1	100	1 10E+01	No	1 60E+01	OS - UAA-2/OS-2-110	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethane	107-06-2	ug/L	1 1 1	100	4 00E+01	No	NA	OS - UAA-2/OS-2-110	--	5 00E+00	Yes	Yes	>Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 80E+01	No	3 40E+01	OS - UAA-2/OS-2-110	Yes	7 00E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	2 60E+02	No	NA	OS - UAA-2/OS-2-110	--	1 90E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 00E+02	No	NA	OS - UAA-2/OS-2-110	--	1 60E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 · 1 1	100	1 20E+04	No	NA	OS - UAA-2/OS-2-110	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	2 40E+02	No	3 40E+01	OS - UAA-2/OS-2-110	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 60E+03	No	5 00E+03	OS - UAA-2/OS-2-110	No	1 00E+02	Yes	No	</=BKG
Chloroform	67-66-3	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-2/OS-2-110	--	8 00E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	2 30E+02	No	NA	OS - UAA-2/OS-2-110	--	7 00E+02	No	No	</=Screening Level
Tetrachloroethene	127-18-4	ug/L	1 1 1	100	8 80E+01	No	NA	OS - UAA-2/OS-2-110	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	6 40E+02	No	NA	OS - UAA-2/OS-2-110	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 40E+01	No	1 90E+01	OS - UAA-2/OS-2-110	Yes	2 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 50E+03	No	NA	OS - UAA-2/OS-2-110	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2,4-Trichlorobenzene	120-82-1	ug/L	1 1 1	100	4 10E+01	No	NA	OS - UAA-2/OS-2-110	--	7 00E+01	No	No	</=Screening Level
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 10E+03	No	3 20E+01	OS - UAA-2/OS-2-110	Yes	6 00E+02	Yes	Yes	>Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	1 1 1	100	2 80E+01	No	9 80E+01	OS - UAA-2/OS-2-110	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	2 10E+02	No	2 40E+03	OS - UAA-2/OS-2-110	No	7 50E+01	Yes	No	</=BKG
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	2 40E+02	No	3 20E+01	OS - UAA-2/OS-2-110	Yes	2 10E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 1 1	100	5 00E+01	No	2 80E+01	OS - UAA-2/OS-2-110	Yes	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	3 00E+02	No	6 40E+01	OS - UAA-2/OS-2-110	Yes	3 50E+01	Yes	Yes	>Screening Level
2-Methylphenol	95-48-7	ug/L	1 1 1	100	1 20E+01	No	NA	OS - UAA-2/OS-2-110	--	3 50E+02	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	4 20E+02	No	NA	OS - UAA-2/OS-2-110	--	3 50E+02	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 10E+04	No	1 94E+01	OS - UAA-2/OS-2-110	Yes	2 80E+01	Yes	Yes	>Screening Level
Diethyl Phthalate	84-66-2	ug/L	1 1 1	100	3 90E+01	No	NA	OS - UAA-2/OS-2-110	--	5 60E+03	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 10E+03	No	NA	OS - UAA-2/OS-2-110	--	1 40E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Phenol	108-95-2	ug/L	1 : 1 : 1	100	1.10E+04	No	NA	OS - UAA-2/OS-2-110	--	1.00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-118													
VOCs													
1,2 Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 30E+01	No	1 06E+01	OS - UAA-2/OS-2-120	Yes	7 00E+01	Yes	Yes	>Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	2 10E+02	No	NA	OS - UAA-2/OS-2-120	--	1 90E+03	No	No	</=Screening Level
4-Methyl 2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-2/OS-2-120	--	1 60E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	8 20E+03	No	NA	OS - UAA-2/OS 2-120	-	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	2 00E+02	No	NA	OS - UAA-2/OS-2-120	--	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 70E+03	No	1 52E+03	OS - UAA-2/OS-2-120	Yes	1 00E+02	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/L	1 1 1	100	6 80E+00	No	NA	OS - UAA-2/OS-2-120	--	8 00E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	4 00E+01	No	NA	OS - UAA-2/OS-2-120	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88 3	ug/L	1 1 1	100	2 30E+02	No	NA	OS - UAA-2/OS-2-120	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	3 10E+01	No	NA	OS - UAA-2/OS-2-120	--	2 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 20E+02	No	NA	OS - UAA-2/OS-2-120	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 60E+02	No	2 80E+01	OS - UAA-2/OS-2-120	Yes	6 00E+02	No	No	</=Screening Level
2 4-Dimethylphenol	105-67-9	ug/L	1 1 1	100	5 40E+01	No	2 40E+01	OS - UAA-2/OS-2-120	Yes	1 40E+02	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 40E+02	No	1 92E+01	OS - UAA-2/OS-2-120	Yes	3 50E+01	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	3 20E+02	No	NA	OS - UAA-2/OS-2-120	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 60E+04	No	5 60E+00	OS UAA-2/OS-2-120	Yes	2 80E+01	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	4 50E+03	No	NA	OS - UAA-2/OS-2-120	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-128													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 00E+01	No	1 54E+02	OS - UAA-2/OS-2-124	No	7 00E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	3 40E+01	No	NA	OS - UAA-2/OS-2-124	--	1 90E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 10E+01	No	NA	OS - UAA-2/OS 2-124	--	1 60E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	9 60E+02	No	NA	OS - UAA-2/OS-2-124	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 00E+02	No	4 80E+01	OS - UAA-2/OS-2-124	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 00E+03	No	4 00E+03	OS - UAA-2/OS-2-124	No	1 00E+02	Yes	No	</=BKG
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 30E+01	No	NA	OS - UAA-2/OS-2-124	--	7 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 . 1 1	100	4 00E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 50E+00	No	1 30E+01	OS - UAA-2/OS-2-124	No	2 00E+00	Yes	No	</=BKG
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	2 90E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 80E+01	No	1 48E+01	OS - UAA-2/OS-2-124	Yes	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 70E+01	No	8 20E+02	OS - UAA-2/OS-2-124	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	5 50E+01	No	4 00E+01	OS - UAA-2/OS 2-124	Yes	3 50E+01	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	7 40E+01	No	NA	OS - UAA-2/OS-2-124	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 00E+04	No	4 80E+00	OS - UAA-2/OS-2-124	Yes	2 80E+01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 80E+02	No	2 40E+01	OS UAA-2/OS 2-124	Yes	1 40E+02	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 10E+03	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-131													
VOCs													
Acetone	67-64-1	ug/L	1 1 1	100	3 10E+02	No	NA	OS - UAA-2/OS-2-124	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 20E+02	No	4 80E+01	OS - UAA-2/OS-2-124	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 90E+03	No	4 00E+03	OS - UAA-2/OS-2-124	No	1 00E+02	Yes	No	</=BKG
Ethylbenzene	100-41-4	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-2/OS-2-124	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 20E+03	No	2 00E+02	OS - UAA-2/OS-2-124	Yes	NA	--	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	1 30E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
SVOCs													
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 50E+04	No	4 80E+00	OS - UAA-2/OS-2-124	Yes	2 80E+01	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 30E+02	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	Yes	Yes	>Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	8 60E-02	No	NA	OS - UAA-2/OS-2-124	--	1 10E-01	No	No	</=Screening Level
beta-BHC	319-85-7	ug/L	1 . 1 1	100	8 80E-02	No	3 40E-01	OS - UAA-2/OS-2-124	No	2 00E-01	No	No	</=Screening Level
delta-BHC	319-86-8	ug/L	1 1 1	100	4 30E-02	No	NA	OS - UAA-2/OS-2-124	--	2 00E-01	No	No	</=Screening Level
Endosulfan Sulfate	1031-07-8	ug/L	1 1 1	100	1 60E-01	No	NA	OS - UAA-2/OS-2-124	--	4 20E+01	No	No	</=Screening Level
Endrin Ketone	53494-70-5	ug/L	1 1 1	100	1 20E-01	No	NA	OS - UAA-2/OS-2-124	--	2 00E+00	No	No	</=Screening Level
Heptachlor	76-44-8	ug/L	1 1 1	100	6 00E-02	No	NA	OS - UAA-2/OS-2-124	--	4 00E-01	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	ug/L	1 1 1	100	2 60E-02	No	NA	OS - UAA-2/OS-2-124	--	2 00E-01	No	No	</=Screening Level
Herbicide													
Dichlorprop	120-36-5	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-2/OS-2-124	--	2 92E+02	No	No	</=Screening Level
MCPP	93-65-2	ug/L	1 1 1	100	4 90E+01	No	1 74E+02	OS - UAA-2/OS-2-124	No	3 60E+01	Yes	No	</=BKG
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 40E+04	No	NA	OS - UAA-2/OS-2-124	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	2 80E+01	No	NA	OS - UAA-2/OS-2-124	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 80E+03	No	1 96E+02	OS - UAA-2/OS-2-124	Yes	2 00E+03	Yes	Yes	>Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-2/OS-2-124	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 50E+05	Yes	6 80E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 40E+02	No	NA	OS - UAA-2/OS 2-124	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Cobalt	7440-48-4	ug/L	1 1 1	100	3 60E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-2/OS-2-124	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	9 60E+04	Yes	7 40E+04	OS - UAA-2/OS-2-124	Yes	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 50E+01	No	NA	OS - UAA-2/OS-2-124	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	9 80E+04	Yes	1 00E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	3 00E+03	No	3 20E+03	OS - UAA-2/OS-2-124	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 00E+02	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 20E+04	Yes	2 20E+04	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	9 40E+04	Yes	7 40E+04	OS - UAA-2/OS-2-124	Yes	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	7 30E+01	No	2 40E+00	OS - UAA-2/OS-2-124	Yes	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 90E+02	No	8 40E+01	OS - UAA 2/OS 2-124	Yes	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-48													
VOCs													
1 2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 40E+02	No	1 86E+03	OS - UAA-2/OS-2-50	No	7 00E+01	Yes	No	</=BKG
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	1 80E+03	No	NA	OS - UAA-2/OS-2-50	--	1 90E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	8 90E+02	No	NA	OS - UAA-2/OS-2-50	--	1 60E+02	Yes	Yes	>Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	8 30E+04	No	NA	OS - UAA-2/OS-2-50	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 50E+03	No	2 40E+01	OS - UAA 2/OS 2-50	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 30E+04	No	1 04E+02	OS - UAA-2/OS-2-50	Yes	1 00E+02	Yes	Yes	>Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	1 40E+03	No	NA	OS - UAA-2/OS-2-50	--	7 00E+02	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 70E+03	No	NA	OS - UAA-2/OS-2-50	--	1 00E+03	Yes	Yes	>Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 60E+02	No	5 80E+01	OS - UAA-2/OS-2-50	Yes	2 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	6 60E+02	No	NA	OS - UAA-2/OS-2-50	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 40E+02	No	NA	OS - UAA-2/OS-2-50	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 30E+02	No	NA	OS - UAA-2/OS-2-50	--	7 50E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 1 1	100	2 80E+02	No	NA	OS - UAA-2/OS-2-50	--	1 40E+02	Yes	Yes	>Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 70E+03	No	NA	OS - UAA-2/OS-2-50	--	3 50E+01	Yes	Yes	>Screening Level
2-Methylphenol	95-48-7	ug/L	1 1 1	100	9 70E+01	No	NA	OS - UAA-2/OS-2-50	--	3 50E+02	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	2 90E+03	No	NA	OS - UAA-2/OS-2-50	--	3 50E+02	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	4 00E+04	No	NA	OS - UAA-2/OS 2-50	--	2 80E+01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	7 90E+03	No	NA	OS - UAA-2/OS-2-50	--	1 40E+02	Yes	Yes	>Screening Level
Phenol	108-95 2	ug/L	1 1 1	100	7 00E+04	No	NA	OS - UAA-2/OS-2-50	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-58													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 50E+02	No	1 78E+03	OS - UAA-2/OS-2-60	No	7 00E+01	Yes	No	</=BKG
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	5 50E+02	No	NA	OS - UAA-2/OS-2-60	--	1 90E+03	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	2 10E+04	No	NA	OS - UAA-2/OS-2-60	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	8 00E+02	No	3 00E+01	OS - UAA-2/OS-2-60	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	6 90E+03	No	1 58E+02	OS - UAA-2/OS-2-60	Yes	1 00E+02	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	2 90E+03	No	NA	OS - UAA-2/OS-2-60	--	1 00E+03	Yes	Yes	>Screening Level
Trichloroethylene	79 01-6	ug/L	1 1 1	100	8 30E+01	No	NA	OS - UAA-2/OS-2-60	--	5 00E+00	Yes	Yes	>Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 50E+02	No	6 40E+01	OS - UAA-2/OS-2-60	Yes	2 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	6 40E+02	No	NA	OS - UAA-2/OS-2-60	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 70E+02	No	NA	OS - UAA-2/OS-2-60	--	7 50E+01	Yes	Yes	>Screening Level
2,4-Dimethylphenol	105-67-9	ug/L	1 1 1	100	3 50E+02	No	NA	OS - UAA-2/OS-2-60	--	1 40E+02	Yes	Yes	>Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 70E+03	No	4 80E+00	OS - UAA-2/OS-2-60	Yes	3 50E+01	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	1 70E+03	No	NA	OS - UAA-2/OS-2-60	--	3 50E+02	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	4 60E+04	No	8 80E+00	OS - UAA-2/OS-2-60	Yes	2 80E+01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	5 40E+03	No	NA	OS - UAA-2/OS-2-60	--	1 40E+02	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 70E+04	No	NA	OS - UAA-2/OS-2-60	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-68													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 00E+02	No	2 80E+03	OS - UAA-2/OS 2-70	No	7 00E+01	Yes	No	</=BKG
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	6 70E+02	No	NA	OS - UAA-2/OS-2-70	--	1 90E+03	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	5 70E+02	No	NA	OS - UAA-2/OS-2-70	--	1 60E+02	Yes	Yes	>Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	2 50E+04	No	NA	OS - UAA-2/OS-2-70	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	8 30E+02	No	4 80E+01	OS - UAA-2/OS-2-70	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	7 50E+03	No	1 62E+02	OS - UAA-2/OS-2-70	Yes	1 00E+02	Yes	Yes	>Screening Level
Tetrachloroethene	127-18-4	ug/L	1 1 1	100	2 30E+01	No	NA	OS - UAA-2/OS-2-70	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 20E+03	No	NA	OS - UAA-2/OS-2-70	--	1 00E+03	Yes	Yes	>Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	3 10E+01	No	NA	OS - UAA-2/OS-2-70	--	5 00E+00	Yes	Yes	>Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 20E+02	No	9 20E+01	OS - UAA-2/OS-2-70	Yes	2 00E+00	Yes	Yes	>Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	7 70E+02	No	NA	OS - UAA-2/OS-2-70	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	2 50E+02	No	NA	OS - UAA-2/OS-2-70	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	4 10E+02	No	NA	OS - UAA-2/OS-2-70	--	7 50E+01	Yes	Yes	>Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	5 30E+02	No	3 20E+00	OS - UAA-2/OS-2-70	Yes	3 50E+01	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	2 10E+03	No	NA	OS - UAA-2/OS-2-70	--	3 50E+02	Yes	Yes	>Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	5 10E+04	No	7 40E+00	OS - UAA-2/OS-2-70	Yes	2 80E+01	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	2 10E+02	No	NA	OS - UAA-2/OS-2-70	--	2 10E+02	No	No	</=Screening Level
Chrysene	218-01-9	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-2/OS-2-70	--	1 50E+00	Yes	Yes	>Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	1 70E+02	No	NA	OS - UAA-2/OS-2-70	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	1 60E+02	No	NA	OS - UAA-2/OS-2-70	--	4 30E 01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	4 30E+03	No	NA	OS - UAA-2/OS-2-70	--	1 40E+02	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	2 60E+04	No	NA	OS - UAA-2/OS-2-70	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-78													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 90E+02	No	6 60E+02	OS - UAA-2/OS-2-80	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 80E+01	No	3 60E+03	OS - UAA-2/OS-2-80	No	7 00E+01	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	2 50E+03	No	NA	OS - UAA-2/OS-2-80	--	7 00E+02	Yes	Yes	>Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	4 50E+02	No	1 10E+02	OS - UAA-2/OS-2-80	Yes	5 00E+00	Yes	Yes	>Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	5 00E+01	No	NA	OS - UAA-2/OS-2-80	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 30E+03	No	1 24E+02	OS - UAA-2/OS-2-80	Yes	1 00E+02	Yes	Yes	>Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 30E+03	No	NA	OS - UAA-2/OS-2-80	--	NA	--	No	No Dose-Response Value
Tetrachloroethene	127-18-4	ug/L	1 1 1	100	2 60E+01	No	NA	OS - UAA-2/OS-2-80	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	5 90E+02	No	NA	OS - UAA-2/OS-2-80	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-2/OS-2-80	--	5 00E+00	Yes	Yes	>Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 30E+01	No	1 04E+02	OS - UAA-2/OS-2-80	No	2 00E+00	Yes	No	</=BKG
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	3 80E+02	No	NA	OS - UAA-2/OS-2-80	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 90E+02	No	NA	OS - UAA-2/OS 2-80	--	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 00E+02	No	NA	OS - UAA-2/OS-2-80	--	7 50E+01	Yes	Yes	>Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	2 00E+02	No	NA	OS - UAA-2/OS-2-80	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 50E+04	No	1 20E+01	OS - UAA-2/OS-2-80	Yes	2 80E+01	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	2 00E+02	No	NA	OS - UAA-2/OS-2-80	--	2 10E+02	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	1 80E+02	No	NA	OS - UAA-2/OS-2-80	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	1 50E+02	No	NA	OS - UAA-2/OS-2-80	--	4 30E-01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	4 10E+02	No	NA	OS - UAA-2/OS 2-80	--	1 40E+02	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 90E+03	No	NA	OS - UAA-2/OS-2-80	--	1 00E+02	Yes	Yes	>Screening Level
Pesticide													
alpha-BHC	319-84-6	ug/L	1 1 1	100	4 40E-01	No	NA	OS - UAA-2/OS-2-80	--	1 10E-01	Yes	Yes	>Screening Level
beta-BHC	319-85-7	ug/L	1 1 1	100	3 20E-01	No	NA	OS - UAA-2/OS-2-80	--	2 00E-01	Yes	Yes	>Screening Level
Dieldrin	60-57-1	ug/L	1 1 1	100	4 60E-01	No	NA	OS - UAA-2/OS-2-80	--	9 00E+00	No	No	</=Screening Level
Endosulfan II	33213-65-9	ug/L	1 1 1	100	2 80E-02	No	NA	OS - UAA-2/OS-2-80	--	4 20E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Endosulfan Sulfate	1031-07-8	ug/L	1 1 1	100	1 60E-01	No	NA	OS - UAA-2/OS-2-80	--	4 20E+01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	8 60E-02	No	NA	OS - UAA-2/OS-2-80	--	2 00E-01	No	No	</=Screening Level
gamma-Chlordane	5103-74-2	ug/L	1 1 1	100	5 90E-02	No	NA	OS - UAA-2/OS-2-80	--	2 00E+00	No	No	</=Screening Level
Heptachlor	76-44-8	ug/L	1 1 1	100	2 50E-01	No	NA	OS - UAA-2/OS-2-80	--	4 00E-01	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	ug/L	1 1 1	100	1 50E-02	No	NA	OS - UAA-2/OS-2-80	--	2 00E-01	No	No	</=Screening Level
Methoxychlor	72-43-5	ug/L	1 1 1	100	2 50E-02	No	NA	OS - UAA-2/OS-2-80	--	4 00E+01	No	No	</=Screening Level
Herbicide													
2,4-D	94-75-7	ug/L	1 1 1	100	1 70E+00	No	NA	OS - UAA-2/OS-2-80	--	7 00E+01	No	No	</=Screening Level
Dichlorprop	120-36-5	ug/L	1 1 1	100	4 30E+01	No	NA	OS - UAA-2/OS-2-80	--	2 92E+02	No	No	</=Screening Level
MCPA	94-74-6	ug/L	1 1 1	100	4 40E+01	No	NA	OS - UAA-2/OS-2-80	--	1 80E+01	Yes	Yes	>Screening Level
MCPP	93-65-2	ug/L	1 1 1	100	1 10E+02	No	NA	OS - UAA-2/OS-2-80	--	3 60E+01	Yes	Yes	>Screening Level
Pentachlorophenol	87-86-5	ug/L	1 1 1	100	9 00E-01	No	NA	OS - UAA-2/OS-2-80	--	1 00E+00	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 70E+04	No	NA	OS - UAA-2/OS-2-80	--	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 10E+01	No	NA	OS - UAA-2/OS-2-80	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	1 20E+03	No	NA	OS - UAA-2/OS-2-80	--	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-2/OS-2-80	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 20E+05	Yes	NA	OS - UAA-2/OS-2-80	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 30E+02	No	NA	OS - UAA-2/OS-2-80	--	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-2/OS-2-80	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	6 70E+01	No	NA	OS - UAA-2/OS-2-80	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	7 70E+04	Yes	NA	OS - UAA-2/OS-2-80	--	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-2/OS-2-80	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	6 70E+04	Yes	NA	OS - UAA-2/OS-2-80	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	4 50E+03	No	NA	OS - UAA-2/OS-2-80	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	7 20E+01	No	NA	OS - UAA-2/OS-2-80	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 70E+04	Yes	NA	OS - UAA-2/OS-2-80	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	1 40E+05	Yes	NA	OS - UAA-2/OS-2-80	--	NA	-	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	5 80E+01	No	NA	OS UAA-2/OS-2-80	-	4 90E+01	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Zinc	7440-66-6	ug/L	1 1 1	100	3 50E+02	No	NA	OS - UAA-2/OS-2-80	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-88													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	2 10E+01	No	2 60E+01	OS - UAA-2/OS-2-90	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 20E+01	No	1 14E+02	OS - UAA-2/OS-2-90	No	7 00E+01	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	4 70E+02	No	NA	OS - UAA-2/OS-2-90	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 20E+02	No	2 60E+01	OS - UAA-2/OS-2-90	Yes	5 00E+00	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 20E+03	No	3 60E+03	OS - UAA-2/OS-2-90	No	1 00E+02	Yes	No	</=BKG
Chloroethane	75-00-3	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-2/OS-2-90	--	4 60E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	3 20E+01	No	NA	OS - UAA-2/OS 2 90	-	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 30E+01	No	2 00E+01	OS - UAA-2/OS-2-90	No	2 00E+00	Yes	No	</=BKG
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	1 60E+01	No	NA	OS - UAA-2/OS-2-90	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	6 00E+01	No	1 46E+01	OS - UAA-2/OS-2-90	Yes	6 00E+02	No	No	</=Screening Level
1,3-Dichlorobenzene	541-73-1	ug/L	1 1 1	100	1 80E+01	No	3 20E+01	OS - UAA-2/OS-2-90	No	6 00E+02	No	No	</=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 20E+02	No	4 80E+02	OS - UAA-2/OS-2-90	No	7 50E+01	Yes	No	</=BKG
2 Chlorophenol	95-57-8	ug/L	1 1 1	100	2 20E+01	No	4 80E+01	OS - UAA-2/OS-2-90	No	3 50E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	2 20E+01	No	NA	OS - UAA-2/OS-2-90	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 30E+03	No	1 72E+01	OS - UAA-2/OS-2-90	Yes	2 80E+01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	6 80E+01	No	NA	OS - UAA-2/OS-2-90	--	1 40E+02	No	No	</=Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	3 50E+02	No	NA	OS - UAA-2/OS-2-90	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - AA-R-1-98													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	1 20E+01	No	NA	OS - UAA-2/OS-2-100	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 80E+01	No	2 20E+01	OS - UAA-2/OS-2-100	No	7 00E+01	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	1 50E+02	No	NA	OS - UAA-2/OS-2-100	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	3 00E+01	No	4 00E+01	OS - UAA-2/OS-2-100	No	5 00E+00	Yes	No	</=BKG
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 00E+03	No	5 20E+03	OS - UAA-2/OS-2-100	No	1 00E+02	Yes	No	</=BKG
Ethylbenzene	100-41-4	ug/L	1 1 1	100	9 80E+01	No	NA	OS - UAA-2/OS-2-100	--	7 00E+02	No	No	</=Screening Level
Tetrachloroethene	127-18-4	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-2/OS-2-100	--	5 00E+00	Yes	Yes	>Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	1 80E+01	No	NA	OS - UAA-2/OS-2-100	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 00E+01	No	1 44E+01	OS - UAA-2/OS-2-100	No	2 00E+00	Yes	No	</=BKG
Xylenes Total	1330-20-7	ug/L	1 1 1	100	7 30E+02	No	NA	OS - UAA-2/OS-2-100	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2,4-Trichlorobenzene	120-82-1	ug/L	1 1 1	100	2 00E+01	No	NA	OS - UAA-2/OS-2-100	--	7 00E+01	No	No	</=Screening Level
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	9 40E+02	No	1 96E+01	OS - UAA-2/OS-2-100	Yes	6 00E+02	Yes	Yes	>Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	3 00E+02	No	7 40E+02	OS - UAA 2/OS 2-100	No	7 50E+01	Yes	No	</=BKG
2,4 Dichlorophenol	120-83-2	ug/L	1 1 1	100	9 80E+01	No	1 60E+01	OS - UAA-2/OS-2-100	Yes	2 10E+01	Yes	Yes	>Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	2 50E+01	No	3 60E+01	OS - UAA-2/OS-2-100	No	3 50E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44 5	ug/L	1 1 1	100	9 10E+00	No	NA	OS - UAA-2/OS-2-100	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	4 80E+03	No	6 20E+00	OS - UAA-2/OS-2-100	Yes	2 80E+01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	1 80E+02	No	NA	OS - UAA-2/OS-2-100	--	1 40E+02	Yes	Yes	>Screening Level
Phenol	108-95-2	ug/L	1 1 1	100	1 30E+02	No	NA	OS - UAA-2/OS-2-100	--	1 00E+02	Yes	Yes	>Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
R - BDRK-R-1-163													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	3 20E-01	No	3 20E+01	OS - UAA-2/OS-2-124	No	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 50E-01	No	1 54E+02	OS - UAA-2/OS-2-124	No	7 00E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-2/OS-2-124	--	1 90E+03	No	No	</=Screening Level
Acetone	67-64-1	ug/L	1 1 1	100	2 00E+01	No	NA	OS - UAA-2/OS-2-124	--	7 00E+02	No	No	</=Screening Level
Benzene	71-43-2	ug/L	1 1 1	100	1 10E+01	No	4 80E+01	OS - UAA-2/OS-2-124	No	5 00E+00	Yes	No	</=BKG
Bromodichloromethane	75-27-4	ug/L	1 1 1	100	2 40E-01	No	NA	OS - UAA-2/OS-2-124	--	8 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-2/OS-2-124	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 00E+01	No	4 00E+03	OS - UAA-2/OS-2-124	No	1 00E+02	No	No	</=Screening Level
Chloroform	67-66-3	ug/L	1 1 1	100	3 50E+00	No	NA	OS - UAA-2/OS-2-124	--	8 00E+01	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/L	1 1 1	100	9 40E-01	No	NA	OS - UAA-2/OS-2-124	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	4 00E+00	No	2 00E+02	OS - UAA-2/OS-2-124	No	NA	--	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	3 60E+00	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 1 1	100	6 00E+00	No	NA	OS - UAA-2/OS-2-124	--	1 00E+04	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	4 60E+00	No	1 48E+01	OS - UAA-2/OS-2-124	No	6 00E+02	No	No	</=Screening Level
2,4-Dichlorophenol	120-83-2	ug/L	1 1 1	100	5 40E+00	No	1 66E+01	OS - UAA-2/OS-2-124	No	2 10E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 80E+00	No	4 00E+01	OS - UAA-2/OS-2-124	No	3 50E+01	No	No	</=Screening Level
3-Methylphenol/4-Methylphenol	106-44-5	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-2/OS-2-124	--	3 50E+02	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 60E+03	No	4 80E+00	OS - UAA-2/OS-2-124	Yes	2 80E+01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	4 90E+00	No	2 40E+01	OS - UAA-2/OS-2-124	No	1 40E+02	No	No	</=Screening Level
Herbicide													
2,4,5-T	93-76-5	ug/L	1 1 1	100	9 20E-01	No	NA	OS - UAA-2/OS-2-124	--	3 60E+02	No	No	</=Screening Level
2,4-D	94-75-7	ug/L	1 1 1	100	3 10E+00	No	NA	OS - UAA-2/OS-2-124	--	7 00E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 90E+04	No	NA	OS - UAA-2/OS-2 124	--	3 60E+04	No	No	</=Screening Level
Antimony	7440 36-0	ug/L	1 1 1	100	4 60E+00	No	NA	OS - UAA 2/OS-2-124	--	6 00E+00	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 00E+01	No	NA	OS - UAA-2/OS-2-124	--	5 00E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
Barium	7440-39 3	ug/L	1 1 1	100	2 60E+02	No	1 96E+02	OS - UAA-2/OS-2-124	Yes	2 00E+03	No	No	</=Screening Level
Cadmium	7440-43-9	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-2/OS-2-124	--	5 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	3 70E+05	Yes	6 80E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	4 00E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	9 40E+00	No	NA	OS - UAA-2/OS-2-124	--	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 90E+01	No	NA	OS - UAA-2/OS-2-124	--	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	1 90E+04	Yes	7 40E+04	OS - UAA-2/OS-2-124	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	1 30E+01	No	NA	OS - UAA-2/OS-2-124	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	6 00E+04	Yes	1 00E+05	OS - UAA-2/OS-2-124	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 00E+02	No	3 20E+03	OS - UAA-2/OS-2-124	No	1 50E+02	Yes	No	</=BKG
Mercury	7439-97-6	ug/L	1 1 1	100	2 00E-01	No	NA	OS - UAA-2/OS-2-124	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	3 80E+01	No	NA	OS - UAA-2/OS-2-124	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	2 30E+04	Yes	2 20E+04	OS - UAA-2/OS-2-124	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	3 20E+05	Yes	7 40E+04	OS - UAA-2/OS-2-124	Yes	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	6 00E+01	No	2 40E+00	OS - UAA-2/OS-2-124	Yes	4 90E+01	Yes	Yes	>Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	5 10E+01	No	8 40E+01	OS - UAA-2/OS 2-124	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-104													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 50E+00	No	NA	OS - UAA-3/OS-3-104	--	7 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	9 40E-01	No	NA	OS - UAA-3/OS-3-104	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	7 00E+01	No	4 20E+03	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level
Methane	74 82-8	ug/L	1 1 1	100	8 40E+00	No	3 40E+02	OS - UAA-3/OS-3-104	No	NA	--	No	</=BKG
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 10E+04	No	6 20E+03	OS - UAA-3/OS-3-104	Yes	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	2 10E+01	No	NA	OS - UAA-3/OS-3-104	--	5 00E+01	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 70E+02	No	2 00E+03	OS - UAA-3/OS-3-104	No	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	9 30E-01	No	NA	OS - UAA-3/OS-3-104	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	1 90E+05	Yes	5 20E+05	OS - UAA-3/OS-3-104	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 50E+02	No	1 48E+02	OS - UAA-3/OS-3-104	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	1 60E+01	No	6 60E+00	OS - UAA-3/OS-3-104	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	5 80E+01	No	1 10E+02	OS - UAA-3/OS-3-104	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	7 30E+04	Yes	5 00E+04	OS - UAA-3/OS-3-104	Yes	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	2 30E+01	No	6 20E+00	OS - UAA-3/OS-3-104	Yes	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	4 60E+04	Yes	1 48E+05	OS - UAA-3/OS-3-104	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 50E+03	No	2 20E+03	OS - UAA-3/OS-3-104	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	6 80E+01	No	5 40E+01	OS - UAA-3/OS-3-104	Yes	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	3 00E+04	Yes	2 40E+04	OS - UAA-3/OS-3-104	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	2 60E+04	Yes	1 60E+05	OS - UAA-3/OS-3-104	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	4 20E+01	No	NA	OS - UAA-3/OS-3-104	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	1 60E+02	No	7 20E+02	OS UAA-3/OS-3-104	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-114													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 70E-01	No	NA	OS - UAA-3/OS-3-114	--	7 00E+01	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-114	--	1 60E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 10E+02	No	1 14E+03	OS - UAA-3/OS-3 114	No	1 00E+02	Yes	No	</=BKG
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	7 10E+00	No	3 40E+01	OS - UAA-3/OS-3-114	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	3 30E+00	No	NA	OS - UAA-3/OS-3-114	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-124													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	1 50E+01	No	NA	OS - UAA-3/OS-3-116	--	1 90E+03	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	8 80E-01	No	NA	OS - UAA-3/OS-3-116	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	7 80E+01	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	7 70E-01	No	2 80E+01	OS - UAA-3/OS-3-116	No	NA	--	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	7 90E-01	No	NA	OS - UAA-3/OS-3-116	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 50E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	Yes	Yes	>Screening Level
PCBs													
Total PCBs	1336-36-3	ug/L	1 1 1	100	1 20E-01	No	1 20E-01	OS - UAA-3/OS-3-116	No	5 00E-01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 20E+04	No	2 40E+03	OS - UAA-3/OS-3-116	Yes	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	6 10E+02	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Beryllium	7440-41-7	ug/L	1 1 1	100	4 20E-01	No	NA	OS - UAA-3/OS-3-116	--	4 00E+00	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 20E+05	Yes	6 80E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	1 80E+02	No	7 60E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	Yes	Yes	>Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	7 30E+00	No	3 00E+00	OS - UAA-3/OS-3-116	Yes	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	3 50E+01	No	5 00E+01	OS - UAA-3/OS-3-116	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	6 20E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Lead	7439 92-1	ug/L	1 1 1	100	8 00E+00	No	NA	OS - UAA-3/OS-3-116	--	7 50E+00	Yes	Yes	>Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	5 20E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 90E+03	No	2 40E+03	OS - UAA-3/OS-3-116	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	4 10E+01	No	2 20E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	3 30E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	4 30E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	2 00E+01	No	NA	OS - UAA-3/OS 3-116	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	9 90E+01	No	4 60E+02	OS - UAA-3/OS-3-116	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-34													
VOCs													
Chloroethane	75-00-3	ug/L	1 1 1	100	3 30E+00	No	NA	OS - UAA-3/OS-3-34	--	4 60E+00	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 40E-01	No	NA	OS - UAA-3/OS-3-34	--	1 50E+00	No	No	</=Screening Level
SVOCs													
1,2-Dichlorobenzene	95-50-1	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-3/OS-3-34	--	6 00E+02	No	No	</=Screening Level
bis(2-Chloroethyl)ether	111-44-4	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-3/OS-3 34	--	1 00E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-54													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	8 00E+00	No	NA	OS - UAA-3/OS-3-54	--	1 90E+03	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 40E-01	No	3 20E+02	OS - UAA-3/OS-3-54	No	1 00E+02	No	No	</=Screening Level
Chloromethane	74-87-3	ug/L	1 1 1	100	3 20E 01	No	NA	OS - UAA-3/OS-3-54	--	1 50E+00	No	No	</=Screening Level
SVOCs													
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	3 50E+00	No	NA	OS - UAA-3/OS-3-54	--	6 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-64													
VOCs													
Dichloromethane	75-09-2	ug/L	1 : 1 1	100	4 20E-01	No	NA	OS - UAA-3/OS-3-64	--	5.00E+00	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 : 1 1	100	1.10E+01	No	3 40E+02	OS - UAA-3/OS-3-64	No	NA	--	No	</=BKG
Metals													
Barium	7440-39-3	ug/L	1 . 1 1	100	6 20E+02	No	2 00E+02	OS - UAA-3/OS-3-64	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 . 1 1	100	2 20E+05	Yes	4 40E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Iron	7439-89-6	ug/L	1 : 1 1	100	3 50E+04	Yes	1 96E+04	OS - UAA-3/OS-3-64	Yes	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 . 1 1	100	4.50E+04	Yes	1 26E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 : 1 : 1	100	2 80E+03	No	8 20E+03	OS - UAA-3/OS-3-64	No	1 50E+02	Yes	No	</=BKG
Potassium	7440-09-7	ug/L	1 1 : 1	100	9 00E+03	Yes	1 00E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	3 30E+04	Yes	1 76E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 1 : 1	100	2 00E+01	No	9 00E+01	OS - UAA-3/OS-3-64	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-74													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	5 30E-01	No	7 00E+00	OS - UAA-3/OS-3-74	No	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 80E+00	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-84													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 55E-01	No	NA	OS - UAA-3/OS-3-84	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	7 95E-01	No	NA	OS - UAA-3/OS-3 84	--	7 00E+01	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	7 70E+00	No	NA	OS - UAA-3/OS-3-84	--	1 90E+03	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 20E+01	No	2 60E+03	OS - UAA-3/OS-3-84	No	1 00E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/L	1 1 1	100	4 60E-01	No	NA	OS - UAA-3/OS-3-84	--	1 00E+03	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/L	1 1 1	100	5 90E-01	No	NA	OS - UAA-3/OS-3-84	--	5 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-1-94													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 30E-01	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 : 1	100	7 40E-01	No	NA	OS - UAA-3/OS-3-94	--	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 70E+01	No	4 20E+03	OS - UAA-3/OS-3-94	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-108													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 40E+02	No	4 20E+03	OS - UAA-3/OS-3-104	No	1 00E+02	Yes	No	</=BKG
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 40E+00	No	2 80E+01	OS - UAA-3/OS-3-104	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 00E+00	No	NA	OS - UAA-3/OS-3-104	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-118													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 40E+02	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	Yes	No	</=BKG
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 00E+01	No	1 94E+01	OS - UAA-3/OS-3-116	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	4 80E+00	No	NA	OS - UAA-3/OS-3-116	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-118 5													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 90E+02	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	2 90E+01	No	2 80E+01	OS - UAA-3/OS-3-116	Yes	NA	-	No	No Dose-Response Value
Vinyl chloride	75-01-4	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	Yes	Yes	>Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	5 90E+00	No	1 94E+01	OS - UAA-3/OS-3-116	No	3 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-3/OS-3-116	--	1 40E+02	No	No	</=Screening Level
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	1 00E-01	No	3 20E-02	OS - UAA-3/OS-3-116	Yes	2 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-TP (Silvex)	93-72-1	ug/L	1 1 1	100	9 90E-02	No	1 72E-01	OS - UAA-3/OS-3-116	No	5 00E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	5 80E+03	No	2 40E+03	OS - UAA-3/OS-3-116	Yes	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	4 00E+02	No	3 00E+02	OS - UAA-3/OS-3-116	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 00E+05	Yes	6 80E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	8 80E+01	No	7 60E+01	OS - UAA-3/OS-3-116	Yes	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 70E+00	No	3 00E+00	OS - UAA-3/OS-3-116	No	1 00E+03	No	No	</=Screening Level
Copper	7440-50-8	ug/L	1 1 1	100	1 90E+01	No	5 00E+01	OS - UAA-3/OS-3-116	No	6 50E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 70E+04	Yes	1 22E+05	OS - UAA-3/OS-3 116	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	3 00E+00	No	NA	OS - UAA-3/OS-3-116	--	7 50E+00	No	No	</=Screening Level
Magnesium	7439-95-4	ug/L	1 1 1	100	5 30E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	1 00E+03	No	2 40E+03	OS - UAA-3/OS 3-116	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 80E+01	No	2 20E+01	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	4 10E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	4 50E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	8 00E+00	No	NA	OS - UAA-3/OS-3-116	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	3 70E+01	No	4 60E+02	OS - UAA-3/OS-3-116	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-48													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 : 1 : 1	100	6 60E-01	No	NA	OS - UAA-3/OS-3-44	--	7 00E+02	No	No	</=Screening Level
Xylenes, Total	1330-20-7	ug/L	1 : 1 . 1	100	5.70E-01	No	NA	OS - UAA-3/OS-3-44	--	1.00E+04	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-68													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 : 1 : 1	100	1.60E+00	No	6.20E+01	OS - UAA-3/OS-3-64	No	1.00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-78													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	8 90E+00	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	6 10E-01	No	NA	OS - UAA-3/OS-3-74	--	NA	--	No	No Dose-Response Value
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	1 10E-02	No	NA	OS - UAA-3/OS-3-74	--	2 00E-01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	2 50E+03	No	NA	OS - UAA-3/OS-3-74	--	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	2 50E+02	No	NA	OS - UAA-3/OS 3-74	--	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 10E+05	Yes	NA	OS - UAA-3/OS-3-74	--	NA	--	No	EN
Chromium	7440-47-3	ug/L	1 1 1	100	2 20E+01	No	NA	OS - UAA-3/OS-3-74	--	1 00E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 20E+04	Yes	NA	OS - UAA-3/OS-3-74	--	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	4 60E+04	Yes	NA	OS - UAA-3/OS-3-74	--	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 80E+03	No	NA	OS - UAA-3/OS-3-74	--	1 50E+02	Yes	Yes	>Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	6 40E+00	No	NA	OS - UAA-3/OS-3-74	--	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	9 00E+03	Yes	NA	OS - UAA-3/OS-3-74	--	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	3 50E+04	Yes	NA	OS - UAA-3/OS-3-74	--	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	3 90E+00	No	NA	OS - UAA-3/OS-3-74	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	2 40E+01	No	NA	OS - UAA-3/OS-3-74	--	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-88													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 : 1 : 1	100	4.00E-01	No	NA	OS - UAA-3/OS-3-84	--	7.00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 : 1 : 1	100	2.40E+01	No	2.60E+03	OS - UAA-3/OS-3-84	No	1.00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-2-98													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	4 70E-01	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 50E+01	No	4 20E+03	OS - UAA-3/OS-3-94	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-104													
VOCs													
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-104	--	7 00E+01	No	No	</=Screening Level
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	5 30E-01	No	NA	OS - UAA-3/OS-3-104	--	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 80E+02	No	4 20E+03	OS - UAA-3/OS-3-104	No	1 00E+02	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	9 90E+00	No	3 40E+02	OS - UAA-3/OS-3-104	No	NA	--	No	</=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	6 10E-01	No	NA	OS - UAA-3/OS-3-104	--	2 00E+00	No	No	</=Screening Level
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 30E+00	No	4 40E+03	OS - UAA-3/OS-3-104	No	7 50E+01	No	No	</=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 20E+00	No	2 80E+01	OS - UAA-3/OS-3-104	No	3 50E+01	No	No	</=Screening Level
Benzo(b)fluoranthene	205-99-2	ug/L	1 1 1	100	3 80E+00	No	2 60E+00	OS - UAA-3/OS 3-104	Yes	1 80E-01	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24 2	ug/L	1 1 1	100	1 30E+00	No	3 20E+00	OS - UAA-3/OS-3-104	No	2 10E+02	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08 9	ug/L	1 1 1	100	6 60E-01	No	NA	OS - UAA-3/OS-3-104	--	1 70E-01	Yes	Yes	>Screening Level
Chrysene	218-01-9	ug/L	1 1 1	100	5 50E-01	No	1 38E+00	OS - UAA-3/OS-3-104	No	1 50E+00	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	2 80E+00	No	3 00E+00	OS - UAA-3/OS-3-104	No	3 00E-01	Yes	No	</=BKG
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	9 60E-01	No	NA	OS - UAA-3/OS-3-104	--	4 30E-01	Yes	Yes	>Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 20E+00	No	NA	OS - UAA-3/OS-3-104	--	1 40E+02	No	No	</=Screening Level
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	7 00E 02	No	NA	OS - UAA-3/OS-3-104	--	2 00E-01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	4 70E+03	No	6 20E+03	OS - UAA-3/OS-3-104	No	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	3 70E+00	No	NA	OS - UAA-3/OS-3-104	--	5 00E+01	No	No	</=Screening Level
Chromium	7440-47-3	ug/L	1 1 1	100	7 30E+01	No	1 48E+02	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level
Cobalt	7440-48-4	ug/L	1 1 1	100	2 50E+00	No	6 60E+00	OS - UAA-3/OS-3-104	No	1 00E+03	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	3 10E+04	Yes	5 00E+04	OS - UAA-3/OS-3-104	No	5 00E+03	Yes	No	EN
Lead	7439-92-1	ug/L	1 1 1	100	6 10E+00	No	6 20E+00	OS - UAA-3/OS-3-104	No	7 50E+00	No	No	</=Screening Level
Manganese	7439-96-5	ug/L	1 1 1	100	7 60E+02	No	2 20E+03	OS - UAA-3/OS-3-104	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 70E+01	No	5 40E+01	OS - UAA-3/OS-3-104	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	3 40E+04	Yes	2 40E+04	OS - UAA-3/OS-3-104	Yes	NA	--	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-114													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 30E+02	No	1 14E+03	OS - UAA-3/OS-3-114	No	1 00E+02	Yes	No	</=BKG
Toluene	108-88-3	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-3/OS-3-114	--	1 00E+03	No	No	</=Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 00E+01	No	3 40E+01	OS - UAA-3/OS-3-114	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	3 70E+00	No	NA	OS - UAA-3/OS-3-114	--	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	5 70E+00	No	NA	OS - UAA-3/OS-3-114	--	1 40E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-124													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	4 60E+02	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	Yes	No	<=BKG
Vinyl chloride	75-01-4	ug/L	1 1 1	100	1 80E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	No	No	<=Screening Level
SVOCs													
1,2-Dichlorobenzene	95 50 1	ug/L	1 1 1	100	1 40E+00	No	3 20E+01	OS - UAA-3/OS-3-116	No	6 00E+02	No	No	<=Screening Level
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 40E+00	No	3 00E+03	OS - UAA-3/OS-3-116	No	7 50E+01	No	No	<=Screening Level
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	7 90E+00	No	1 94E+01	OS - UAA-3/OS-3-116	No	3 50E+01	No	No	<=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	2 40E+00	No	1 96E+01	OS - UAA-3/OS 3-116	No	2 80E+01	No	No	<=Screening Level
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA 3/OS 3-116	--	6 00E+00	No	No	<=Screening Level
Naphthalene	91-20 3	ug/L	1 1 1	100	4 10E+00	No	NA	OS UAA 3/OS 3 116		1 40E+02	No	No	<=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-132													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 50E+02	No	7 20E+02	OS - UAA-3/OS-3-116	No	1 00E+02	Yes	No	</=BKG
Methane	74-82-8	ug/L	1 1 1	100	4 20E+01	No	2 80E+01	OS - UAA-3/OS-3-116	Yes	NA	-	No	No Dose-Response Value
Toluene	108-88-3	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-116	--	1 00E+03	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	6 10E+00	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	Yes	Yes	>Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	4 30E+00	No	1 94E+01	OS - UAA-3/OS-3-116	No	3 50E+01	No	No	</=Screening Level
4-Chloroaniline	106-47-8	ug/L	1 1 1	100	1 70E+00	No	1 96E+01	OS - UAA 3/OS 3-116	No	2 80E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/L	1 1 1	100	2 30E+00	No	NA	OS - UAA-3/OS-3-116	--	1 40E+02	No	No	</=Screening Level
Pesticide													
beta-BHC	319-85-7	ug/L	1 1 1	100	8 70E-02	No	3 20E-02	OS - UAA-3/OS-3-116	Yes	2 00E-01	No	No	</=Screening Level
gamma-BHC (Lindane)	58-89-9	ug/L	1 1 1	100	5 10E-03	No	NA	OS - UAA 3/OS-3-116	--	2 00E-01	No	No	</=Screening Level
Herbicide													
2,4,5-TP (Silvex)	93-72-1	ug/L	1 1 1	100	1 20E-01	No	1 72E-01	OS - UAA-3/OS 3-116	No	5 00E+01	No	No	</=Screening Level
PCBs													
Total PCBs	1336 36-3	ug/L	1 1 1	100	4 00E-02	No	1 20E 01	OS - UAA-3/OS 3-116	No	5 00E-01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 00E+03	No	2 40E+03	OS - UAA-3/OS-3-116	No	3 60E+04	No	No	</=Screening Level
Chromium	7440-47-3	ug/L	1 1 1	100	1 70E+01	No	7 60E+01	OS - UAA-3/OS-3 116	No	1 00E+02	No	No	</=Screening Level
Iron	7439-89-6	ug/L	1 1 1	100	2 60E+04	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	Yes	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	5 70E+02	No	2 40E+03	OS - UAA-3/OS-3-116	No	1 50E+02	Yes	No	</=BKG
Nickel	7440-02-0	ug/L	1 1 1	100	1 00E+01	No	2 20E+01	OS - UAA-3/OS 3-116	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	4 00E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-34													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-34	--	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-44													
VOCs													
Toluene	108-88-3	ug/L	1 1 1	100	3 40E-01	No	NA	OS - UAA-3/OS-3-44	--	1 00E+03	No	No	</=Screening Level
SVOCs													
bis(2-Ethylhexyl)phthalate	117-81-7	ug/L	1 1 1	100	8 80E-01	No	NA	OS - UAA-3/OS-3-44	--	6 00E+00	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-54													
VOCs													
2-Butanone (MEK)	78-93-3	ug/L	1 1 1	100	6 30E+00	No	NA	OS - UAA-3/OS-3-54	--	1 90E+03	No	No	</=Screening Level
Chlorobenzene	108-90 7	ug/L	1 1 1	100	1 40E+00	No	3 20E+02	OS - UAA-3/OS-3-54	No	1 00E+02	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-64													
VOCs													
Chlorobenzene	108-90-7	ug/L	1 1 1	100	2 10E+00	No	6 20E+01	OS - UAA-3/OS-3-64	No	1 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	2 70E+01	No	3 40E+02	OS - UAA-3/OS-3-64	No	NA	--	No	</=BKG
SVOCs													
1,4-Dichlorobenzene	106-46-7	ug/L	1 1 1	100	1 40E+00	No	NA	OS - UAA-3/OS-3-64	--	7 50E+01	No	No	</=Screening Level
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	1 80E+02	No	5 00E+02	OS - UAA-3/OS-3-64	No	3 60E+04	No	No	</=Screening Level
Barium	7440-39-3	ug/L	1 1 1	100	7 00E+02	No	2 00E+02	OS - UAA-3/OS-3-64	Yes	2 00E+03	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 20E+05	Yes	4 40E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Iron	7439-89-6	ug/L	1 1 1	100	2 30E+04	Yes	1 96E+04	OS - UAA-3/OS-3-64	Yes	5 00E+03	Yes	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	4 00E+04	Yes	1 26E+05	OS - UAA-3/OS-3 64	No	NA	-	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 50E+03	No	8 20E+03	OS - UAA-3/OS-3-64	No	1 50E+02	Yes	No	</=BKG
Potassium	7440-09-7	ug/L	1 1 1	100	7 60E+03	Yes	1 00E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	3 40E+04	Yes	1 76E+05	OS - UAA-3/OS-3-64	No	NA	--	No	EN
Zinc	7440-66-6	ug/L	1 1 1	100	9 40E+00	No	9 00E+01	OS - UAA-3/OS-3-64	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-74													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 10E-01	No	8 80E-01	OS - UAA-3/OS-3-74	No	7 00E+02	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	3 70E+00	No	3 00E+02	OS - UAA-3/OS-3-74	No	1 00E+02	No	No	</=Screening Level
SVOCs													
Benzo(b)fluoranthene	205-99-2	ug/L	1 1 1	100	4 00E+00	No	NA	OS - UAA-3/OS 3-74	--	1 80E-01	Yes	Yes	>Screening Level
Benzo(g,h,i)perylene	191-24-2	ug/L	1 1 1	100	1 20E+00	No	NA	OS - UAA-3/OS-3-74	--	2 10E+02	No	No	</=Screening Level
Benzo(k)fluoranthene	207-08-9	ug/L	1 1 1	100	1 10E+00	No	NA	OS - UAA-3/OS-3-74	--	1 70E-01	Yes	Yes	>Screening Level
Chrysene	218-01-9	ug/L	1 1 1	100	6 70E-01	No	NA	OS - UAA-3/OS-3-74	--	1 50E+00	No	No	</=Screening Level
Dibenzo(a,h)anthracene	53-70-3	ug/L	1 1 1	100	2 90E+00	No	NA	OS - UAA-3/OS-3-74	--	3 00E-01	Yes	Yes	>Screening Level
Indeno(1,2,3-cd)pyrene	193-39-5	ug/L	1 1 1	100	1 00E+00	No	NA	OS - UAA-3/OS-3-74		4 30E 01	Yes	Yes	>Screening Level

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	S - AA-S-3-104	S - AA-S-3-132	S - AA-S-3-74
Arsenic	7440-38-2			
Barium	7440-39-3			
Beryllium	7440-41-7			
Cadmium	7440-43-9			
Chromium	7440-47-3			
Lead	7439-92-1			
Manganese	7439-96-5			
Nickel	7440-02-0			
Thallium	7440-28-0			
Vanadium	7440-62-2			
Total:		**3**	**1**	**4**

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) propionic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	S - AA-S-3-104	S - AA-S-3-132	S - AA-S-3-74
VOCs				
1,1,2,2-Tetrachloroethane	79-34-5			
1,2-Dichloroethane	107-06-2			
1,2-Dichloroethene (total)	540-59 0			
4-Methyl-2-pentanone (MIBK)	108-10-1			
Acetone	67-64-1			
Benzene	71-43-2			
Carbon Tetrachloride	56-23-5			
Chlorobenzene	108-90-7			
Chloroethane	75-00-3			
Chloromethane	74-87-3			
Ethylbenzene	100-41-4			
Tetrachloroethene	127-18-4			
Toluene	108-88-3			
Trichloroethylene	79-01-6			
Vinyl chloride	75-01-4		X	
SVOCs				
1,2-Dichlorobenzene	95-50-1			
1,4-Dichlorobenzene	106-46-7			
2,4,6-Trichlorophenol	88-06-2			
2,4 Dichlorophenol	120-83-2			
2,4 Dimethylphenol	105 67 9			
2 Chlorophenol	95 57 8			
2-Methylnaphthalene	91-57-6			
2-Nitroaniline	88-74-4			
3-Methylphenol/4-Methylphenol	106-44-5			
4-Chloroaniline	106-47-8			
Benzo(a)anthracene	56 55-3			
Benzo(a)pyrene	50-32-8			
Benzo(b)fluoranthene	205-99 2	X		X
Benzo(k)fluoranthene	207-08-9	X		X
Carbazole	86-74-8			
Chrysene	218-01-9			
Dibenzo(a,h)anthracene	53-70-3			X
Indeno(1,2,3-cd)pyrene	193-39-5	X		X
Naphthalene	91-20-3			
N-Nitrosodiphenylamine	86-30-6			
Phenol	108-95-2			
Pesticide				
alpha-BHC	319-84-6			
beta-BHC	319-85-7			
Heptachlor Epoxide	1024-57-3			
Herbicide				
MCPA	94-74-6			
MCPP	93-65-2			
Pentachlorophenol	87-86-5			
Metals				
Aluminum	7429-90-5			
Antimony	7440 36 0			

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	R - AA-R-1-48	R - AA-R-1-58	R - AA-R-1-68	R - AA-R-1-78	R - AA-R-1-88	R - AA-R-1-98	R - BDRK-R-1-163	S - AA-S-1-104	S - AA-S-1-124	S - AA-S-2-118_5	S - AA-S-2-78
Arsenic	7440-38 2											
Barium	7440-39-3											
Beryllium	7440-41-7											
Cadmium	7440-43-9											
Chromium	7440-47-3				X				X	X		
Lead	7439-92-1				X			X	X	X		
Manganese	7439-96-5				X							X
Nickel	7440-02-0											
Thallium	7440-28-0											
Vanadium	7440-62-2				X			X				
Total:		**14**	**13**	**17**	**19**	**4**	**6**	**3**	**2**	**3**	**1**	**1**

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) proplonic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	R - AA-R-1-48	R - AA-R-1-58	R - AA-R-1-68	R - AA-R-1-78	R - AA-R-1-88	R - AA-R-1-98	R - BDRK-R-1-163	S - AA-S-1-104	S - AA-S-1-124	S - AA-S-2-118_5	S - AA-S-2-78
VOCs												
1,1,2,2-Tetrachloroethane	79-34-5											
1,2-Dichloroethane	107-06-2											
1,2-Dichloroethene (total)	540-59 0											
4-Methyl-2 pentanone (MIBK)	108-10-1	X		X								
Acetone	67-64-1	X	X	X	X							
Benzene	71-43 2	X	X	X	X	X						
Carbon Tetrachloride	56-23-5											
Chlorobenzene	108-90-7	X	X	X	X							
Chloroethane	75-00-3					X						
Chloromethane	74-87-3											
Ethylbenzene	100-41-4	X										
Tetrachloroethene	127-18-4			X	X		X					
Toluene	108-88-3	X	X	X								
Trichloroethylene	79-01-6		X	X	X							
Vinyl chloride	75-01-4	X	X	X						X	X	
SVOCs												
1,2-Dichlorobenzene	95-50-1						X					
1,4-Dichlorobenzene	106-46-7	X	X	X	X							
2,4,6-Trichlorophenol	88-06-2											
2,4-Dichlorophenol	120-83 2						X					
2,4-Dimethylphenol	105-67-9	X	X									
2-Chlorophenol	95-57-8	X	X	X								
2-Methylnaphthalene	91-57 6											
2-Nitroaniline	88-74-4											
3-Methylphenol/4-Methylphenol	106-44-5	X	X	X								
4-Chloroaniline	106-47-8	X	X	X	X	X	X	X				
Benzo(a)anthracene	56-55-3											
Benzo(a)pyrene	50-32-8											
Benzo(b)fluoranthene	205 99-2											
Benzo(k)fluoranthene	207-08-9											
Carbazole	86-74-8											
Chrysene	218-01-9			X								
Dibenzo(a,h)anthracene	53-70-3			X	X							
Indeno(1,2,3-cd)pyrene	193-39-5			X	X							
Naphthalene	91-20-3	X	X	X	X		X					
N-Nitrosodiphenylamine	86-30-6											
Phenol	108-95-2	X	X	X	X	X	X					
Pesticide												
alpha-BHC	319-84-6				X							
beta-BHC	319-85-7				X							
Heptachlor Epoxide	1024-57-3											
Herbicide												
MCPA	94-74-6				X							
MCPP	93-65-2				X							
Pentachlorophenol	87-86-5											
Metals												
Aluminum	7429-90 5											
Antimony	7440-36 0											

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Q - AA-Q-7-34	Q - AA-Q-8-111	Q - AA-Q-8-44	Q - AA-Q-8-54	Q - AA-Q-8-64	Q - BDRK-Q-1-163	R - AA-R-1-108	R - AA-R-1-118	R - AA-R-1-128	R - AA-R-1-131
Arsenic	7440-38-2						X				
Barium	7440-39-3										X
Beryllium	7440-41-7										
Cadmium	7440-43-9										
Chromium	7440-47-3		X								X
Lead	7439-92-1						X				X
Manganese	7439-96-5		X								
Nickel	7440 02 0						X				
Thallium	7440-28-0										
Vanadium	7440-62-2						X				X
Total:		**1**	**4**	**1**	**3**	**2**	**7**	**12**	**8**	**6**	**7**

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4 chlorophenoxy) propionic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Q - AA-Q-7-34	Q - AA-Q-8-111	Q - AA-Q-8-44	Q - AA-Q 8-54	Q - AA-Q 8-64	Q - BDRK-Q-1-163	R - AA-R-1-108	R - AA-R-1-118	R - AA-R-1-128	R - AA-R-1-131
VOCs											
1 1 2 2 Tetrachloroethane	79 34 5										
1 2 Dichloroethane	107 06 2							X			
1 2 Dichloroethene (total)	540 59 0								X		
4 Methyl 2 pentanone (MIBK)	108 10 1										
Acetone	67 64 1							X	X	X	
Benzene	71 43 2							X	X	X	X
Carbon Tetrachloride	56 23 5										
Chlorobenzene	108 90 7	X							X		
Chloroethane	75 00 3										
Chloromethane	74 87 3										
Ethylbenzene	100 41 4										
Tetrachloroethene	127 18 4							X			
Toluene	108 88 3										
Trichloroethylene	79 01 6										
Vinyl chloride	75 01 4			X	X			X	X		
SVOCs											
1 2 Dichlorobenzene	95 50 1							X			
1 4 Dichlorobenzene	106 46 7										
2 4 6 Trichlorophenol	88 06 2										
2 4 Dichlorophenol	120 83 2							X			
2 4 Dimethylphenol	105 67 9										
2 Chlorophenol	95 57 8							X	X	X	
2 Methylnaphthalene	91 57 6										
2 Nitroaniline	88-74 4										
3 Methylphenol/4 Methylphenol	106 44 5							X			
4 Chloroaniline	106 47 8							X	X	X	X
Benzo(a)anthracene	56 55 3										
Benzo(a)pyrene	50-32 8										
Benzo(b)fluoranthene	205 99 2										
Benzo(k)fluoranthene	207 08 9										
Carbazole	86 74 8										
Chrysene	218 01 9										
Dibenzo(a h)anthracene	53 70 3		X		X	X	X				
Indeno(1 2 3 cd)pyrene	193 39 5		X		X	X	X				
Naphthalene	91-20 3							X		X	
N Nitrosodiphenylamine	86 30 6										
Phenol	108 95 2							X	X	X	X
Pesticide											
alpha BHC	319 84 6										
beta BHC	319 85 7										
Heptachlor Epoxide	1024 57 3										
Herbicide											
MCPA	94 74 6										
MCPP	93 65 2										
Pentachlorophenol	87 86 5										
Metals											
Aluminum	7429 90 5						X				
Antimony	7440 36 0										

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Q - AA-Q-5-95	Q - AA-Q-6-104	Q - AA-Q-6-110	Q - AA-Q-6-34	Q - AA-Q-6-44	Q - AA-Q-6-54	Q - AA-Q-6-64	Q - AA-Q-6-74	Q - AA-Q-6-84	Q - AA-Q-6-94	Q - AA-Q-7-104
Arsenic	7440-38-2											
Barium	7440-39-3											
Beryllium	7440-41-7											
Cadmium	7440-43-9											
Chromium	7440-47-3			X								
Lead	7439-92-1			X				X				
Manganese	7439-96-5		X	X								
Nickel	7440-02-0											
Thallium	7440-28 0											
Vanadium	7440-62-2											
Total:		1	2	4	4	1	1	2	1	1	1	2

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) propionic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Q - AA-Q-5-95	Q - AA-Q-6-104	Q - AA-Q-6-110	Q - AA-Q-6-34	Q - AA-Q-6-44	Q - AA-Q-6-54	Q - AA-Q-6-64	Q - AA-Q-6-74	Q - AA-Q-6-84	Q - AA-Q-6-94	Q - AA-Q-7-104
VOCs												
1,1,2,2-Tetrachloroethane	79 34-5											
1,2-Dichloroethane	107 06 2											
1,2 Dichloroethene (total)	540 59 0											
4-Methyl-2-pentanone (MIBK)	108-10-1											
Acetone	67-64-1											
Benzene	71-43-2		X	X	X	X	X	X	X	X	X	
Carbon Tetrachloride	56-23-5											
Chlorobenzene	108 90 7											
Chloroethane	75-00 3											
Chloromethane	74-87 3											
Ethylbenzene	100 41 4											
Tetrachloroethene	127 18 4											
Toluene	108 88 3											
Trichloroethylene	79-01-6											
Vinyl chloride	75-01-4											
SVOCs												
1,2-Dichlorobenzene	95-50-1											
1,4-Dichlorobenzene	106-46-7											
2,4,6-Trichlorophenol	88-06-2											
2,4-Dichlorophenol	120 83 2											
2,4-Dimethylphenol	105-67-9											
2-Chlorophenol	95-57-8											
2-Methylnaphthalene	91-57-6				X							
2-Nitroaniline	88 74-4											
3-Methylphenol/4-Methylphenol	106-44-5											
4-Chloroaniline	106-47-8											
Benzo(a)anthracene	56-55-3											
Benzo(a)pyrene	50-32-8											
Benzo(b)fluoranthene	205-99-2											
Benzo(k)fluoranthene	207-08 9											
Carbazole	86-74 8				X							
Chrysene	218-01-9											
Dibenzo(a,h)anthracene	53-70-3											X
Indeno(1,2,3 cd)pyrene	193-39-5											X
Naphthalene	91-20-3											
N-Nitrosodiphenylamine	86-30-6	X										
Phenol	108-95-2				X							
Pesticide												
alpha-BHC	319-84 6											
beta-BHC	319-85-7											
Heptachlor Epoxide	1024-57-3											
Herbicide												
MCPA	94-74 6											
MCPP	93-65 2											
Pentachlorophenol	87 86-5											
Metals												
Aluminum	7429 90 5											
Antimony	7440-36-0											

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Q - AA-Q-2-80	Q - AA-Q-3-120	Q - AA-Q-3-50	Q - AA-Q-3-80	Q - AA-Q-4-110	Q - AA-Q-4-50	Q - AA-Q-4-80	Q - AA-Q-5-45	Q - AA-Q-5-65	Q - AA-Q-5-75	Q - AA-Q-5-85
Arsenic	7440-38-2			X					X			
Barium	7440 39-3											
Beryllium	7440-41-7					X						
Cadmium	7440 43-9											
Chromium	7440 47-3		X			X	X					X
Lead	7439-92-1		X	X		X	X	X	X			X
Manganese	7439-96-5	X		X	X	X	X	X	X			X
Nickel	7440-02-0					X						
Thallium	7440-28-0											
Vanadium	7440-62-2					X						X
Total:		**4**	**2**	**3**	**1**	**8**	**3**	**2**	**7**	**3**	**1**	**6**

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl 4-chlorophenoxyacetic acid
MCPP - 2-(2 Methyl 4-chlorophenoxy) propionic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Q - AA-Q-2-80	Q - AA-Q-3-120	Q - AA-Q-3-50	Q - AA-Q-3-80	Q - AA-Q-4-110	Q - AA-Q-4-50	Q - AA-Q-4-80	Q - AA-Q-5-45	Q - AA-Q-5-65	Q - AA-Q-5-75	Q - AA-Q-5-85
VOCs												
1,1,2,2-Tetrachloroethane	79-34-5											X
1,2-Dichloroethane	107-06-2											
1,2-Dichloroethene (total)	540-59-0											
4-Methyl-2-pentanone (MIBK)	108-10-1											
Acetone	67 64-1											
Benzene	71-43-2								X	X		
Carbon Tetrachloride	56-23-5											
Chlorobenzene	108-90-7								X			
Chloroethane	75-00-3											
Chloromethane	74-87-3											
Ethylbenzene	100-41-4											
Tetrachloroethene	127-18-4											
Toluene	108-88-3											
Trichloroethylene	79-01-6											
Vinyl chloride	75-01-4											
SVOCs												
1,2-Dichlorobenzene	95-50-1											
1,4-Dichlorobenzene	106-46-7											
2,4,6-Trichlorophenol	88 06 2	X										
2,4-Dichlorophenol	120-83 2	X										
2,4-Dimethylphenol	105-67-9											
2-Chlorophenol	95-57-8											
2-Methylnaphthalene	91-57-6											
2-Nitroaniline	88-74-4											
3-Methylphenol/4-Methylphenol	106-44-5											
4-Chloroaniline	106-47-8								X	X	X	
Benzo(a)anthracene	56-55-3											
Benzo(a)pyrene	50-32-8											
Benzo(b)fluoranthene	205-99-2											
Benzo(k)fluoranthene	207-08-9											
Carbazole	86-74-8											
Chrysene	218-01-9											
Dibenzo(a,h)anthracene	53-70-3											
Indeno(1,2,3-cd)pyrene	193-39-5											
Naphthalene	91-20-3											
N-Nitrosodiphenylamine	86-30-6									X		
Phenol	108-95-2											
Pesticide												
alpha-BHC	319-84-6											
beta-BHC	319-85-7											
Heptachlor Epoxide	1024-57 3											
Herbicide												
MCPA	94-74 6	X							X			X
MCPP	93-65-2											
Pentachlorophenol	87-86-5											
Metals												
Aluminum	7429-90-5					X						
Antimony	7440-36 0					X						

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	P - BDRK-P-1-158	Q - AA-Q-1-110	Q - AA-Q-1-120	Q - AA-Q-1-127	Q - AA-Q-1-127_5	Q - AA-Q-1-50	Q - AA-Q-1-60	Q - AA-Q-1-80	Q - AA-Q-2-120	Q - AA-Q-2-60
Arsenic	7440-38-2						X				
Barium	7440-39-3										
Beryllium	7440-41-7						X				
Cadmium	7440-43-9						X				
Chromium	7440-47-3			X		X	X			X	X
Lead	7439-92-1			X		X	X		X	X	X
Manganese	7439-96-5					X	X		X	X	
Nickel	7440-02-0			X			X			X	X
Thallium	7440-28-0				X						
Vanadium	7440-62-2			X		X	X			X	X
Total.		**7**	**2**	**8**	**1**	**10**	**10**	**2**	**6**	**6**	**6**

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) propionic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

...AN HEALTH RISK ASSESSMENT ...COPCS IN DEEP GROUNDWATER
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	P - BDRK-P-1-158	Q - AA-Q-1-110	Q - AA-Q-1-120	Q - AA-Q-1-127	Q - AA-Q 1-127_5	Q - AA-Q-1-50	Q - AA-Q-1-60	Q - AA-Q-1-80	Q - AA-Q-2-120	Q - AA-Q-2-60
VOCs											
1,1,2,2-Tetrachloroethane	79-34-5										
1,2 Dichloroethane	107-06 2										
1,2-Dichloroethene (total)	540-59-0										
4-Methyl-2-pentanone (MIBK)	108-10-1										
Acetone	67-64-1										
Benzene	71-43-2										
Carbon Tetrachloride	56-23-5										
Chlorobenzene	108-90-7	X									
Chloroethane	75-00-3										
Chloromethane	74-87-3										
Ethylbenzene	100-41-4		X								
Tetrachloroethene	127-18 4										
Toluene	108-88-3			X							
Trichloroethylene	79 01-6										
Vinyl chloride	75-01-4										
SVOCs											
1,2-Dichlorobenzene	95-50-1					X					
1,4-Dichlorobenzene	106-46-7					X					
2,4 6-Trichlorobenzene	88-06 2					X					
2,4-Dichlorophenol	120-83-2		X								
2,4-Dimethylphenol	105 67-9										
2-Chlorophenol	95-57-8			X							
2-Methylnaphthalene	91-57-6										
2-Nitroaniline	88-74-4										
3-Methylphenol/4-Methylphenol	106-44-5						X				
4-Chloroaniline	106-47-8										
Benzo(a)anthracene	56-55-3										
Benzo(a)pyrene	50-32-8										
Benzo(b)fluoranthene	205-99-2										
Benzo(k)fluoranthene	207-08-9										
Carbazole	86-74-8										
Chrysene	218-01-9										
ibenzo(a,h)anthracene	53-70-3										
tieno(1,2,3-cd)pyrene	193-39-5										
phthalene	91-20-3										
itrosodiphenylamine	86-30-6										
nol	108-95-2										
cide											
BHC	319-84-6										
HC	319-85-7										
hlor Epoxide	1024-57-3										
te											
ophenol	94-74 6										
	93 65 2										
	87 86-5										
	7429-90-5	X									
	7440 38-0										

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	O - BDRK-O-1-153	P - AA-P-1-104	P - AA-P-1-114	P - AA-P-1-120	P - AA-P-1-64	P - AA-P-1-74	P - AA-P-1-84	P - AA-P-2-104	P - AA-P-2-114	P - AA-P-2-122	P - AA-P-3-72
Arsenic	7440-38-2											
Barium	7440-39-3											
Beryllium	7440-41-7											
Cadmium	7440-43-9											
Chromium	7440-47-3											
Lead	7439-92-1											
Manganese	7439-96-5											X
Nickel	7440-02-0											
Thallium	7440-28-0	X										
Vanadium	7440-62-2											
Total:		1	5	3	4	6	1	1	4	2	3	2

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl-4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4-chlorophenoxy) propionic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE F 2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	O - BDRK-O-1-153	P - AA-P-1-104	P - AA-P-1-114	P - AA-P-1-120	P - AA-P-1-64	P - AA-P-1-74	P - AA-P-1-84	P - AA-P-2-104	P - AA-P-2-114	P - AA-P-2-122	P - AA P-3-72
VOCs												
1,1,2 2 Tetrachloroethane	79 34 5								X			X
1 2-Dichloroethane	107 06 2											
1 2 Dichloroethene (total)	540 59 0											
4 Methyl 2 pentanone (MIBK)	108 10 1											
Acetone	67 64 1											
Benzene	71 43 2		X	X	X				X	X	X	
Carbon Tetrachloride	56 23 5								X			
Chlorobenzene	108 90 7		X	X	X							
Chloroethane	75 00 3											
Chloromethane	74 87-3										X	
Ethylbenzene	100 41 4											
Tetrachloroethene	127 18 4											
Toluene	108 88 3											
Trichloroethylene	79 01 6				X							
Vinyl chloride	75 01-4											
SVOCs												
1,2 Dichlorobenzene	95-50 1											
1 4 Dichlorobenzene	106 46 7											
2 4,6 Trichlorophenol	88 06 2											
2 4 Dichlorophenol	120 83 2											
2 4 Dimethylphenol	105 67 9											
2 Chlorophenol	95 57 8		X	X								
2 Methylnaphthalene	91 57 6											
2 Nitroaniline	88 74 4					X						
3-Methylphenol/4 Methylphenol	106 44 5											
4 Chloroaniline	106 47 8											
Benzo(a)anthracene	56 55 3					X						
Benzo(a)pyrene	50 32 8											
Benzo(b)fluoranthene	205 99 2					X						
Benzo(k)fluoranthene	207 08 9					X						
Carbazole	86 74 8											
Chrysene	218 01 9											
Dibenzo(a,h)anthracene	53-70 3		X			X						
Indeno(1 2,3 cd)pyrene	193 39 5					X						
Naphthalene	91 20 3											
N Nitrosodiphenylamine	86-30-6											
Phenol	108-95 2								X	X	X	
Pesticide												
alpha-BHC	319 84 6											
beta BHC	319 85 7											
Heptachlor Epoxide	1024-57 3											
Herbicide												
MCPA	94 74 6											
MCPP	93 65 2											
Pentachlorophenol	87 86 5		X		X		X	X				
Metals												
Aluminum	7429 90 5											
Antimony	7440 36 0											

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	O - AA-O-1-120	O - AA-O-1-56	O - AA-O-1-76	O - AA-O-1-96	O - AA-O-2-121	O - AA-O-2-124	O - AA-O-2-53	O - AA-O-2-83	O - AA-O-2-93	O - AA-O-3-108	O - AA-O-3-68
Arsenic	7440-38-2		X				X					
Barium	7440-39-3											
Beryllium	7440 41-7											
Cadmium	7440-43-9											
Chromium	7440-47-3				X		X					
Lead	7439-92-1				X		X					
Manganese	7439-96-5	X	X				X	X		X	X	X
Nickel	7440-02-0						X					
Thallium	7440-28 0											
Vanadium	7440 62-2						X					
Total:		2	4	1	2	1	7	1	1	1	1	1

Notes
CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
MCPA - 2-Methyl 4-chlorophenoxyacetic acid
MCPP - 2-(2-Methyl-4 chlorophenoxy) propionic acid
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds

TABLE F-2
SUMMARY OF COPCS IN DEEP GROUNDWATER
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	O - AA-O-1-120	O - AA-O-1-56	O - AA-O-1-76	O - AA-O-1-96	O - AA-O-2-121	O - AA-O-2-124	O - AA-O-2-53	O - AA-O-2-83	O - AA-O-2-93	O - AA-O-3-108	O - AA-O-3-68
VOCs												
1,1,2,2-Tetrachloroethane	79-34 5											
1,2-Dichloroethane	107-06 2											
1,2-Dichloroethene (total)	540 59 0											
4-Methyl 2-pentanone (MIBK)	108 10 1											
Acetone	67 64-1											
Benzene	71-43-2											
Carbon Tetrachloride	56-23 5											
Chlorobenzene	108-90-7			X					X			
Chloroethane	75 00 3											
Chloromethane	74-87-3											
Ethylbenzene	100-41 4											
Tetrachloroethene	127-18 4											
Toluene	108-88-3											
Trichloroethylene	79-01-6											
Vinyl chloride	75 01 4	X				X						
SVOCs												
1,2-Dichlorobenzene	95-50-1											
1,4-Dichlorobenzene	106-46-7											
2,4,6-Trichlorophenol	88-06 2											
2,4 Dichlorophenol	120 83 2											
2,4-Dimethylphenol	105 67-9											
2-Chlorophenol	95 57 8											
2-Methylnaphthalene	91-57 6											
2-Nitroaniline	88-74 4											
3-Methylphenol/4-Methylphenol	106-44 5											
4-Chloroaniline	106-47-8											
Benzo(a)anthracene	56-55-3											
Benzo(a)pyrene	50-32-8											
Benzo(b)fluoranthene	205-99-2											
Benzo(k)fluoranthene	207-08 9											
Carbazole	86-74-8											
Chrysene	218-01-9											
Dibenzo(a,h)anthracene	53-70-3		X									
Indeno(1,2,3-cd)pyrene	193-39-5		X									
Naphthalene	91-20-3											
N-Nitrosodiphenylamine	86-30-6											
Phenol	108-95-2											
Pesticide												
alpha-BHC	319-84-6											
beta-BHC	319-85-7											
Heptachlor Epoxide	1024 57-3											
Herbicide												
MCPA	94-74 6											
MCPP	93-65-2											
Pentachlorophenol	87-86-5											
Metals												
Aluminum	7429-90-5						X					
Antimony	7440-36-0											

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
EN - Essential nutrient
FOD - Frequency of detection
NA - Not available
-- Not applicable
PCB - Polychlorinated Biphenyl
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalence Concentration
USEPA - United States Environmental Protection Agency
VOC - Volatile Organic Compound
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available, will not be included as C(
(c) The detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged and high non-detected values were excluded (If one-half the detection limit was greater than the maximum detected concentration, the non-detect was not used)
(d) Equal to two times the average concentration for the constituent in deep groundwater in an off-site sampling location
(e) Off-site well/sample used to calculate background concentration for deep groundwater locations
(f) Groundwater screening levels were used according to the following hierarchy
Illinois Groundwater Quality Standards for Class I. Potable Resource Groundwater 35 Ill Adm Code 620 410 February 2, 2002
USEPA, 2002 2002 Edition of the Drinking Water Standards and Health Advisories Office of Water EPA 822-R-02-038 Maximum Contaminant Levels Summer 20(
IEPA, 2002 Tiered Approach to Corrective Action Objectives Appendix B, Table E Tier 1 Groundwater Remediation Objectives for tl e Groundwater Component of the Groundwater Ingestion Route Class I values Februar 2002
USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for Tap Water
(g) A constituent is identified as a COPC in deep groundwater/Leachate if it is detected in deep groundwater and/or leachate, is greater than 5 percent of samples, provided 20 samples are available, if it is not an essential nutrient, detected concentration is greater than the background concentration and if the detected concentration is greater than the groundwater screening level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - BDRK-S-1-165													
VOCs													
Carbon Disulfide	75-15-0	ug/L	1 1 1	100	5 00E-01	No	NA	OS - UAA-3/OS-3-116	--	7 00E+02	No	No	</=Screening Level
Methane	74-82-8	ug/L	1 1 1	100	1 10E+01	No	2 80E+01	OS - UAA-3/OS-3-116	No	NA	--	No	</=BKG
Metals													
Aluminum	7429-90-5	ug/L	1 1 1	100	6 30E+03	No	2 40E+03	OS - UAA-3/OS-3-116	Yes	3 60E+04	No	No	</=Screening Level
Arsenic	7440-38-2	ug/L	1 1 1	100	6 30E+00	No	NA	OS - UAA-3/OS-3-116	--	5 00E+01	No	No	</=Screening Level
Calcium	7440-70-2	ug/L	1 1 1	100	2 90E+04	Yes	6 80E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Iron	7439-89-6	ug/L	1 1 1	100	3 30E+03	Yes	1 22E+05	OS - UAA-3/OS-3-116	No	5 00E+03	No	No	EN
Magnesium	7439-95-4	ug/L	1 1 1	100	1 50E+04	Yes	2 40E+05	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Manganese	7439-96-5	ug/L	1 1 1	100	2 20E+01	No	2 40E+03	OS - UAA-3/OS-3-116	No	1 50E+02	No	No	</=Screening Level
Mercury	7439-97-6	ug/L	1 1 1	100	7 30E-02	No	NA	OS - UAA-3/OS-3-116	--	2 00E+00	No	No	</=Screening Level
Nickel	7440-02-0	ug/L	1 1 1	100	8 00E+00	No	2 20E+01	OS - UAA-3/OS-3-116	No	1 00E+02	No	No	</=Screening Level
Potassium	7440-09-7	ug/L	1 1 1	100	1 30E+04	Yes	2 20E+04	OS - UAA-3/OS-3-116	No	NA	--	No	EN
Sodium	7440-23-5	ug/L	1 1 1	100	4 60E+05	Yes	1 22E+05	OS - UAA-3/OS-3-116	Yes	NA	--	No	EN
Vanadium	7440-62-2	ug/L	1 1 1	100	1 40E+01	No	NA	OS - UAA-3/OS 3-116	--	4 90E+01	No	No	</=Screening Level
Zinc	7440-66-6	ug/L	1 1 1	100	7 20E+00	No	4 60E+02	OS UAA-3/OS-3 116	No	5 00E+03	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location (e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-94													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 50E-01	No	NA	OS - UAA-3/OS-3-94	--	7 00E+02	No	No	</=Screening Level
1,2-Dichloroethene (total)	540-59-0	ug/L	1 1 1	100	1 30E+00	No	NA	OS - UAA-3/OS-3-94	--	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	5 10E+01	No	4 20E+03	OS - UAA-3/OS-3-94	No	1 00E+02	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 10E-01	No	NA	OS - UAA-3/OS-3-94	--	2 00E+00	No	No	</=Screening Level
SVOCs													
2-Chlorophenol	95-57-8	ug/L	1 1 1	100	1 50E+00	No	1 90E+01	OS - UAA-3/OS-3-94	No	3 50E+01	No	No	</=Screening Level

TABLE F-1
DEEP GROUNDWATER SCREEN
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Essential Nutrient?	Background Concentration (d)	Off-site Background Location(e)	Is Detected Concentration > Background?	Ground water Screening Level (f)	Is Detected Concentration > Screening Value?	COPC? (g)	Reason
S - AA-S-3-84													
VOCs													
1,1-Dichloroethane	75-34-3	ug/L	1 1 1	100	5 70E-01	No	NA	OS - UAA-3/OS-3-84	--	7 00E+02	No	No	</=Screening Level
1 2 Dichloroethene (total)	540-59 0	ug/L	1 1 1	100	7 10E-01	No	NA	OS - UAA-3/OS-3-84	--	7 00E+01	No	No	</=Screening Level
Chlorobenzene	108-90-7	ug/L	1 1 1	100	1 60E+01	No	2 60E+03	OS - UAA-3/OS-3-84	No	1 00E+02	No	No	</=Screening Level
Vinyl chloride	75-01-4	ug/L	1 1 1	100	4 10E-01	No	NA	OS - UAA-3/OS-3-84	--	2 00E+00	No	No	</=Screening Level

G

APPENDIX G

EVALUATION OF AMBIENT AIR MONITORING DATA

APPENDIX G
AMBIENT AIR MODELING DATA

This appendix provides the screening of the ambient air monitoring data collected at Sites P, Q, and R. Air samples were collected in the vicinity of Sites P, Q, and R and analyzed for VOCs, SVOCs, PCBs, dioxins, and metals. Air samples were collected over a 24-hour period during hot, dry conditions (August, 2002) conducive to air emissions of dust and volatiles. These data are compared to chronic screening levels as discussed in the HHRA Workplan (Appendix A). However, due to the one-time sample collection, these data are not quantitatively evaluated in the HHRA. As noted in the HHRA Workplan, the air pathway is addressed in the HHRA by modeling potential sources in soil, waste and groundwater (see Section 5.0). Ambient air sampling was conducted in the vicinity of Sites P, Q, and R to determine the tendency of site constituents to enter the atmosphere and local wind patterns. Figure 3-1 identifies the ambient air sampling locations.

Table G-1 presents the air concentrations and the comparison of each sample concentration to the PRGs for ambient air (USEPA, 2002b). Table G-2 presents the relatively few COPCs identified for the air samples. Benzene was identified as a COPC in every air sample. The screening level for benzene in air is very low (the Region 9 PRG is 0.23 ug/m^3). The site sample results range from 0.37 ug/m^3 to 7.8 ug/m^3. These results are consistent with average outdoor air levels of benzene across the US of 9.1 ug/m^3 (Shah and Singh, 1988).

References sited in this appendix are presented in Section 8 of the main text.

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-P-1									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 70E+00	1 00E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 24E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	5 46E-01	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	1 20E+00	1 10E+00	Yes	Yes	>Screening Level
Dichloromethane	75-09 2	ug/m3	1 1 1	100	1 78E+00	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	2 50E-01	1 70E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	1 98E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	2 40E-02	2 20E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	1 70E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	4 70E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	5 20E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
Heptachlor	76-44-8	ug/m3	1 1 1	100	9 80E-05	1 50E-03	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	9 80E-04	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746 01-6	ug/m3	1 1 1	100	6 16E-11	4 50E-08	No	No	</=Screening Level
Metals									
Sodium	7440-23-5	ug/m3	1 1 1	100	1 10E+00	NA	--	No	Screening Level NA

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-P-2									
VOCs									
1,1,1-Trichloroethane	71-55-6	ug/m3	1 1 1	100	1 40E-01	2 30E+02	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 41E+00	1 00E+02	No	No	</=Screening Level
Acetone	67 64-1	ug/m3	1 1 1	100	1 01E+01	3 70E+01	No	No	</=Screening Level
Benzene	71 43-2	ug/m3	1 1 1	100	4 22E-01	2 30E-01	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/m3	1 1 1	100	2 65E-01	3 10E-01	No	No	</=Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	9 48E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	2 13E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41 4	ug/m3	1 1 1	100	1 86E-01	1 70E+00	No	No	</=Screening Level
p-Xylene/m Xylene	106-42-3	ug/m3	1 1 1	100	5 04E 01	1 10E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	1 84E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	6 00E-02	2 20E+01	No	No	</=Screening Level
Fluoranthene	206-44-0	ug/m3	1 1 1	100	2 50E-02	1 50E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	4 00E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	7 40E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	1 20E-01	1 10E+02	No	No	</=Screening Level
Pesticide									
Heptachlor	76-44-8	ug/m3	1 1 1	100	9 60E-05	1 50E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	6 17E 09	4 50E-08	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-P-3									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 70E+00	1 00E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 37E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	4 89E-01	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	9 54E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	5 77E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	2 81E-01	1 70E+00	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	7 73E-01	1 10E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	2 34E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	1 90E-02	2 20E+01	No	No	</=Screening Level
Fluoranthene	206-44-0	ug/m3	1 1 1	100	2 00E-02	1 50E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	1 90E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	3 30E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	1 00E-01	1 10E+02	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	2 00E 04	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	1 89E-09	4 50E-08	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-P-4									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 45E+00	1 00E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 26E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	3 77E-01	2 30E-01	Yes	Yes	>Screening Level
Chloroform	67 66-3	ug/m3	1 1 1	100	3 15E-01	3 10E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	9 70E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	3 72E+00	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	1 61E-01	1 70E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	1 56E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	2 90E-02	2 20E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	2 00E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	4 70E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	5 00E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
alpha-BHC	319-84-6	ug/m3	1 1 1	100	1 30E-04	1 10E-03	No	No	</=Screening Level
Heptachlor	76 44-8	ug/m3	1 1 1	100	1 10E-04	1 50E-03	No	No	</=Screening Level
Heptachlor Epoxide	1024-57-3	ug/m3	1 1 1	100	8 30E-05	7 40E-04	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	2 10E-03	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	6 19E-11	4 50E-08	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-1									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	3 60E+00	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	2 24E+00	8 30E+00	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 63E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	2 08E+00	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	1 00E+00	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	7 95E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	6 10E-01	1 70E+00	No	No	</=Screening Level
o-Xylene	95-47-6	ug/m3	1 1 1	100	7 40E-01	1 10E+01	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	1 92E+00	1 10E+01	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	ug/m3	1 1 1	100	1 18E+00	1 10E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	6 40E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	2 90E-02	2 20E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	1 70E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	7 40E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	2 90E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
delta-BHC	319-86-8	ug/m3	1 1 1	100	1 10E-04	5 20E-03	No	No	</=Screening Level
Heptachlor	76-44-8	ug/m3	1 1 1	100	8 30E-05	1 50E-03	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	1 10E-03	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	8 44E-09	4 50E-08	No	No	</=Screening Level
Metals									
Barium	7440 39 3	ug/m3	1 1 1	100	3 60E-02	5 20E 02	No	No	</=Screening Level
Iron	7439 89 6	ug/m3	1 1 1	100	2 00E 01	NA	-	No	Screening Level NA

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-2									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 97E+00	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	2 99E+00	8 30E+00	No	No	</=Screening Level
Acetone	67 64 1	ug/m3	1 1 1	100	1 33E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	1 29E+00	2 30E-01	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/m3	1 1 1	100	1 65E+00	6 20E+00	No	No	</=Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	9 00E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	1 50E+00	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	3 70E-01	1 70E+00	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42 3	ug/m3	1 1 1	100	1 03E+00	1 10E+01	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	ug/m3	1 1 1	100	1 34E+00	1 10E+02	No	No	</=Screening Level
Toluene	108-88 3	ug/m3	1 1 1	100	4 11E+00	4 00E+01	No	No	</=Screening Level
Trichloroethylene	79-01-6	ug/m3	1 1 1	100	1 51E+00	1 70E 02	Yes	Yes	>Screening Level
Pesticide									
beta-BHC	319-85-7	ug/m3	1 1 1	100	9 90E-05	3 70E-03	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	ug/m3	1 1 1	100	1 50E-04	1 10E-01	No	No	</=Screening Level
Heptachlor	76-44-8	ug/m3	1 1 1	100	1 10E-04	1 50E-03	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	8 20E-04	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	4 46E-09	4 50E-08	No	No	</=Screening Level
Metals									
Barium	7440-39-3	ug/m3	1 1 1	100	3 50E-02	5 20E-02	No	No	</=Screening Level
Copper	7440-50-8	ug/m3	1 1 1	100	5 40E-02	1 46E+01	No	No	</=Screening Level
Iron	7439-89-6	ug/m3	1 1 1	100	1 50E-01	NA	-	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 1 1	100	1 50E-02	1 50E+00	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-3									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 48E+00	1 00E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 63E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	5 34E-01	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	8 71E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	4 72E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	3 69E-01	1 70E+00	No	No	</=Screening Level
o-Xylene	95-47-6	ug/m3	1 1 1	100	4 95E-01	1 10E+01	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	1 20E+00	1 10E+01	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	ug/m3	1 1 1	100	4 01E-01	1 10E+02	No	No	</=Screening Level
Tetrachloroethene	127-18-4	ug/m3	1 1 1	100	2 77E-01	6 70E-01	No	No	</=Screening Level
Pesticide									
Heptachlor	76-44-8	ug/m3	1 1 1	100	1 10E-04	1 50E-03	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	5 40E-04	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746 01-6	ug/m3	1 1 1	100	6 00E-09	4 50E-08	No	No	</=Screening Level
Metals									
Barium	7440-39-3	ug/m3	1 1 1	100	3 70E-02	5 20E-02	No	No	</=Screening Level
Iron	7439-89-6	ug/m3	1 1 1	100	1 90E-01	NA	--	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 1 1	100	1 50E-02	1 50E+00	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-4									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 57E+00	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	5 37E-01	8 30E+00	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	8 77E+00	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	9 94E-01	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	8 82E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	5 87E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	2 32E-01	1 70E+00	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	7 34E-01	1 10E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	2 32E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	2 70E-02	2 20E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	2 00E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	6 30E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	3 40E-02	1 10E+02	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	2 76E-03	3 40E 03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	1 02E-08	4 50E-08	No	No	</=Screening Level
Metals									
Barium	7440-39-3	ug/m3	1 1 1	100	3 15E-02	5 20E-02	No	No	</=Screening Level
Copper	7440-50-8	ug/m3	1 1 1	100	6 30E-02	1 46E+01	No	No	</=Screening Level
Iron	7439-89-6	ug/m3	1 1 1	100	2 80E-01	NA	--	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 1 1	100	1 25E-02	1 50E+00	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-5									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 24E+00	1 00E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 26E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	1 59E+00	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	8 76E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	4 90E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	2 18E-01	1 70E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	2 17E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Naphthalene	91-20-3	ug/m3	1 1 1	100	1 60E-01	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	2 20E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
gamma-Chlordane	5103-74-2	ug/m3	1 1 1	100	9 10E-05	1 90E-02	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	9 00E-03	3 40E-03	Yes	Yes	>Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	3 00E-09	4 50E-08	No	No	</=Screening Level
Metals									
Iron	7439-89-6	ug/m3	1 1 1	100	1 40E-01	NA	--	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 1 1	100	1 60E-02	1 50E+00	No	No	</=Screening Level
Zinc	7440-66-6	ug/m3	1 1 1	100	5 40E-02	1 10E+02	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-6									
VOCs									
1,1,1-Trichloroethane	71-55-6	ug/m3	1 : 1 : 1	100	1 43E-01	2 30E+02	No	No	</=Screening Level
1,2-Dichloroethane	107-06-2	ug/m3	1 : 1 : 1	100	1 77E-01	7 40E-02	Yes	Yes	>Screening Level
2-Butanone (MEK)	78-93-3	ug/m3	1 : 1 : 1	100	2 63E+00	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 : 1 : 1	100	7 29E-01	8 30E+00	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 : 1 : 1	100	1.28E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 : 1 : 1	100	8.42E-01	2.30E-01	Yes	Yes	>Screening Level
Chlorobenzene	108-90-7	ug/m3	1 : 1 : 1	100	2 38E-01	6 20E+00	No	No	</=Screening Level
Chloromethane	74-87-3	ug/m3	1 : 1 : 1	100	8.97E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 : 1 : 1	100	1.47E+00	4 10E+00	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 : 1 : 1	100	5 56E-01	1 10E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 : 1 : 1	100	1.96E+00	4.00E+01	No	No	</=Screening Level
SVOCs									
Naphthalene	91-20-3	ug/m3	1 : 1 : 1	100	4 15E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 : 1 : 1	100	3.30E-02	1.10E+02	No	No	</=Screening Level
Pesticide									
beta-BHC	319-85-7	ug/m3	1 : 1 : 1	100	1 11E-04	3 70E-03	No	No	</=Screening Level
Endrin Aldehyde	7421-93-4	ug/m3	1 : 1 : 1	100	1.75E-04	1 10E-01	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 : 1 : 1	100	1 13E-03	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 : 1 : 1	100	4 84E-09	4 50E-08	No	No	</=Screening Level
Metals									
Iron	7439-89-6	ug/m3	1 : 1 : 1	100	1.60E-01	NA	--	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 : 1 : 1	100	1.30E-02	1 50E+00	No	No	</=Screening Level
Zinc	7440-66-6	ug/m3	1 : 1 : 1	100	5 00E-02	1.10E+02	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-7									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 08E+00	1 00E+02	No	No	</=Screening Level
4-Methyl-2 pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	3 33E-01	8 30E+00	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	9 05E+00	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	6 00E-01	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	7 81E 01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	4 50E-01	4 10E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	1 34E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Naphthalene	91-20-3	ug/m3	1 1 1	100	6 40E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	2 00E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
Heptachlor	76-44-8	ug/m3	1 1 1	100	8 80E-05	1 50E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746 01-6	ug/m3	1 1 1	100	8 38E-09	4 50E-08	No	No	</=Screening Level
Metals									
Calcium	7440 70-2	ug/m3	1 1 1	100	3 10E+00	NA	-	No	Screening Level NA
Iron	7439-89-6	ug/m3	1 1 1	100	2 30E-01	NA	--	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 1 1	100	1 10E-02	1 50E+00	No	No	</=Screening Level
Zinc	7440-66-6	ug/m3	1 1 1	100	5 80E 02	1 10E+02	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-Q-8									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 80E+00	1 00E+02	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 27E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43 2	ug/m3	1 1 1	100	5 14E-01	2 30E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	7 60E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	5 04E-01	4 10E+00	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	1 24E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Naphthalene	91-20 3	ug/m3	1 1 1	100	1 70E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01 8	ug/m3	1 1 1	100	1 50E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
Heptachlor	76-44-8	ug/m3	1 1 1	100	9 90E-05	1 50E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	2 47E-09	4 50E-08	No	No	</=Screening Level
Metals									
Iron	7439-89-6	ug/m3	1 1 1	100	2 00E-01	NA	-	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 1 1	100	1 20E 02	1 50E+00	No	No	</=Screening Level
Zinc	7440-66-6	ug/m3	1 1 1	100	5 00E-02	1 10E+02	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-R-1									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	1 90E+01	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	6 19E+00	8 30E+00	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 01E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	1 35E+00	2 30E-01	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/m3	1 1 1	100	4 39E 01	3 10E 01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	8 18E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	4 65E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	4 39E-01	1 70E+00	No	No	</=Screening Level
o-Xylene	95-47-6	ug/m3	1 1 1	100	4 95E-01	1 10E+01	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	1 29E+00	1 10E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	4 60E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	1 80E-02	2 20E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	3 60E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	4 50E-02	1 10E+02	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	9 80E-04	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	9 61E-09	4 50E-08	No	No	</=Screening Level
Metals									
Iron	7439-89-6	ug/m3	1 1 1	100	1 20E 01	NA	--	No	Screening Level NA
Sodium	7440 23-5	ug/m3	1 1 1	100	1 20E+00	NA	-	No	Screening Level NA

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-R-2									
VOCs									
1,1,1-Trichloroethane	71-55-6	ug/m3	1 1 1	100	2 48E-01	2 30E+02	No	No	</=Screening Level
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	2 91E+01	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	8 68E+00	8 30E+00	Yes	Yes	>Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 20E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	2 00E+00	2 30E-01	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/m3	1 1 1	100	4 66E-01	3 10E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	9 11E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	4 65E-01	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	5 04E-01	1 70E+00	No	No	</=Screening Level
o-Xylene	95-47-6	ug/m3	1 1 1	100	5 91E-01	1 10E+01	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	1 59E+00	1 10E+01	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	4 97E+00	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	3 00E-02	2 20E+01	No	No	</=Screening Level
Fluoranthene	206-44-0	ug/m3	1 1 1	100	2 70E 02	1 50E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	2 00E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	4 10E-02	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	1 10E-01	1 10E+02	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	4 20E-03	3 40E-03	Yes	Yes	>Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	3 09E-09	4 50E-08	No	No	</=Screening Level
Metals									
Copper	7440-50 8	ug/m3	1 1 1	100	5 00E-02	1 46E+01	No	No	</=Screening Level
Iron	7439-89-6	ug/m3	1 1 1	100	2 70E+00	NA	--	No	Screening Level NA
Lead	7439-92-1	ug/m3	1 1 1	100	1 20E-02	1 50E+00	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-R-3									
VOCs									
2-Butanone (MEK)	78-93 3	ug/m3	1 1 1	100	2 00E+00	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	1 31E+00	8 30E+00	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 40E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	7 80E+00	2 30E-01	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/m3	1 1 1	100	6 98E-01	3 10E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	9 54E 01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	1 04E+00	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	2 90E+00	1 70E+00	Yes	Yes	>Screening Level
Methyl tert-butyl ether (MTBE)	1634-04-4	ug/m3	1 1 1	100	6 71E-01	1 92E+01	No	No	</=Screening Level
o-Xylene	95-47-6	ug/m3	1 1 1	100	3 55E+00	1 10E+01	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	9 77E+00	1 10E+01	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	ug/m3	1 1 1	100	5 88E-01	1 10E+02	No	No	</=Screening Level
Toluene	108-88-3	ug/m3	1 1 1	100	2 59E+01	4 00E+01	No	No	</=Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	4 00E-02	2 20E+01	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	2 70E 02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20-3	ug/m3	1 1 1	100	2 20E-01	3 10E-01	No	No	</=Screening Level
Phenanthrene	85-01-8	ug/m3	1 1 1	100	6 30E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
alpha-BHC	319-84-6	ug/m3	1 1 1	100	9 00E-05	1 10E-03	No	No	</=Screening Level
beta-BHC	319-85-7	ug/m3	1 1 1	100	8 20E-05	3 70E-03	No	No	</=Screening Level
Heptachlor	76 44-8	ug/m3	1 1 1	100	1 00E-04	1 50E-03	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36 3	ug/m3	1 1 1	100	2 00E-03	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	3 38E-09	4 50E-08	No	No	</=Screening Level
Metals									

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
Iron	7439-89-6	ug/m3	1 1 . 1	100	1 00E-01	NA	--	No	Screening Level NA

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason
AIR-R-4									
VOCs									
2-Butanone (MEK)	78-93-3	ug/m3	1 1 1	100	6 49E+00	1 00E+02	No	No	</=Screening Level
4-Methyl-2-pentanone (MIBK)	108-10-1	ug/m3	1 1 1	100	9 05E-01	8 30E+00	No	No	</=Screening Level
Acetone	67-64-1	ug/m3	1 1 1	100	1 84E+01	3 70E+01	No	No	</=Screening Level
Benzene	71-43-2	ug/m3	1 1 1	100	3 67E+00	2 30E-01	Yes	Yes	>Screening Level
Chloroform	67-66-3	ug/m3	1 1 1	100	4 97E-01	3 10E-01	Yes	Yes	>Screening Level
Chloromethane	74-87-3	ug/m3	1 1 1	100	9 16E-01	1 10E+00	No	No	</=Screening Level
Dichloromethane	75-09-2	ug/m3	1 1 1	100	1 14E+00	4 10E+00	No	No	</=Screening Level
Ethylbenzene	100-41-4	ug/m3	1 1 1	100	5 40E-01	1 70E+00	No	No	</=Screening Level
o-Xylene	95-47-6	ug/m3	1 1 1	100	6 10E-01	1 10E+01	No	No	</=Screening Level
p-Xylene/m-Xylene	106-42-3	ug/m3	1 1 1	100	1 59E+00	1 10E+01	No	No	</=Screening Level
Styrene (Monomer)	100-42-5	ug/m3	1 1 1	100	4 94E-01	1 10E+02	No	No	</=Screening Level
Tetrachloroethene	127-18-4	ug/m3	1 1 1	100	3 36E-01	6 70E-01	No	No	</=Screening Level
Toluene	108 88-3	ug/m3	1 1 1	100	5 62E+00	4 00E+01	No	No	</=Screening Level
Trichloroethylene	79 01-6	ug/m3	1 1 1	100	4 70E-01	1 70E 02	Yes	Yes	>Screening Level
SVOCs									
Acenaphthene	83-32-9	ug/m3	1 1 1	100	2 80E-02	2 20E+01	No	No	</=Screening Level
Anthracene	120-12-7	ug/m3	1 1 1	100	3 82E-02	1 10E+02	No	No	</=Screening Level
Fluorene	86-73-7	ug/m3	1 1 1	100	2 13E-02	1 50E+01	No	No	</=Screening Level
Naphthalene	91-20 3	ug/m3	1 1 1	100	1 40E-01	3 10E-01	No	No	</=Screening Level
Phenanthrene	85 01-8	ug/m3	1 1 1	100	5 20E-02	1 10E+02	No	No	</=Screening Level
Pesticide									
Heptachlor	76-44-8	ug/m3	1 1 1	100	6 70E-05	1 50E-03	No	No	</=Screening Level
PCBs									
Total PCBs	1336-36-3	ug/m3	1 1 1	100	1 03E-03	3 40E-03	No	No	</=Screening Level
Dioxin									
2,3,7,8-TCDD-TEQ	1746-01-6	ug/m3	1 1 1	100	2 92E 09	4 50E 08	No	No	</=Screening Level

TABLE G-1
AMBIENT AIR SCREEN
HUMAN HEALTH RISK ASSESSMEN
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	Units	FOD (a)	% FOD (b)	Detected Concentration (c)	Ambient Air Screening Level (d)	Is Detected Concentration > Screening Value?	COPC? (e)	Reason

Notes

BKG - Background concentration
CAS - Chemical Abstracts Service
COPC - Constituent of potential concern
FOD Frequency of detection
NA - Not available
PCB - Polychlorinated Biphenyl
-- Not applicable
SVOC - Semivolatile organic compound
TCDD-TEQ - 2,3,7,8-Tetrachlorodibenzo-p-dioxin Toxic Equivalence Concentration
USEPA - United States Environmental Protection Agency
VOC - Volatile Organic Compound
(a) Frequency of Detection = Number of detected samples Number of samples used to calculate statistics Total number of samples
(b) Percent of detected samples out of samples used to calculate statistics Constituents detected in fewer than 5 percent of samples, provided 20 samples are available will not be included as COPCs
(c) The detected concentration for a constituent for each medium/area combination after sample/duplicate pairs were averaged
(d) USEPA, 2002 Region 9 Preliminary Remediation Goal (PRG) Table October 1, 2002 Value for Ambient Air If no PRG is available, the USEPA, 2003 Region 3 Risk-Based Concentration (RBC) Table, Value for Ambient air is used The screening value for lead is the primary standard from the National Ambient Air Quality Standards (NAAQS), 2003
(e) A constituent is identified as a COPC if it is detected in greater than 5 percent of samples, provided 20 samples are available if the maximum detected concentration is greater than the background concentration and if the detected concentration is greater than the ambient air screening level

TABLE G-2
SUMMARY OF COPCS IN AMBIENT AIR
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Constituent	CAS	P-1	P-2	P-3	P-4	Q-1	Q-2	Q-3	Q-4	Q-5	Q-6	Q-7	Q-8	R-1	R-2	R-3	R-4
VOCs																	
1,2-Dichloroethane	107-06-2										X						
4-Methyl-2-pentanone (MIBK)	108-10-1														X		
Benzene	71-43-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chloroform	67-66-3				X									X	X	X	X
Chloromethane	74-87-3	X															
Ethylbenzene	100-41-4															X	
Trichloroethylene	79-01-6						X										X
PCBs																	
Total PCBs	1336-36-3									X					X		
Total:		**2**	**1**	**1**	**2**	**1**	**2**	**1**	**1**	**2**	**2**	**1**	**1**	**2**	**4**	**3**	**3**

Notes

CAS - Chemical Abstracts Service
COPC - Constituent of Potential Concern
PCB - Polychlorinated Biphenyl
VOC - Volatile organic compound

H

APPENDIX H

ABSORPTION ADJUSTMENT FACTORS

Default **2**
Volatile Organic Constituents **4**
BENZENE 5
CHLOROFORM 6
METHYLENE CHLORIDE 9
Semi-Volatile Organic Constituents **10**
POLYCYCLIC AROMATIC HYDROCARBONS (PAH) 11
BIS(2-ETHYLHEXYL)PHTHALATE (BEHP) 15
HEXACHLOROBENZENE 17
POLYCHLORINATED BIPHENYLS **18**
POLYCHLORINATED BIPHENYLS 19
Dioxins **26**
Dioxins 27
Metals **33**
ANTIMONY 34
ARSENIC 35
BARIUM 41
BERYLLIUM 42
CADMIUM 43
CHROMIUM VI 48
Cobalt 56
COPPER 57
MANGANESE 58
INORGANIC MERCURY 59
NICKEL 66
THALLIUM 70
VANADIUM 71
ZINC 72

DEFAULT

For the majority of constituents, specific information regarding absorption in humans is lacking. For these constituents, it is assumed that absorption is complete (i.e., 100%) and is the same in humans and study animals for drinking water, diet, and soil ingestion exposures. Therefore, the AAF (oral-water), AAF (oral-diet), and the AAF (oral-soil) are all (100%)/(100%) = 1.

A recommended default value for organics of 1% absorption from dermal exposures to soil and sediment has been used (USEPA, 2000). Thus, the default AAF for organic constituents (dermal-soil/sediment) is (1%/100%) = 0.01.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For constituents lacking specific information, the default AAF (dermal-water) is 100%/100% = 1.

It is assumed that absorption in humans is similar to that of study animals. Therefore, the default AAF (inhalation) is 1.

Summary of Default AAFs for Organic Constituents

Oral-water	1
Oral-diet	1
Oral-soil	1
Dermal-soil	0.01
Dermal-water	1
Inhalation	1

References

USEPA. 2000. Region 4 Human Health Risk Assessment Bulletins - - Supplement to RAGS. USEPA Region 4. Atlanta, GA. Update 05/30/00.
[URL: http://www.epa.gov/region4/waste/oftecser/otsguid.htm]

Default AAFs apply to the following Constituents of Potential Concern (COPCs):

Volatile Organic Constituents
1,1,2-Trichloroethane
1,2-Dichloroethane
1,2-Dichloroethene (total)
2-Butanone (MEK)
4-Methyl-2-pentanone (MIBK)
Acetone
Chlorobenzene
Chloromethane
Ethylbenzene
Tetrachloroethene
Toluene
Trichloroethylene
Xylenes, Total
Semi-Volatile Constituents
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dimethylphenol
2-Chlorophenol
2-Nitroaniline
3-Methylphenol/4-Methylphenol
4-Chloroaniline
4-Nitroaniline
bis(2-Chloroethyl)ether
Nitrobenzene
Phenol
Pesticides
4,4'-DDE
4,4'-DDT
Aldrin
alpha-BHC
alpha-Chlordane
beta-BHC
delta-BHC
Dieldrin
Endrin Ketone
gamma-BHC (Lindane)
Heptachlor
Heptachlor epoxide
Herbicides
2,4,5-T
2,4-D
MCPA
MCPP
Pentachlorophenol

VOLATILE ORGANIC CONSTITUENTS

BENZENE

The oral cancer slope factor range for benzene (0.015 to 0.055 $(mg/kg\text{-}day)^{-1}$) is based on inhalation data from an occupational epidemiological study. (USEPA, 2003) The oral RfD for benzene of 4E-03 mg/kg-day is also based on inhalation data from an occupational epidemiological study (USEPA, 2003). Therefore, it is assumed that 47% of an ingested dose will be absorbed, as determined below for an inhaled dose. Based on absorption information on other volatile organic compounds, it is assumed that absorption is the same in humans for inhalation and drinking water, diet, and soil or sediment ingestion exposures. Thus the AAF (oral-water), the AAF (oral-diet), and the AAF (oral-soil) are all 1 for potential carcinogenic and noncarcinogenic effects.

ENSR has used a recommended default value for organics of 1% for dermal absorption of benzene from soil and sediment (USEPA, 2000). Thus, the AAF (dermal-soil) is (1%)/(47%) = 0.02 for both potential carcinogenic and noncarcinogenic effects.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For benzene, the AAF (dermal-water) is (100%)/(47%) = 2.13 for both potential carcinogenic and noncarcinogenic effects.

The inhalation CSF range for benzene of 0.0077 to 0.0273 $(mg/kg\text{-}day)^{-1}$ is based on epidemiological studies of humans exposed by inhalation (USEPA, 2003). The inhalation RfC of 0.03 mg/m^3, which is equivalent to an inhalation RfD of 0.00857 mg/kg-day, is also based on inhalation data from an occupational epidemiological study (USEPA, 2003). Several studies in humans indicate that about 47% of an inhalation dose is absorbed, with a range between 28% to 60% (Owen, 1990). Since both the study used to derive the CSF and the exposure pathway of concern are inhalation of benzene by humans, the AAF (inhalation) for carcinogenic and noncarcinogenic effects is 1.

Summary of AAFs for Benzene

Oral-water	1
Oral-diet	1
Oral-soil	1
Dermal-soil	0.02
Dermal-water	2.13
Inhalation	1

References

Owen, B.A. 1990. Literature-Derived Absorption Coefficients for 39 Chemicals via Oral and Inhalation Routes of Exposure. Reg. Toxicol. Pharmacol. 11:237-252.

USEPA. 2000. Region 4 Human Health Risk Assessment Bulletins - - Supplement to RAGS. USEPA Region 4. Atlanta, GA. Update 05/30/00.
[URL: http://www.epa.gov/region4/waste/oftecser/otsguid.htm]

USEPA. 2003. Integrated Risk Information System (IRIS). [URL: http://www.epa.gov/ngispgm3/iris/]

CHLOROFORM

The oral RfD (1E-02 mg/kg-day) is based on a feeding study in dogs with the chloroform in a toothpaste matrix. The oral RfD is protective of both noncarcinogenic and potentially carcinogenic effects via the oral route of exposure (USEPA, 2003). ATSDR (1988) and USEPA (1984) both report that absorption of chloroform by the gastrointestinal tract is complete regardless of vehicle. Thus, absorption in the dose-response studies is assumed to be 100%. Therefore, it is assumed that absorption is the same in animals and humans for gavage, drinking water, diet, soil, and sediment ingestion exposures. Thus, the AAF (oral-water), the AAF (oral-diet), and the AAF (oral-soil) are all 1.

ENSR has used a recommended default value for VOCs of 1% for dermal absorption from soil (USEPA, 2000). Thus, the AAF (dermal-soil/sediment) is (1%)/(100%) = 0.01.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For chloroform, the AAF (dermal-water) is (100%)/(100%) = 1.

The inhalation CSF for chloroform (8.1E-02 $(mg/kg\text{-}day)^{-1}$) provided in IRIS (USEPA, 2003) is based on a corn oil gavage study in mice. The CSF is defined in units of metabolized dose. Thus, the exposure dose of the risk assessment must be adjusted to a metabolized dose. In this case, the AAF is defined as the fraction of an inhalation exposure dose that is metabolized by humans. Adjusting the exposure dose by multiplying it by this AAF will yield an estimated human metabolized dose. This estimate can be multiplied by the cancer slope factor to yield an estimate of cancer risk.

Experimental data show that humans inhaling chloroform absorb and metabolize it differently than do rodents who receive it by gavage or by drinking water. First, although 100% absorption of chloroform in humans upon inhalation is assumed by USEPA (USEPA, 2003), the uptake of chloroform from inspired air in humans is less than 100%. Astrand and Gamberale (1978) measured the uptake of several fat soluble gases in 45 humans and found that the uptake of the gas into the body approaches zero as the alveolar concentration approaches the concentration in the inspired air. Morgan et al. (1970) found a similar result. In their experiments, they gave humans a single breath of radiolabelled chloroform, which was held for 20 seconds. Subjects were instructed to exhale twice before measurements were taken. Absorption would be expected to be high in such an experiment because the blood chloroform and alveolar concentrations of chloroform were zero. Indeed, 5.5% of the dose was exhaled immediately and 94.5% was taken up. After one hour, 10% of the dose had been exhaled unchanged. Thus, the metabolized dose could have been no higher than 90% and was probably substantially lower due to fat storage.

Retention and metabolism of inhaled chloroform would be expected to be lower in cases of continuous or intermittent exposures, versus the single exposure as studied by Morgan et al. (1970). The net rate of absorption will be reduced as the concentration of chloroform builds up in the blood. This was also demonstrated with exposure of humans to methylene chloride at a constant concentration (Morgan et al., 1970). The concentration in the expired air increased rapidly during the first hour and then plateaued. Thus, after equilibrium had been attained, the rate of absorption was low.

Two studies are available that measured the amount of chloroform retained in the body after continuous exposures. Davidson et al. (1982) reported the results of Lehmann and Hasegawa who measured the retention of chloroform during anaesthetic exposures. The method of analysis was a measurement of chloride in inspired and expired air. The average reported retention was 64% of the administered dose at 20 minutes, which was reported to be an equilibrium value. Retention in this case is a measure of metabolism and storage. Thus, using retention as a surrogate for metabolism will overestimate metabolized dose.

Smith et al. (1973) presented similar data. They measured chloroform in arterial blood and venous blood by a gas chromatographic method. Davidson et al. (1982) calculated from these data that retention was 67%. The average of these two values (65.5%) can be taken as an estimate of the retention of chloroform in humans who are inhaling it continuously or intermittently.

As noted above, human experimental data indicates that approximately 66% of an inhaled dose is retained and therefore that a maximum of 66% of a continuously inhaled dose of chloroform is metabolized. Thus, the AAF (inhalation) for potential carcinogenic effects is 0.66 and exposure doses in risk assessments must be multiplied by 0.66 to convert the exposure dose into an appropriate estimate of the metabolized dose.

The NCEA (1/22/03) provides an inhalation RfC for chloroform of 0.05 mg/m^3 (0.0143 mg/kg-day). Due to a lack of information on what the value is based on, it is assumed that the AAF (inhalation) for noncarcinogenic effects is 1.

Summary of AAFs for Chloroform

Oral-Water	1
Oral-Diet	1
Oral-Soil	1
Dermal-Soil	0.01
Dermal-Water	1
Inhalation	0.66 (carcinogenic effects)
	1 (noncarcinogenic effects)

REFERENCES

ATSDR. 1988. Toxicological Profile for Chloroform. U.S. Agency for Toxic Substances and Disease Registry, Atlanta, GA. PB89-160360.

Astrand, I. and F. Gamberale. 1978. Effects on Humans of Solvents in the Inspiratory Air: A Method for Estimation of Uptake. Environmental Research, Vol. 15: 1-4.

Morgan, A., A. Black, and D.R. Belcher. 1970. The Excretion in Breath of some Aliphatic Halogenated Hydrocarbons Following Administration by Inhalation. Ann. Occup. Hyg., Vol. 13: 219-233.

NCEA. 1997. Derivation of a Provisional RfC for Chloroform. December 1, 1997.

Davidson, T.W.F., D.D. Sumner and J.C. Parker. 1982. Chloroform: A review of its metabolism, teratogenic, mutagenic, and carcinogenic potential. Drug Chem. Toxicol., Vol. 5(1): 1-87.

Smith, A.A., P.O. Volpitto, Z.W. Gramling, M.B. DeVore, A.R. Glassman. 1973. Chloroform halothane, and regional anesthesia. A comparative study. Anesth Analg (Cleveland), Vol. 52:1-11.

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USEPA. 2000. Region 4 Human Health Risk Assessment Bulletins - - Supplement to RAGS. USEPA Region 4. Atlanta, GA. Update 05/30/00. May 2000. [URL: http://www.epa.gov/region4/waste/oftecser/otsguid.htm]

USEPA. 2003. Integrated Risk Information System (IRIS). [URL: http://www.epa.gov/ngispgm3/iris/]

METHYLENE CHLORIDE

The oral CSF for methylene chloride (7.5E-03 $(mg/kg/day)^{-1}$) is based on drinking water and inhalation studies in mice. The oral RfD (6E-02 mg/kg/day) is based on a drinking water study in rats. Therefore, the derived AAFs for oral and dermal exposure routes will be the same for evaluating both carcinogenic and noncarcinogenic effects. The USEPA (1985) reports that absorption of methylene chloride by the gastrointestinal tract is high regardless of vehicle. Based on this information and other absorption information on other volatile organic compounds, it is assumed that absorption is the same in animals and humans for gavage, drinking water, inhalation, and soil or sediment ingestion exposures. Thus, the AAF (oral-water), the AAF (oral-diet), and the AAF (oral-soil) are 1.

A recommended default value for VOCs of 1% was assumed for dermal absorption of methylene chloride from soil and sediment (USEPA, 2000). An estimate of the gastrointestinal absorption of methylene chloride in the dose-response studies was derived from the USEPA (1985) in which several absorption estimates were listed. The average of four estimates was 63%. Thus, the AAF (dermal-soil) is (1%/63%) = 0.016.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. Be definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined (100%)/(estimated absorption in the dose-response study). For methylene chloride, the AAF (dermal-water) is (100%)/(63%) = 1.6.

The inhalation RfC, 3.0 mg/m^3 (8.57E-01 mg/kg/day), is derived from an inhalation study in rats. It is assumed that absorption of methylene chloride in humans is the same as in the rats used in the dose-response study. Thus the AAF (inhalation) is 1 for noncarcinogenic effects. The inhalation cancer unit risk factor for methylene chloride is 4.7E-07 per $(\mu g/m^3)^{-1}$, equivalent to 1.65E-03 $(mg/kg/day)^{-1}$). It is derived from an inhalation study in mice. This value was derived by incorporating a physiologically based pharmacokinetic model to account for extrapolation of metabolism at high doses to low doses. It is assumed that no further adjustments are required, so the AAF (inhalation-vapor, inhalation) is 1 for cancer risk.

Summary of AAFs for Methylene Chloride

Oral-Water	1.0
Oral-Diet	1.0
Oral-Soil	1.0
Dermal-Soil	0.016
Dermal-Water	1.6
Inhalation	1.0 (for both carcinogenic and noncarcinogenic effects)

REFERENCES

U.S. EPA. 1985. Health Assessment Document for Dichloromethane (Methylene Chloride). Final Report. Office of Health and Environmental Assessment, Washington, D.C. EPA/600/8-82/004F.

USEPA. 2000. Region 4 Human Health Risk Assessment Bulletins - - Supplement to RAGS. USEPA Region 4. Atlanta, GA. Update 05/30/00. [URL:http://www.epa.gov/region4/waste/oftecser/otsguid.htm]

SEMI-VOLATILE ORGANIC CONSTITUENTS

POLYCYCLIC AROMATIC HYDROCARBONS (PAH)

The majority of the information presented below was derived from a paper entitled Absorption Adjustment Factor (AAF) Distributions for Polycyclic Aromatic Hydrocarbons (PAHs) (Magee et al., 1996).

These AAFs are appropriate for use with the following dose-response values for PAH:

- The oral cancer slope factor (CSF) for benzo(a)pyrene (BAP) of 7.3 $(mg/kg\text{-}day)^{-1}$ (USEPA, 2003) and the adjusted CSF for the remaining potentially carcinogenic PAH (cPAH) using the following relative potency factors (USEPA, 1993):

PAH	Relative Potency Factor
Benzo(a)pyrene	1
Benzo(a)anthracene	0.1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-cd)pyrene	0.1

- The inhalation CSF for BAP of 3.1 $(mg/kg\text{-}day)^{-1}$ (USEPA, 1994) and the adjusted CSF for the remaining potentially carcinogenic PAH using the relative potency factors listed above.

- The oral reference doses (RfDs) available from USEPA (2003) for the noncarcinogenic PAHs (ncPAHs): acenaphthene (0.06 mg/kg-day), anthracene (0.3 mg/kg-day), fluoranthene (0.04 mg/kg-day), fluorene (0.04 mg/kg-day), naphthalene (0.02 mg/kg-day) and pyrene (0.03 mg/kg-day).

- The inhalation reference concentration (RfC) available from USEPA (2003) for naphthalene of 3E-3 mg/m^3, which is equivalent to an RFD of 9E-04 mg/kg-day.

Absorption in the Dose-Response Studies

In the studies used to develop the CSF for BAP, BAP was administered in the diet. Corn oil gavage was used to administer doses in the RfD studies. The Magee et al. (1996) paper summarizes studies on the gastrointestinal absorption of PAHs, and develops a point estimate for gastrointestinal absorption in the dose-response studies of 92%, which is the average of 13 data points from six studies.

Oral-Soil AAF

cPAHs. An oral-soil AAF of 0.29 is used for cPAHs. This value is based on a review of six available studies of PAHs performed in vivo, as summarized in Magee et al. (1996). Three studies that evaluated gastrointestinal (oral) absorption of PAHs from a soil matrix (Goon et al., 1991; Rozett at al., 1996; and Weyand et al., 1996) were deemed appropriate for use for developing an oral-soil AAF. The Rozett et al. (1996) study evaluated the bioavailability of pyrene from aged soil from manufactured gas plant residue (coal tar). The oral AAFs based on this study range from 0.07 to 0.76, with an average of 0.26. Weyand et al. (1996) also evaluated the oral bioavailability of pyrene from manufactured gas plant residue. The oral AAFs based on this study range from 0.11 to 0.36, with an average of 0.23. The last study, Goon et al. (1991) evaluated the bioavailability of BAP adsorbed to "aged" soil (clay-based and sand-based soils). These aged soils were treated with BAP and allowed to age 1 to 30 days, and 6 months to 1 year. The oral AAF for clay-based soil is 0.37

and that for sand-based soils is 0.57. A probabilistic (Monte Carlo) analysis, using 12 estimates of the AAF from all three studies, results in a 50th percentile oral-soil AAF of 0.27, with an upper 90th percentile value of 0.57. The Magee et al. (1996) paper recommends the use of a point-estimate oral-soil AAF of 0.29, which is the arithmetic mean of the point estimates used to develop the distribution.

ncPAHs. Magee et al. (1996) states that the oral absorption of cPAH and ncPAH is similar, therefore, it is appropriate to use the value derived above, 0.29, for the risk evaluation for ncPAHs.

Dermal-Soil AAF

cPAHs. A dermal-soil AAF of 0.02 is used for cPAHs. This value is based on the data from two studies (Yang et al., 1989; Wester et al., 1990). Yang et al. (1989) evaluated the percutaneous absorption of BAP from petroleum crude-fortified soils in vivo in rats and in vitro using excised rat skin. Estimates of absorption were made at 24, 48, 72 and 96 hours. In vivo absorption ranged from 1.1% to 9.2%, and in vitro absorption ranged from 1.5% to 8.4%. Wester et al. (1990) evaluated the percutaneous absorption of BAP added to soil (unaged) in vivo in Rhesus monkeys and in vitro using human cadaver skin, both for 24-hour exposures. Absorption in monkey skin ranged from 10.8% to 18.0% with an average of 13.2%. Absorption in human skin ranged from 0.31% to 3.01% and averaged 1.45%. Because the 24+ hour exposures are not directly relevant to human health risk assessment the data points were adjusted to reflect a 12-hour exposure period assuming absorption is linear between 0 and 24 hours. A probabilistic (Monte Carlo) analysis, using the in vivo and in vitro 24-hour data points (four), adjusted for a 12-hour exposure, from both studies, results in a 50th percentile dermal-soil AAF of 0.02, and an upper 90th percentile value of 0.06. The Magee et al. (1996) paper recommends the use of a point-estimate dermal-soil AAF of 0.02, which is the arithmetic mean of the point estimates used to develop the distribution. It should be noted that one of the authors of the Wester et al. (1990) study, and a well recognized expert in dermatotoxicology, Dr. Howard I. Maibach, M.D., believes that human skin in vitro is a better model of human exposures than any in vivo animal model. If the human skin data were used alone, an AAF of 0.015 would result.

ncPAHs. Dermal absorption data for ncPAHs are summarized by Magee et al. (1996). Although the dermal absorption efficiency of ncPAHs varies from 1x to 100x that of BAP, these data are from studies of ncPAHs applied in solution, not in a soil matrix. The authors have applied a uniform distribution for a standard USEPA default uncertainty factor of 10 that ranges from 1 to 10, to the distribution of dermal-soil AAF for cPAHs. A probabilistic (Monte Carlo) analysis results in a 50th percentile dermal-soil AAF of 0.09, and an upper 90th percentile value of 0.36. The Magee et al. (1996) paper recommends a point estimate value of 0.1 for the dermal-soil AAF for ncPAHs.

Oral-Water AAF

The oral-water AAF for ingestion of PAHs in water is derived from the study of Kawamura et al. (1988). Kawamura and co-workers studied the effects of various foods on the absorption of BAP in rats. The absorption ratio was defined as the ratio of the blood levels of BAP and its metabolites at 25 hours after oral dosing compared to the blood levels following an intravenous injection of the BAP. The "absorption ratio" in this study is an example of a relative bioavailability estimate, not a measure of absolute absorption, therefore, these values cannot be compared to the absorption information based on fecal excretion data presented in the Magee et al. (1996) paper. The absorption ratio for a suspension of BAP in water was found to be 25.7% in the Kawamura study. The absorption efficiency observed with solid foods such as cellulose, lignin, bread, rice flake, starch, potato flake, spinach, dried bonito, ovalbumin and soybean oil were observed to be very similar, varying from 20% to 29%, with a mean of 24.3%. The differences in absorption between the foodstuffs and water is not statistically different. BAP was also administered in two oil preparations in this experiment: triolein and soybean oil. The absorption ratios of 50.5% and 39.4%, respectively, were determined to be significantly different from the absorption ratios for the water and foodstuff

preparations. The average of these two values is 45%. However, none of the studies reviewed in Magee et al. (1996) observed a difference between absolute absorption of BAP in food and oils (corn, peanut, and olive).

cPAHs. The oral CSF for BAP is derived from rodent feeding studies. Because of the similarity in absorption of BAP from water and food in the Kawamura study, an oral-water AAF of 1.0 is recommended for use in the risk assessment for cPAHs.

ncPAHs. The RfD dose-response studies are all based on corn oil gavage administration. The Kawamura study demonstrates that absorption in oils is greater than absorption in food, and the following AAF can be calculated from this study: 25.7% / 45% = 0.6. However, because this is the only study of several reviewed that observed a difference in absorption between foodstuffs and oils, it will be assumed here that absorption is the same from water, oils and foodstuffs. Therefore, an oral-water AAF of 1.0 is recommended for use in the risk assessment for ncPAHs.

Oral-Diet AAF

The oral CSF and RfDs for PAHs are based on dietary and corn oil gavage studies in mice and rats. Hecht and coworkers (Hecht et al., 1979) fed BAP to both humans and rats and measured the unchanged BAP in the feces to obtain an estimate of the amount of the chemical absorbed. Because unchanged BAP in the feces can be due to absorbed material that is excreted unchanged in the bile, these studies reveal the minimum amount of BAP that was absorbed. It is known, however, that BAP is extensively metabolized. For rats, at least 87% of the BAP was absorbed for a low single dose in peanut oil (0.037 mg/kg) and at least 94% was absorbed for a high single dose in peanut oil (3.7 mg/kg). When rats were fed charcoal-broiled hamburger containing BAP, at least 89% was absorbed. In humans, a high percentage of BAP present in charcoal-broiled meat was also absorbed, because no unchanged BAP was detected in the feces. This study indicates that there is no difference in absorption between two dietary vehicles in rats. That is, absorption of BAP from peanut oil and meat was essentially the same. The results with rats and humans also indicates that there is no major difference in the gastrointestinal absorption of BAP between rats and humans. Therefore, the oral-diet AAF for both cPAHs and ncPAHs is 1.0, i.e., there are assumed to be no differences in absorption, not that absorption is 100%.

Dermal Water AAF

The Magee et al. (1996) paper summarizes studies on the gastrointestinal absorption of PAHs, and develops a point estimate for gastrointestinal absorption in the dose-response studies of 92%. The methodology used to evaluate dermal-water exposures calculates and absorbed dose (i.e., equivalent to 100% absorption). Thus gastrointestinal absorption of 92% is similar to the 100% dermal-water "absorption" for the PAHs. Therefore, a dermal-water AAF of 1 is recommended for use in the risk assessment for both cPAHs and ncPAHs.

Inhalation AAF

cPAHs.

The USEPA inhalation CSF for BaP of 3.1 $(mg/kg\text{-}day)^{-1}$ is a provisional value developed by the NCEA (USEPA, 1994); and the derivation of the value is not available. Due to a lack of information, it is assumed that the inhalation AAF is 1.

ncPAHs.

The RfC for naphthalene is based on an inhalation study in mice, where exposure occurred to a naphthalene aerosol. This study is likely to overestimate potential absorption and risk from exposure to naphthalene-containing soil particulates. However, due to lack of specific information, it is assumed that absorption in mice and humans is equivalent; therefore, the inhalation AAF is 1.

Summary of AAFs for PAHs

Oral-Water	cPAHs 1	ncPAHs	1
Oral-Diet	cPAHs 1	ncPAHs	1
Oral-Soil	cPAHs 0.29	ncPAHs	0.29
Dermal-Soil	cPAHs 0.02	ncPAHs	0.1
Inhalation	cPAHs 1	ncPAHs	1

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BIS(2-ETHYLHEXYL)PHTHALATE (BEHP)

The U.S. EPA oral CSF for BEHP (1.4E-02 $(mg/kg\text{-}day)^{-1}$) is based on a dietary study in mice, and the U.S. EPA oral RfD (2E-02 mg/kg-day) is based on a dietary study in guinea pigs. Several studies indicate that gastrointestinal absorption of BEHP is high (Williams and Blanchfield, 1974; Schulz and Rubin, 1973; Pollack et al., 1985). ENSR assumes that absorption from diet or corn oil gavage is 100%. ENSR also assumes that the gastrointestinal absorption of BEHP from diet, drinking water, corn oil gavage, and ingestion of soil is the same. Thus, the AAF (oral-water), the AAF (oral-soil/sediment), and the AAF (oral-diet) are all 1.0 for both carcinogenic and noncarcinogenic effects.

Dermal absorption of BEHP was studied by Scott et al. (1987). The absorption of BEHP was measured in vitro through human and rat skin. Absorption rates were determined after an observable lag time. For human skin the lag time was 3.1 hours. The steady state absorption rate was found to be 1.1 $ug/cm^2/hr$ for human skin. As a fraction of the total dose, the amount of absorption observed over eight hours was 0.008%. Rat skin was found to be more permeable to BEHP, with an absorption rate of 2.2 $ug/cm^2/hr$.

Elsisi et al. (1989) also studied the dermal absorption of BEHP in rats in vivo. They dosed the animals dermally and used urinary and fecal excretion as an index of absorption. This method is valid, because phthalate esters are rapidly excreted from the body and are not bioaccumulated. For BEHP, 0.4% of the dose was found in the urine or the feces after 24 hours. The absorption efficiency of BEHP on soil after a six hour exposure is expected to be less than this amount. To be protective of human health, however, the value for absorption of pure BEHP after 24 hours in the rat will be used for AAF derivation. Thus, the dermal AAF for BEHP in soil relative to dietary administration is 0.4%/100% = 0.004.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For BEHP, the AAF (dermal-water) is (100%)/(100%) = 1.0.

Summary of AAFs for BEHP (for both carcinogenic and noncarcinogenic effects)

Oral-water	1.0
Oral-diet	1.0
Oral-soil	1.0
Dermal-soil	0.004
Dermal-water	1.0

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HEXACHLOROBENZENE

The oral and inhalation cancer slope factor of 1.6 $(mg/kg\text{-}day)^{-1}$ and the oral reference dose of 8E-04 mg/kg-day are based on dietary studies in rats. Therefore, the AAFs are the same for carcinogenic and noncarcinogenic risk assessment. Limited information was available concerning the absorption of hexachlorobenzene, so information on the structurally related constituent polychlorinated biphenyls was used to derive appropriate AAFs. The detailed derivations of the AAFs are presented under polychlorinated biphenyls. As for PCBs, absorption of hexachlorobenzene from oil gavage has been show to be about 80% (ATSDR, 1989). The AAFs (oral-water and oral-diet) are 1. The AAF (oral-soil) is 0.83. The absorption factor for dermal-soil is 0.04 and for dermal-water is 1.1. The inhalation AAF is 1.

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POLYCHLORINATED BIPHENYLS

POLYCHLORINATED BIPHENYLS

The CSFs for PCBs range from 0.04 to 2.0 $(mg/kg\text{-}day)^{-1}$ (USEPA, 2003) and are based on the results from five chronic dietary studies in rats (Brunner et al., 1996; Kimbrough et al., 1975; NCI, 1978; Schaeffer et al., 1984; and Norback and Weltman, 1985). Table 1 presents the application of the CSFs to various exposure scenarios.

The current oral RfDs for Aroclor 1016 and Aroclor 1254 are 7.0E-5 mg/kg-day and 2.0E-5 mg/kg-day, respectively. The Aroclor 1016 value is based on critical effects observed in a reproductive bioassay in monkeys that were fed Aroclor 1016 in their diet (Barsottti and van Miller, 1984; Levin et al., 1988; Schantz et al., 1989, 1991). The Aroclor 1254 value is based on monkey clinical and immunologic studies in which the animals were fed gelatin capsules containing Aroclor 1254 in a glycerol: corn oil vehicle (Arnold et al., 1993a,b; Tryphonas et al., 1989, 1991a,b).

Absorption in the Dose-Response Study

Because all of the studies are based on dietary exposures, the AAFs developed below apply to both carcinogenic and non-carcinogenic effects of PCBs. In all of the dose-response studies, various Aroclors were administered in the diet. However, no information on the efficiency of gastrointestinal absorption in those studies was presented. The studies summarized below have been used in the development of AAFs for PCBs. The specific absorption values used in the calculation of the average absorption value are indicated by underlining below.

1. Allen et al. (1975) gave single oral doses of 2,5,2',5'-tetrachlorobiphenyl (18 mg/kg bw) to four adult rhesus monkeys by gastric intubation. PCBs were given in 2.5 ml of corn oil on an empty stomach. Unmetabolized PCBs were analyzed in the feces by gas chromatography (GC). Minimum gastrointestinal absorption was found to be 88%. PCBs found in the feces over specified post-dosing times were presumed to be unabsorbed material. Because PCB metabolites are known to be eliminated in the bile, the possibility exists that some of the PCBs present in the feces were absorbed and then eliminated. As such, only minimum absorption efficiencies can be determined from this and similar studies.

2. Allen et al. (1974) gave single oral doses of PCBs (Aroclor 1248) (1.5 or 3.0 g/kg bw) to two adult rhesus monkeys by gastric intubation. The vehicle was not specified but is presumed to be corn oil. Dosing was done on an empty stomach. Unmetabolized PCBs were analyzed for in feces by GC. Recovery was reported to be high. Minimum gastrointestinal absorption was reported to be 94%.

3. Albro and Fishbein (1972) gave single oral doses of 20 different PCB congeners (5-100 mg/kg bw) and the unabsorbed marker compound, squalene, to CD rats. The mixture was given by stomach tube to unfasted animals who were allowed food and water ad libitum. No vehicle was specified. Although this was not a diet study, per se, it is possible that dietary components were present in the stomach at the same time as were the test compounds. Minimum gastrointestinal absorption was reported to be 90% for all congeners.

4. Tanabe et al. (1981) gave repeated oral doses of Kanechlors (300, 400, 500, 600) (c.30 mg/kg bw/day x 5 days) to Wistar rats. The dose was given in corn oil. Commercial diet was given ad libitum. No information on the animals' stomach contents was reported. Parent compounds were analyzed in the feces by GC/MS (mass spectrometry). Minimal gastrointestinal absorption was reported to be 85% for total PCB. Cl_5 to Cl_7 congeners had 75-90% absorption.

5. Berlin et al. (1975) gave a single oral dose of 2,4,5,2',5'-pentachlorobiphenyl (7 mg/kg bw) to three CBA mice. The PCBs were given as an aqueous emulsion. No information on the animal's stomach contents was given. Minimal gastrointestinal absorption was reported to be 93%.

6. Van Miller et al. (1975) gave single oral doses (50 mg) of tritiated 2,2',5,5'-tetrachlorobiphenyl to three male Sprague-Dawley rats. The PCB was given by gavage in corn oil. Animals were given food and water ad libitum for 14 days. Urine, feces, and various tissues were analyzed. Over 86% of the radioactivity was present in the excreta as metabolites at 14 days. Thus, minimum gastrointestinal absorption was 86%.

7. Fries et al. (1989) gave four groups of four male Sprague-Dawley rats radiolabeled 2,2',5,5'-tetrachlorobiphenyl in diet or in corn oil (by gavage) or 2,2',4,5,5'-pentachlorobiphenyl in diet or in corn oil (by gavage). The animals given the PCBs by gavage were fed unspiked diet ad libitum. PCBs were administered daily for five days. Rats were then fed unspiked diet for 10 days. Urine and feces were collected. At 15 days, animals were sacrificed, and samples of fat and liver tissue were taken for analysis. The dose of PCBs given was not reported. The amount absorbed was defined as the amount that did not appear in the feces as parent compound. The average absorption of the two congeners when given in a dietary matrix was 89% [(91% + 86%) / 2]. The average absorption of the two congeners when given by corn oil gavage was 88% [(95% + 81%) / 2].

The above seven studies, which involve both rodents and primates and various PCB mixtures and purified congeners, all show that PCBs are very effectively absorbed from the gastrointestinal tract. In the one study (Fries, et al., 1989) in which PCBs were administered by diet, the absorption was shown to be 89%. The other six studies involved the administration of PCBs in various vehicles by gavage. These studies are also relevant to the estimation of the absorption seen in the dose-response studies, because Fries et al. (1989) showed in their rat study that there was no difference in absorption between diet and corn oil gavage. Accordingly, the results from all seven studies were averaged to yield an estimate of 89% for the absorption in the dose-response study.

Oral-Diet AAF

An oral-diet AAF for ingestion of PCBs was derived for intake of dietary constituents. The dose-response studies were all rat dietary studies. There are no studies available on gastrointestinal absorption of PCBs from fish, vegetables, milk, meat, or other human dietary constituents. To be health protective, it is assumed that the absorption of PCBs in humans from various dietary constituents is the same as the dietary absorption that occurs in rats. Thus, the AAF (oral-diet) is 1.0.

Oral-Soil AAF

Fries et al. (1989) gave four groups of four male Sprague-Dawley rats radiolabeled 2,2',5,5'-tetrachlorobiphenyl in diet or in soil or 2,2',4,5,5'-pentachlorobiphenyl in diet or soil. ^{14}C-PCB soil was added to a standard rat diet in meal form at the rate of 5%. In the control experiment, ^{14}C-PCB in acetone was added to the feed. The PCB-soil was a Galestown sandy loam with a pH of 6.7 and which contained 67% sand, 22% silt, 11% clay, and 5% organic matter. Soils had been spilled with PCBs 8 years earlier and were stored at -5°C. At the time of the experiment, fractions passing through a 125 µm sieve were spiked with ^{14}C-PCB for quantitation.

PCBs were administered daily for five days. Rats were then fed unspiked diet for 10 days. Urine and feces were collected. At 15 days, animals were sacrificed, and samples of fat and liver tissue were taken for analysis. The dose of PCB was not reported. The amount absorbed was defined as the amount that did not appear in the feces as parent compound.

The ratio of the amount of PCB absorbed when present as a soil matrix to that absorbed when present as a component of diet is a direct estimate of the oral-soil AAF. From this experiment, AAF estimates are available for two PCB congeners. The oral-soil AAF for the tetrachlorobiphenyl is (80%)/(91%)=0.88, while the estimate for the pentachlorobiphenyl congener is (67%)/(86%)=0.78. These two estimates are averaged [(0.88+0.78)/2] to give an estimate of the AAF (oral-soil) for PCB mixtures of 0.83.

Oral-Water AAF

In the absence of studies of absorption upon ingestion of PCBs in drinking water, it is assumed that the absorption of PCBs in humans from ingestion of water is the same as the dietary absorption that occurred in rats in the dose-response studies. Thus, the AAF (oral-water) is 1.

Dermal-Soil AAF

To derive the AAF (dermal-soil) one needs a value for the efficiency of absorption of soil-bound PCBs through human skin and an estimate of the absorption efficiency from dietary constituents in the dose-response studies. As discussed above, the gastrointestinal absorption of PCBs by rats from diet is estimated to be 89%. As discussed below, dermal PCB absorption in human skin from a soil matrix was determined by Roy et al. (1990) (as reported in USEPA, 1992).

In the study, dermal absorption of 3,3',4,4'-tetrachlorobiphenyl (TCB) was tested at a concentration of 1000 ppm in both low and high organic content soil for rat skin, both in vivo and in vitro, and human skin in vitro (n = 4 or 5) At 96 hours, the total fractional absorption in rats from low organic soil (at a soil application of 10 mg/cm2, and a soil concentration of 1000 ppm) was 50% +/- 11% in vivo and 32% +/- 3% in vitro. Results at intermediate time points were also given for the in vitro experiments.

Absorption was determined in the in vivo experiments by measuring the total amount of the chemical in urine, feces, and tissues. In the in vitro experiments, absorption was determined by measuring the amount of the chemical in the receptor fluid and adding to it the amount measured in the skin after washing. This unremovable material was scored as if it was systemically absorbed. The ratio of absorption in the rat in vivo to that in vitro was 1.6.

Human skin was tested in vitro. Tetrachlorobiphenyl at 1000 ppm was administered to human skin (at a soil application of 6 mg/cm2). At 24 hours, 1.33% +/- 0.47% of the dose was absorbed into the receptor fluid. At 96 hours, 7.36% +/- 2.42% was absorbed (including skin and receptor fluid).

USEPA (1992) has estimated the fractional absorption of TCB from low organic soil in humans in vivo by assuming that the in vivo/in vitro absorption ratio observed in the rat is valid for the human. In addition, the estimate reported above for the 24 hour period was made by adding the fraction of the chemical in the receptor fluid with the amount present in the skin after 96 hours. Thus, USEPA assumed that the fraction of the dose in the skin that could not be removed by washing was constant from 24 to 96 hours, which is reasonable. USEPA's estimate of fractional dermal absorption of PCBs at 1000 ppm in the live human from low organic soil is (1.6) x (1.33%) = 2.1%. USEPA also estimated the 24 hour fractional absorption in live humans from high organic soil to be 0.63%.

In developing its dermal absorption estimate for humans, USEPA considered the range of 0.6% for high organic soil to 2.1% for low organic soil and multiplied the lower estimate by 10 to arrive at its recommended default. In fact, 6% dermal absorption was not observed in any of the five human skin samples until exposure times reached 72 hours or greater. The USEPA's recommended default absorption rate of 6% is not used here, because it is not based on the scientific data.

To be health-protective, the absorption estimate for low organic soil of 2.1%, which may be encountered at various sites, is used for the AAF derivation. In addition, the upper 95% confidence

limit of the estimate, which is 3.8%, is used as an additional degree of health-protectiveness. This estimate is an overestimate of the dermal absorption that would be expected at actual sites, because PCB concentrations in soils would, in most cases, be below 1000 ppm, and field measurements have shown that actual soil loadings on skin in humans are quite low (Kissel et al., 1996; USEPA, 1997). Absorption efficiency in such cases would be expected to be lower. In addition, exposure periods would in actuality be less than 24 hours before washing. The estimate of the AAF (dermal-soil) is derived as follows: (absorption of PCB from soil through human skin) / (absorption of PCB in dose-response study) = (3.8%) / (89%) = 0.04.

The absorption efficiency determined above for tetrachlorobiphenyl in soil probably overestimates the dermal absorption efficiency of actual PCB mixtures that contain higher chlorinated congeners. These higher chlorinated species are more likely to have high binding coefficients with organic matter in soil, and they would be less likely to be absorbed through the skin from a soil matrix. However, it is health-protective to use the above data from the soil absorption study with tetrachlorobiphenyl to derive an AAF (dermal-soil) for use with all PCB mixtures.

Dermal-Water AAF

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading, swimming, or bathing. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). Thus, the AAF (dermal-water) is (100%)/(89%) = 1.1.

Inhalation AAF

In the absence of studies of absorption upon inhalation of PCBs, it is assumed that the AAF for this route of exposure is 1.

Summary of Derived AAFs for PCBs -Potentially Carcinogenic and Noncarcinogenic Effects

AAF (oral-water)	1
AAF (oral-diet)	1
AAF (oral-soil)	0.83
AAF (dermal-soil)	0.04
AAF (dermal-water)	1.1
AAF (inhalation)	1

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TABLE 1. TIERS OF CANCER SLOPE FACTORS FOR ENVIRONMENTAL PCBs
HIGH RISK AND PERSISTENCE Upper-bound slope factor: 2.0 $(mg/kg\text{-}day)^{-1}$ Central-estimate slope factor: 1.0 $(mg/kg\text{-}day)^{-1}$
Criteria for use: - Food chain exposure - Sediment or soil ingestion - Dust or aerosol inhalation - Dermal exposure, if an absorption factor has been applied - Presence of dioxin-like, tumor-promoting, or persistent congeners - Early-life exposure (all pathways)
LOW RISK AND PERSISTENCE Upper-bound slope factor: 0.4 $(mg/kg\text{-}day)^{-1}$ Central-estimate slope factor: 0.3 $(mg/kg\text{-}day)^{-1}$
Criteria for use: - Ingestion of water-soluble congeners - Inhalation of evaporated congeners - Dermal exposure if no absorption factor has been applied
LOWEST RISK AND PERSISTENCE Upper-bound slope factor: 0.07 $(mg/kg\text{-}day)^{-1}$ Central-estimate slope factor: 0.04 $(mg/kg\text{-}day)^{-1}$
Criteria for use: Congener or isomer analyses verify that congeners with more than 4 chlorines comprise less than 0.5% of total PCBs.

DIOXINS

DIOXINS

The U.S. EPA oral CSF of 1.5E+05 $(mg/kg\text{-}day)^{-1}$ is based on a dietary study in rats (Kociba et al., 1978). The diet was prepared by mixing (30 minutes) an acetone solution of TCDD with laboratory chow. The acetone was evaporated yielding a TCDD/diet mixture. TCDD concentration was 0.02 - 2 ppb (0.001 - 0.1 µg/kg-day). No absorption information is given in the Kociba et al. (1978) study.
In a study by Fries and Marrow (1975), however, rats were given TCDD in their diet continuously for 42 days. The total observation period of the experiment was 70 days. Diets were prepared in a similar manner to that used by Kociba et al. (1978). Laboratory chow was mixed with a benzene solution of TCDD and the benzene was evaporated. Two dose levels were used, 7 ppb and 20 ppb. Absorption was reported to be 50-60%. For the purposes of AAF derivation, 55% was used as the observed absorption efficiency.

In several other studies, TCDD absorption was measured using vegetable oil and solvent vehicles. Gastrointestinal absorption from oil or solvent has been reported to range from 70% to >87%. It is generally accepted that absorption for these vehicles is more efficient than absorption from diet. Thus, the results of the single dietary experiment (55%) will be used as an estimate of the absorption from the dietary dose-response study (Kociba et al., 1978).

AAF (Dermal-Soil)
To derive the AAF (dermal-soil) one needs a value for the efficiency of absorption of soil-bound TCDD through human skin and an estimate of the absorption efficiency from dietary constituents in the Kociba study. As discussed above, the gastrointestinal absorption of TCDD by rats from diet was found to be 55% by Fries and Marrow (1975). Several studies have been performed to determine such absorption of TCDD from various matrices. These will be used in the AAF derivation.Roy et al. (1990) measured the dermal bioavailability of neat 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) and TCDD adsorbed on soils in an EPA-funded study. Parallel experiments were carried out with female Sprague-Dawley rats, in vivo and in vitro, and with human skin specimens, in vitro. Adsorption of TCDD on low organic soil (0.77% organic matter) at 1 ppm dramatically reduced the dermal bioavailability of TCDD. The soil application rate was 10 mg/cm^2. The fraction of applied dose absorbed was decreased by a factor of five to ten compared to experiments with neat TCDD at an equivalent dose. Penetration of low organic soil-sorbed TCDD through human skin was approximately three times less than for rat skin.

The AAF (dermal-soil) was calculated several ways for TCDD. In all cases, the AAF is defined as (absorption in humans from soil)/(absorption in rats from diet). ENSR assumes that a relevant exposure time for soil contact was several hours. To be health-protective, however, 8-hour exposures are assumed for purposes of deriving the AAF. The data of Roy et al. (1990) demonstrate that only 1.0% of the exposure dose was absorbed from high organic soil over 96 hours on rat skin. Because human skin was shown to be less permeable than rat skin for TCDD and because absorption of TCDD from soil over 8 hours would be considerably less than that measured over 96 hours, the predicted absorption through human skin from high organic soil would be <1%. The AAF would thus be (<1%)/(55%) = <2%. To be health protective, however, ENSR will use the results from the low organic soil to derive the AAF (dermal-soil).
Roy and co-workers found that 33% of 10 ng/cm^2 of TCDD (neat) was dermally absorbed by the rat over 8 hours. This was determined in vivo. In addition, after 96 hours 77.4% was absorbed in an in vivo experiment, and 76% was absorbed in an in vitro experiment (average 76.5%). When the same amount of TCDD was applied to the rat in low organic soil, 16.3% was absorbed in 96 hours in vivo and 7.7% was absorbed in vitro (average 12.0%). The TCDD concentration in soil (1 ppm) and the soil contact rate (10 mg/cm^2) are both relevant for use in risk assessment. When the same dose in low organic soil was applied to human skin in vitro, 2.4% was absorbed after 96 hours. The same dose was also applied in high organic soil to rat skin in vitro, and absorption after 96 hours was 1.0%.

First, ENSR derived a AAF (dermal-soil) from the in vitro human skin experiment. Here, the absorption of TCDD from low organic soil over 96 hours was 2.4%. Because there are no data for 8-hour exposures, ENSR conservatively assumes that the entire amount was absorbed in only 8 hours. The AAF, then, is (2.4%)/(55%) = 0.04.
Second, ENSR derived an AAF (dermal-soil) from both the in vivo and in vitro rat experiments using low organic soil. At 96 hours, the ratio of absorption of TCDD from soil to absorption of pure TCDD was (12%)/(76.7%) = 0.16. An estimate of absorption of TCDD from soil at 8 hours can be made using the following relationship:

abs. from soil, 8 hrs = [(abs. from soil, 96 hrs)/(abs. neat, 96 hrs) x (abs. neat, 8 hrs).

Use of this relationship assumes that the decrease in bioavailability seen with a 96 hour observation is the same over 0-8 hours. The value for absorption of pure (neat) TCDD at 8 hours is taken from the same study, where 33% was observed in rats in vivo. Thus, absorption from soil over 8 hr = 0.16 x 33% = 5.28%, and the AAF (dermal-soil) = (5.28%)/(55%) = 0.10.

The approach outlined above was also used with a different estimate of absorption of pure TCDD after 8 hours. Banks and Birnbaum (1990) measured absorption of 3 μg radiolabelled TCDD/cm^2 in 10-week old male Fischer 344 rats at various time points up to 48 hours. Absorption was linear to 48 hours with a rate of 0.5 ng/hr. Predicted absorption at 8 hours was 6.6% (actual data point at 8 hours was 5.5%). Combining the data of Roy et al. (1990) and Banks and Birnbaum (1990), absorption from soil over 8 hr = .16 x 6.6% = 1.1%, and the AAF (dermal-soil) is (1.1%)/(55%) = 0.02.

In addition to the recent study of Roy et al. (1990), a study by Poiger and Schlatter (1980) has been widely used by risk assessors. Poiger and Schlatter (1980) dosed hairless rats (Naked ex Back-Cross and Holzman strain) with radiolabelled TCDD. The fraction of the administered dose in the liver after 24 hours was compared for two situations:

- 26 ng pure TCDD per 3 cm^2 of skin; and
- 26, 350 or 1,300 mg TCDD in a soil/water paste of 75 mg per 3-4 cm^2 of skin (50 mg dry soil/3-4 cm^2).

The fraction of the dose in the liver after administration of the soil paste was near the detection limit for the low dose and the same for the two higher dose levels. ENSR averaged the values and compared them to the percent dose in the liver following administration of pure TCDD to determine the ratio: (absorption from soil, 24 hours)/(absorption neat, 24 hours) = (1.32%)/(14.8%) = 0.09. One cannot obtain an estimate of the actual fraction of a dose of pure TCDD that is absorbed in 8 hours from this experiment. Thus, the two estimates provided by the Roy et al. (1990) and Banks and Birnbaum (1990) studies were used in AAF derivation:

AAF (dermal-soil) = [(0.09) x (0.33)]/(0.55) = 0.05
AAF (dermal-soil) = [(0.09) x (0.066)]/(0.55) = 0.01

In conclusion, ENSR has derived five estimates of the AAF (dermal-soil). These estimates agree well:

- Roy et al. (1990), human, in vitro; AAF = 0.04.
- Roy et al. (1990), rat, in vivo + in vitro; AAF = 0.09.
- Roy et al. (1990), rat, in vivo + in vitro; Banks and Birnbaum (1990), rat, in vivo, AAF = 0.02.
- Poiger and Schlatter (1980), rat, in vivo; Roy et al. (1990), rat, in vivo; AAF = 0.05.
- Poiger and Schlatter (1980), rat, in vivo; Banks and Birnbaum (1990), rat, in vivo; AAF = 0.01.

ENSR uses the average of these five estimates as the AAF (dermal-soil) = 0.04.

AAF (Oral-Diet)
An oral AAF for ingestion of TCDD equivalents was derived for intake of dietary constituents. The dose-response study is a study in which rats were dosed with TCDD in their diet (Kociba, 1978). There are no studies available on gastrointestinal absorption of TCDD by humans from fish, vegetables, milk or other dietary constituents. Using a single human volunteer, Poiger and Schlatter (1986) reported that a minimum of 85% of a dose of TCDD (1 ng/kg) in corn oil was absorbed. This study is not relevant for AAF derivation, however, because absorption of TCDD from vegetable oil vehicles has been well-documented to exceed the absorption from dietary constituents (U.S. EPA, 1985). Thus, ENSR assumes that the absorption of TCDD equivalents in humans from various dietary constituents is the same as the dietary absorption that occurred in rats in the Kociba (1978) study. Thus, the AAF (oral-diet) is 1.0.

AAF (Oral-Soil)
Several studies were identified that compared TCDD absorption from soil to either dirt, oil vehicle, or alcohol vehicle. These studies are relevant for derivation of the AAF. In the first study, Van den Berg and co-workers (1983) administered PCDDs and PCDFs from fly-ash and fly-ash extract to male Wistar rats as a dietary constituent. The fly-ash from a municipal incinerator in the Netherlands was chemically characterized and used.

Rats were fed treated diets for 19 days. The levels of PCDD and PCDF isomers in the liver at the end of the experiment were used as measures of absorption. By comparing fly-ash and fly-ash extract in a single experiment, the congener composition of the test material was held constant. Treatment of test diets with a PCDD/PCDF containing extract and evaporating the solvent is identical to the treatment of diets used by Kociba (1978) in the dose-response study. Thus, a comparison of the liver retention of PCDD/PCDF isomers with fly-ash-treated diet and extract-treated diet directly yields an estimate of the AAF (oral-fly-ash). ENSR assumes that the AAF (oral-soil) equals the oral fly-ash AAF.

The authors measured the liver levels of six isomer groups at the end of the experiment. ENSR has calculated the fly-ash/extract ratio for each isomer group separately:

Liver concentration (ng/g)

	tetra-CDD	tetra-CDF	penta-CDD	penta-CDF	hexa-CDD	hexa-CDF
Fly-ash + diet (n=2)	0.8	3.5	2.7	11.0	5.2	13.6
Extract + diet (n=4)	1.9	14.5	18.9	50.0	47.7	83.3
Fly-ash/extract	0.42	0.24	0.14	0.22	0.11	0.16

The average fly-ash/extract ratio for all six isomer groups is 0.22. This is a direct measure of the degree to which adsorption to fly-ash decreases the bioavailability of PCDDs/PCDFs compared to pure compounds mixed with dietary constituents. Thus, the AAF (oral-fly-ash) is 0.22. Because fly-ash is a major source of TCDD equivalents in the environment, this data is relevant to risk assessment, especially for resource recovery facilities. Thus, one estimate of the AAF (oral-soil) is 0.22.

Three other studies are available in which absorption of TCDD from soil was compared to oil or alcohol vehicles. Results from these studies are useful if an independent estimate is available for gastrointestinal absorption of TCDD from the relevant vehicle.

McConnell et al. (1984) investigated absorption in guinea pigs using soil from Missouri that was contaminated with TCDD. One or 3 ug/kg of TCDD was administered orally either in a corn oil vehicle or as a soil suspension. After a single dose of TCDD, the animals were observed for 30 days. The TCDD content of the liver was determined at 30 days or at the time of death of the animal. No detectible TCDD was observed in livers of animals dosed with 1 μg/kg of TCDD in either Times Beach or Minker Stout soil. At the higher dose level, TCDD was detected in animal livers with all groups. The liver levels in animals that survived for 30 days was lower than the levels in animals that died before the experiment's completion. Accordingly, the ratio of absorption from soil to absorption from corn oil for the latter group is higher: 0.24 for Times Beach and 0.15 for Minker Stout. The average ratio is 0.20.

It is well-documented that absorption of TCDD from vegetable oil vehicles exceeds the absorption from dietary constituents (U.S. EPA, 1985). As an estimate of the absorption of TCDD from vegetable oils, ENSR has averaged the results from the following four studies:

- Rose et al. (1976); rat; 1 μg/kg single dose; acetone/corn oil (1:25); 84%.
- Rose et al. (1976); rat; 0.1 or 1.0 μg/kg/da; acetone/corn oil (1:25); 5 days/week x 7 weeks; 86%.
- Piper et al (1973); rat; 50 μg/kg single dose; acetone/corn oil (1:9); 70%.
- Olson et al. (1980); hamster; 650 μg/kg; olive oil; 74%.
- Poiger and Schlatter (1986); human; 1 ng/kg; single dose; corn oil; >87%.

The average of these values is 80%. The AAF (oral-soil) is defined as follows:

$$\text{AAF (oral-soil)} = \frac{\text{abs. soil}}{\text{abs. diet}} = \frac{\text{abs. soil}}{\text{abs. oil}} \times \text{abs. oil} \div \text{abs. diet}$$

$$= (0.20) \times (0.8) \div (0.55) = 0.29$$

This indirectly derived AAF (oral-soil) based on McConnell et al. (1984) is in close agreement with the value of 0.22 directly demonstrated by Van den Berg et al. (1983).

In a similar experiment, Poiger and Schlatter (1980) studied the effects of soil adsorption on the bioavailability of TCDD in Sprague-Dawley rats. After oral administration of 15 ng radiolabelled TCDD using 50% ethanol as a vehicle, 37% of the dose was detected in the liver 24 hours later. When the constituent (21-22 ng) was administered as an aqueous suspension of soil particles (37% w/w) that had been in contact with the TCDD for 8 days, the fraction of the administered dose that was found in the liver 24 horus later was 16%. From these data, the ratio of TCDD absorption from soil compared to an aqueous ethanol vehicle is 0.43.

There are no estimates available for absorption of TCDD from 50% ethanol vehicles. To derive an estimate of the AAF (oral-soil) from the Poiger and Schlatter data, ENSR assumes that the absorption of TCDD from 50% ethanol is the same as the average absorption reported from corn oil, olive oil, 1:25 acetone/corn oil, and 1:9 acetone/corn oil. The AAF (oral-soil) is derived as above: (0.43) x (0.8)/(0.55) = 0.63.

Similar studies have also been performed in rabbits by Bonaccorsi et al. (1984). Levels of TCDD in the liver 7 days after an oral dose of TCDD either in alcohol or in soil from Seveso, Italy were compared. The ratio of TCDD absorption from soil relative to alcohol vehicle was 0.32 in this study. As above, ENSR assumes that the absorption of TCDD from alcohol vehicle is 80%. Thus, the AAF (oral-soil) is (0.32) x (0.80/(0.55) = 0.47.

The mean of the four estimates of the AAF (oral-soil) is 0.40. This value is more health-protective than the bioavailability factor of 30% used in the Center for Disease Control's risk assessment of TCDD in soil (Kimbrough et al. 1985). Thus, the AAF (oral-soil) and (oral-sediment) is 0.40.

AAF (Dermal-Water)
The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a constituent-specific permeability constant that estimates the rate at which the constituent passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For dioxin, the AAF (dermal-water) is (100%)/(55%) = 1.8.

AAF (Oral-Water)
ENSR assumes that the absorption of TCDD equivalents in humans from ingestion of water is the same as the dietary absorption that occurred in rats in the Kociba (1978) study. Thus, the AAF (oral-water) is 1.0.

AAF (Inhalation)
The EPA has developed a unit risk for inhaled dioxin from the oral CSF. In so doing, EPA assumed that 100% of the particles estimated to be retained in the lung are absorbed. ENSR defines here a AAF (inhalation) for dioxin contaminated fly ash based on the work of Nessel et al. (1990).
Transpulmonary absorption of 2,3,7,8-tetrachloro-dibenzo-p-dioxin (TCDD) from ground fly-ash (<3 um) and gallium oxide (0.7 ± 0.5 um) was assessed following intratracheal instillation of contaminated particles. Contact time of TCDD with the carrier ranged from 1 hour to 4 weeks. Female Sprague-Dawley rats (200-250 g) were intratracheally administered 5.25 µg TCDD/kg on 15 mg particles in 0.3 ml saline and sacrificed 4 days later. Absorption was characterized by aryl hydrocarbon hydroxylase (AHH) induction in hepatic and pulmonary microsomes.

TCDD-contaminated gallium oxide caused a consistent 13- to 15-fold induction regardless of the duration of contact. TCDD-contaminated fly ash caused only a 4-fold induction when the duration of contact was 1 hour to 1 week. After a 4-week contact, the induction was only 2-fold. These data can be used to derive a AAF (inhalation) for TCDD on fly ash. Thus, the ratio of fly ash to gallium oxide is 4/13 = 0.3. ENSR assumes that the absorption of TCDD from gallium oxide is 100%. Systemic absorption of TCDD from inhaled fly ash is then estimated to be 30%. Because the absorption from the Kociba study was 55%, the AAF (inhalation) is 30%/55% = 0.55. If absorption of TCDD from gallium oxide particles was less than complete, then the AAF for TCDD-contaminated fly ash would be less than 0.55. Thus, ENSR's AAF is health-protective.

Summary of AAFs for TCDD

Oral-Water	1.0
Oral-Diet	1.0
Oral-Soil	0.40
Dermal-Soil	0.04
Dermal-Water	1.8
Inhalation	0.55

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METALS

ANTIMONY

The USEPA oral RfD of 4E-04 mg/kg-day provided on IRIS (USEPA, 2003) is based on a drinking water study in rats using potassium antimony tartrate. Antimony is poorly absorbed across the gastrointestinal tract with one report of 15 percent absorption of ingested potassium antimony tartrate by rats (USEPA, 1990). It is assumed that the absorption of antimony in the diet and soil is the same as that in drinking water. Thus, the AAF (oral-diet), the AAF (oral-soil), and the AAF (oral-water) are all 1.

Dermal absorption of antimony is also reported to be poor, although specific estimates were not located (USEPA, 1990). A recommended default value for inorganics of 0.1 percent for the dermal absorption from soil (USEPA, 2000) has been used. Assuming that the gastrointestinal absorption of antimony from the drinking water study was 15 percent results in an AAF (dermal-soil) of 0.1%/15% = 0.007.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantifying risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, rather than adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For antimony, the AAF (dermal-water) is (100%)/(15%) = 6.7.

Summary of AAFs for Antimony

Oral-Water	1.0
Oral-Diet	1.0
Oral-Soil	1.0
Dermal-Soil	0.007
Dermal-Water	6.7

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ARSENIC

These AAFs are appropriate for use with the following dose-response values for arsenic:

- The oral reference dose (RfD) for arsenic, which is 3E-04 mg/kg-day (USEPA, 2003)
- The oral cancer slope factor (CSF) for arsenic, which is 1.5E+00 $(mg/kg\text{-}day)^{-1}$ (USEPA, 2003).
- The inhalation CSF for arsenic, which is 1.5E+01 $(mg/kg\text{-}day)^{-1}$ (USEPA, 2003).

Absorption in the Dose-Response Study

Both oral toxicity values for arsenic are based on epidemiological studies that characterized health effects in a large population of Taiwanese who consumed drinking water containing arsenic. The exact form of the ingested arsenic is unknown. For the purposes of the development of the AAFs, it has been assumed that the arsenic was a soluble inorganic arsenic salt (such as arsenic trioxide, As2O3, a smelting by-product). Several studies investigating the absorption of arsenic have been performed in humans and various animal species. Human studies are sufficiently extensive to strongly suggest that close to 100% of soluble inorganic arsenic in water is absorbed from the gastrointestinal tract. These human studies are reviewed in detail here.

One direct indication of absorption of an orally administered dose of a chemical is its urinary excretion. Several studies show that urinary excretion can account for the majority of an orally administered dose of arsenic. Buchet et al. (1981a) administered aqueous sodium arsenite (NaAsO2) as a single dose to three human volunteers. An average of 45% of the dose was excreted in the urine in four days. In a second study (Buchet et al., 1981b), four individuals given 125, 250, 500, or 1000 µg As/day orally for five days excreted 54, 73, 74, and 64% of the dose in urine, respectively, over 14 days. The average urinary excretion of arsenic for the four subjects was 66% of the administered dose. Crecelius (1977) reports that approximately 50% and 80% of orally administered aqueous arsenic was excreted in urine within 61 hours by a single individual in two experiments. The results of these studies represent the minimum amount of arsenic absorbed since the balance of the dose was not accounted for.

Data for human fecal excretion of arsenic do exist. Pomroy et al. (1980) gave 6 male subjects radiolabelled arsenic acid ($[^{74}As]H_3AsO_4$) in gelatin capsules followed by a glass of water. The presence of arsenic in the body, urine, and feces was measured using a whole body radiation counter. The authors report that for the six subjects the average total excretion over 7 days was 6.1±2.8% in feces. It is not possible to determine how much of this arsenic was first absorbed and then excreted. The total recovery of arsenic (urine plus feces) was 68.4±4.0% of the single oral dose. The remaining arsenic was reported to be present in the body tissues; virtually the entire dose could be accounted for. This suggests a minimum absorption of 94% (100% - 6%) of orally ingested arsenic.

A study by Bettley and O'Shea (1975) also reports excretion of arsenic in both urine and feces. Three subjects were exposed to 8.52 mg As (as 1.25 ml of Liq. Arsenicalis B.P.) in three portions 8 hours apart on one day. They found that at most 3.5% of the dose was excreted in feces over ten days. This suggests a minimum absorption of 96%. Urinary excretion averaged 52±4% of the exposure dose over 10 days (n=3). The remaining half of the dose was unaccounted for, although small amounts of arsenic were found in blood and hair.

In the Coulson study (Coulson et al., 1935), results from two humans each ingesting two forms of arsenic are reported. Less than 5% of an oral dose was excreted in feces whether the arsenic was

taken as arsenic trioxide (As_2O_3) or as natural arsenic present in shrimp. The remainder of the dose, more than 95%, was recovered in urine in three experiments where total recoveries ranged from 74 to 115%. Based on the fecal excretion data from this study, it can be estimated that at least 95% of the ingested arsenic was absorbed. The fecal excretion data are consistent with those of Pomroy et al. (1980) and Bettley and O'Shea (1975).

Fecal excretion data from oral studies provide a minimum estimate of absorption, because it cannot be determined how much of the dose was first absorbed and then excreted into the feces. However, a study in humans injected intravenously with arsenic suggests that absorbed arsenic may be excreted, presumably from bile, into the feces. Mealy et al. (1959) administered radiolabelled arsenic by intravenous injection. Between 57% and 90% of the injected dose was recovered in urine in 10 days. Fecal excretion accounted for 1.3% of the dose after seventeen days in one individual. A second subject excreted 0.2% of the intravenous dose into the feces in one week. Both results indicate some excretion of arsenic into the feces. Virtually all of the remaining dose was recovered in the urine. Biliary excretion of arsenic has been demonstrated in rats, rabbits, and dogs (Klaassen, 1974; Gregus and Klaassen, 1986). This indicates that a portion of the arsenic found in feces in studies using oral dosing may have been first absorbed and then excreted.

The urinary excretion data from the oral studies discussed above provide minimum estimates of arsenic absorption ranging from 45% to 95%. The fecal excretion data suggest that, at a minimum, 95-96% of an orally administered dose of arsenic is absorbed. The study of intravenously administered arsenic suggest that biliary excretion can occur. Therefore, it can conservatively be concluded from the above studies that virtually 100% of an orally administered dose of soluble inorganic arsenic can be absorbed in humans.

Oral-Water AAF
The oral-water AAF for arsenic is defined as: (absorption of arsenic in humans from ingested water) / (absorption of arsenic in humans in the epidemiological study from ingested water). Since the route, matrix, and species are the same for the potential exposure in a risk assessment and the exposure in the dose-response study, the AAF is by definition 1.0. Moreover, the above results suggest that virtually all soluble inorganic arsenic administered orally in water can be absorbed from the gastrointestinal tract. Thus, it is assumed here that 100% of the arsenic was absorbed in the dose-response studies, in which humans ingested arsenic as a component in drinking water, and in the exposure route of concern - human ingestion of drinking water. Therefore, the AAF can also be defined as (100%)/(100%) = 1.

Oral-Diet AAF
The AAF (oral-diet) for this chemical is defined as: (absorption in humans from ingested diet)/(absorption in humans from arsenic in water). Gastrointestinal absorption of arsenic from diet is assumed to be 100% in the absence of other information. Therefore, the AAF (oral-diet) is (100%)/(100%) = 1.

Oral-Soil AAF
The oral-soil AAF for arsenic is defined as: (absorption of arsenic in humans from ingested soil) / (absorption of arsenic in humans in the epidemiological study from ingested water).

An oral-soil AAF of 0.3 is recommended for arsenic in soil and dust in cases where site-specific information is not available. The 0.3 value is based on the high end of relative bioavailability estimates for arsenic ingested in soil and dust by *Cynomolgus* monkeys (Freeman et al., 1995).

The study was conducted to determine arsenic absorption from soil and house dust impacted by smelter activities near Anaconda, Montana. The Cynomolgus monkeys each received sequential treatments of iv sodium arsenate and three oral treatments: soil arsenic in capsules, house dust

arsenic in capsules, and sodium arsenate solution administered by gavage. Absolute bioavailability values for arsenic administered in soil, dust, and solution were calculated based on (1) total urinary arsenic excretion and (2) blood arsenic levels, each normalized based on intravenous data. The bioavailability of arsenic in soil and dust relative to soluble arsenic in solution ranged from 10% to 30%, depending or whether urinary or blood values were used. Results from this study were used by USEPA to derive the oral-soil AAF of 0.183 and oral-dust AAF of 0.258 used in the risk assessment at the Anaconda Superfund site (Walker and Griffin, 1998).

Other Relevant Studies

Other studies of various forms of arsenic support the conclusion that arsenic in soil is poorly absorbed. At the Murray Smelter Superfund site in Utah, a site-specific relative bioavailability adjustment value for arsenic in soil of 0.26 was derived based on an immature swine study comparing absorption of arsenic in soil from the site to absorption of soluble sodium arsenate (Weis et al., 1996; USEPA,1997). In a similar swine study performed at the Ruston/North Tacoma Superfund site in Washington, the site-specific relative bioavailability adjustment value for arsenic in slag dust was 0.42 (USEPA, 1996). Groen et al. (1994) fed ore-containing soil or administered soluble arsenic iv, sequentially to beagle dogs. When compared to iv administration, bioavailability of arsenic from ore-containing soil was approximately 8%. In rabbits, the absorption of arsenic (primarily as Cu_3AsS_4) in soil from a site in Anaconda, Montana was only 24%, while the absorption of a soluble form arsenic from water was 50% (Freeman et al., 1993). Rats fed soil containing mine waste absorbed only one tenth times as much arsenic as rats dosed with soluble arsenic (Yanez et al., 1993). Arsenic selenide, a highly insoluble form, was administered to humans as a fine powder and no increase in urinary arsenic was observed (Mappes, 1977). Thus, absorption in this study was probably low or negligible.

Derivation of the AAF (Oral-Soil) for Arsenic

An oral-soil AAF of 0.3 is recommended for arsenic in soil and dust in cases where site-specific information is not available. The 0.3 value is based on the high end of relative bioavailability estimates for arsenic ingested in soil and dust by *Cynomolgus* monkeys (Freeman et al., 1995). This study was selected to derive the oral-soil AAF for arsenic because, of the animals models studied thus far, the monkey is more physiologically and anatomically similar to humans than are rats, rabbits, swine, or dogs.

Dermal-Soil AAF

A recommended default value for inorganics of 0.1 percent for the dermal absorption of arsenic from soil (USEPA Region 4, 2000) has been used. Assuming that the gastrointestinal absorption of arsenic from drinking water is 100%, results in an AAF (dermal-soil) of 0.1%/100% = 0.001.

Dermal-Water AAF

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading, swimming, or bathing. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). Thus, the AAF (dermal-water) is (100%)/(100%) = 1 for both potential carcinogenic and noncarcinogenic effects.

Inhalation AAF

The inhalation unit risk for assessing carcinogenic effects of arsenic is 4.3E-03 $(\mu g/m^3)^{-1}$. This corresponds to an inhalation CSF of 15 $(mg/kg\text{-}day)^{-1}$, assuming a 70 kg adult breathes 20 m^3 air per day. The unit risk is based on human epidemiological studies, and it is assumed for the purposes of this report that inhalation absorption of arsenic in humans in the exposure scenarios is the same as that of humans in the dose-response study. It is assumed by USEPA that absorption of arsenic adsorbed to respirable particles that are retained in the lung is 30%. Therefore, the AAF (inhalation) is (30%)/(30%) = 1.0 for carcinogenic effects.

Summary of Derived AAFs for Arsenic

Oral-Water	1
Oral-Diet	1
Oral-Soil	0.3
Dermal-Soil	0.001
Dermal-Water	1
Inhalation	1 (for carcinogenic effects)

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BARIUM

The USEPA oral RfD for barium (7E-02 mg/kg-day) is based on a drinking water study in humans in which healthy male volunteers consumed barium chloride. The gastrointestinal absorption in humans of other forms of barium from surface water or groundwater is assumed to be the same. Thus, the AAF (oral-water) is 1. The absorption of barium in humans from dietary constituents is reported to be greater than 91% (Lisk et al., 1988). It is assumed that the absorption from drinking water is 100%. Thus, the AAF (oral-diet) is 1. It is further assumed that the gastrointestinal absorption from soil is the same as from the diet (91-100%). Thus, the AAF (oral-soil) is assumed to be 1.

A recommended default value for inorganics of 0.1% was assumed for dermal absorption from soil in the absence of data on the dermal absorption of barium (USEPA, 2000). Thus, the AAF (dermal-soil) is 0.001.

The inhalation dose-response value for barium (1.43E-04 mg/kg-day) is based on the USEPA RfC, which is derived from an inhalation study in rats. It is assumed that absorption in humans from respirable particles retained in the lung is the same as absorption of $BaCO_3$ dust particles in rats. Thus, the AAF (inhalation) is 1.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For barium the AAF (dermal-water) is (100%)/(100%) = 1.

Summary of AAFs for Barium

Oral-Water	1.0
Oral-Diet	1.0
Oral-Soil	1.0
Dermal-Soil	0.001
Dermal-Water	1.0
Inhalation	1.0

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[URL:http://www.epa.gov/region4/waste/oftecser/otsguid.htm]

BERYLLIUM

The USEPA oral RfD of 2E-03 mg/kg-day is based on a dietary study in dogs. Beryllium is very poorly absorbed across the gastrointestinal tract with several investigators reporting less than 1% absorption of ingested beryllium (ATSDR, 1987). It is assumed that the absorption of beryllium in the diet, soil and sediment is the same as that in drinking water. Thus, the AAF (oral-diet), the AAF (oral-soil), the AAF (oral-sediment), and the AAF (oral-water) are all 1.

Dermal absorption of beryllium is also reported to be poor, although specific estimates were not located (ATSDR, 1987). A recommended default value for inorganics of 0.1% for the dermal absorption from soil has been used (USEPA, 2000). Assuming that the gastrointestinal absorption of beryllium from the drinking water study was 1%, results in an AAF (dermal-soil/sediment) of (0.1%)/(1%) = 0.1.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantifying risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make adjustment to the absorbed dermal dose, rather than adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For beryllium, the AAF (dermal-water) is (100%)/(1%) = 100.

Both the inhalation CSF of 8.4 $(mg/kg\text{-}day)^{-1}$ and the inhalation of RfD of 5.71E-06 mg/kg-day were derived from epidemiological data based on occupationally exposed workers. It is assumed that the absorption of inhaled beryllium in the environment is the same as in the dose-response study. Thus, the AAF (inhalation) is 1.

Summary of AAFs for Beryllium

Oral-Water	1.0
Oral-Diet	1.0
Oral-Soil	1.0
Dermal-Soil	0.1
Dermal-Water	100
Inhalation	1.0

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[URL:http://www.epa.gov/region4/waste/oftecser/otsguid.htm]

CADMIUM

These AAFs are appropriate for use with the following dose-response values for cadmium:

- The oral Reference Dose (RfD) for exposures to cadmium in food, which is 1.0E-3 mg/kg-day (USEPA, 2003)
- The oral Reference Dose (RfD) for exposures to cadmium in water, which is of 5E-04 mg/kg-day (USEPA, 2003)
- The inhalation cancer slope factor (CSF) for cadmium, which is 6.3 $(mg/kg\text{-}day)^{-1}$ (USEPA, 2003)

Absorption in the Dose-Response Study

The noncarcinogenic dose-response values for cadmium are based on a one-compartment toxicokinetic model that evaluated a large quantity of both human and animal toxicity data (Friberg et al., 1974; USEPA, 1985). The RfDs are based on the highest level of cadmium in the human renal cortex (i.e. the critical level) not associated with significant proteinuria (i.e. the critical effect). This critical level has been estimated to be 200 µg/gm wet weight human renal cortex. The toxicokinetic model assumes that 0.01% of the cadmium body burden is eliminated per day (USEPA, 1985). In deriving the RfDs for cadmium, USEPA assumed that absorption was different for cadmium ingested in food and water (the model itself does not provide estimates for absorption of cadmium ingested in water). Using a 5% absorption factor for drinking water exposure and a 2.5% absorption factor for dietary exposure, USEPA estimated that a daily intake of 0.005 and 0.01 mg/kg-day, respectively would be required to produce a concentration of 200 ug/gm wet weight in the renal cortex during a lifetime of exposure (USEPA, 2003). These values were divided by 10 to obtain the RfDs of 1E-03 (diet) and 5E-04 mg/kg-day (water). Because these absorption values were used by USEPA to derive the dose-response values for cadmium, they will also be used to determine the AAF values for cadmium.

It should be noted that USEPA (1993) performed a case study on cadmium to determine if there was adequate evidence to support the different media-specific (i.e., food and water) RfDs. In the study, information was used from 35 published studies where rats ingested cadmium in either rat chow or drinking water ad libitum for chronic durations and cadmium levels in the liver and/or kidney were subsequently measured. Based on the analysis, the bioavailability of cadmium ingested in food was not measurably different from that ingested in water in non-fasted rats (fed ad libitum). Instead, in this non-fasting scenario, total diet rather than the actual medium of exposure, appeared to be more of a determining factor for the uptake of cadmium from the GI tract. Based on these results, USEPA (1993) recommended that distinct RfDs for cadmium ingested in food and drinking water not be based on the assumption that the bioavailability of cadmium in drinking water is greater than that of cadmium in food (also published as Ruoff et al., 1994).

AAF (Oral-Water)

The AAF (oral-water) is defined for cadmium as: (absorption in humans from ingested water) / (absorption from water in the toxicokinetic model). Absorption of approximately 5% was assumed in the toxicokinetic model for cadmium administered orally in water. Therefore, since the toxicokinetic model is for the same route and matrix relevant to the human exposure of concern, the AAF is simply 1, or (5%)/(5%). This AAF is intended to be used with the RfD for water. As discussed above, USEPA (1993) concluded that, (1) in non-fasting scenarios, the absorption of cadmium ingested in water is likely the same as the absorption of cadmium ingested in the diet and (2) that distinct RfDs for cadmium ingested in food and drinking water should not be based on the

assumption that the bioavailability of cadmium in drinking water is greater than that of cadmium in food (also published as Ruoff et al., 1994).

Therefore, using the RfD for cadmium ingested in water, with oral-water AAF of 1, may overestimate the toxicity of cadmium ingested in water.

AAF (Oral-Diet)
The AAF (oral-diet) is defined as: (absorption in humans from ingested diet)/(absorption from diet in the toxicokinetic model). Absorption of approximately 2.5% was assumed in the toxicokinetic model for absorption of cadmium from diet. Thus, since the toxicokinetic model is for the route and matrix relevant to human exposure, the AAF is simply 1. This AAF is intended to be used with the RfD for diet.

AAF (Oral-Soil)
The AAF (oral-soil) is defined for cadmium as: (absorption in humans from ingested soil) / (absorption from diet in the toxicokinetic model). The AAF (oral-soil) of 1 is derived below. This AAF is intended to be used with the RfD for diet.

Griffin et al. (1991) have studied the absorption of radiolabelled $^{109}CdCl_2$ present in an aqueous slurry with sand or clay soils. Crl:CD BR rats (4/sex/dose) were administered cadmium by IV (0.5 mg/kg), oral gavage of an aqueous solution (8 or 40 mg/kg), or oral gavage of an aqueous sandy-loam or clay-loam slurry (8 or 40 mg/kg). The cadmium containing soils were prepared by mixing a soil sample with an aqueous solution of $^{109}CdCl_2$, allowing the soil to dry, and then resuspending the soil in an aqueous slurry. Blood was collected at intervals up to 48 hours post-dosing and analyzed for ^{109}Cd by liquid scintillation counting. Absorption of cadmium was measured based on the area under the blood concentration vs. time curve (AUC), using either the IV group or the aqueous oral gavage group AUC as the comparative standard. The results of the Griffin et al. (1991) study are presented in Table 1.

Two points must be considered before evaluating the data in this experiment. First, the concentration of cadmium in soil that would support an 8 mg/kg-day dose in a 15 kg child assumed to ingest 200 mg of soil per day would be 600,000 ppm. The concentration of cadmium in soil that would support this dose in a child assumed to exhibit pica behavior, i.e., ingest 10 g soil/day, would be 12,000 ppm. Likewise, a 40 mg/kg dose is equivalent to exposure by a pica child to soils that are 60,000 ppm cadmium. These high dose levels may have been required in the experiment based on detection limit constraints. However, soil concentrations of cadmium at Superfund sites are unlikely to be as high any either of these values. Therefore, only the results of the lower test groups will be considered in the development of the AAF.

Second, the method of preparation of cadmium-containing soils is unlikely to mimic the physical state of cadmium in weathered soils, where it would be expected to be present in complex mineralogical forms. However, since this is the only study available that evaluates cadmium absorption from soils, it must be considered.

From the data presented in Table 1, it is evident that absorption from both the sand- and clay-based soils was less than absorption of the same dose of cadmium when administered by oral gavage. The average relative absorption of cadmium from the soils (compared to the oral aqueous gavage data) is 41.5%. Thus, oral absorption of cadmium from soils is roughly half of that from an aqueous solution.

Table 1. Data from Griffin et al. (1991) for Cadmium

TEST GROUP	ROUTE OF EXPOSURE	DOSE (mg/kg)	ABSOLUTE ABSORPTION*	RELATIVE ABSORPTION**
1	IV	0.5	100	-
2	Oral/Water	8	0.95	100
3	Oral/Water	40	1.85	100
4	Oral/Sand	8	0.6	61.9
5	Oral/Sand	40	1.6	84.5
6	Oral/Clay	8	0.2	21.1
7	Oral/Clay	40	0.2	13.0

* Absolute absorption is relative to IV dose group data.
** Relative absorption is relative to aqueous oral gavage dose group data at the same dose.

A more recent study also indicates that oral absorption of cadmium from soils is roughly half of that from an aqueous solution in rats (Schilderman et al., 1997). Based on blood cadmium levels, bioavailability in rats ingesting cadmium chloride in soil was 43% of that in rats ingesting cadmium chloride in saline solution. The authors concluded that the soil matrix significantly reduced the absorption of cadmium from the gastrointestinal tract.

One must now attempt to use these data for human exposure assessment. The estimate of human oral absorption of cadmium comes from a toxicokinetic model that was based on many human and animal studies. In that model, the absorption of cadmium from food (2.5%) is estimated to be half of that from drinking water (5%) in humans. Although the absolute absorption values are not directly comparable between rats and humans, a comparison of absorption from soil and water can be made between the two species. Cadmium absorption from soil in rats is approximately half of that from water, as shown above. Assuming that the comparison of cadmium absorption from soil and water in rats can be extrapolated to humans, then it can be concluded that absorption in humans of cadmium from soil should be half that from water. In this case, human absorption of cadmium from water is 5%. Therefore, oral absorption of cadmium from soil would be 2.5%, which is equivalent to human absorption of cadmium from food. The AAF (oral-soil) is defined for cadmium as: (absorption in humans from ingested soil) / (absorption from diet in the toxicokinetic model). Therefore, the AAF for oral exposure to cadmium containing soils, to be used with the RfD for cadmium ingested in food, is:

$$AAF = (2.5\%) / (2.5\%) = 1.$$

A typical default assumption in the absence of data would be simply to assume that absorption from soil was the same as from diet. Therefore, using either approach gives similar results; thus the AAF (oral-soil) is 1.

The Griffin et al. (1991) study does suggest that site-specific information derived from the actual soils present could result in an AAF that is either lower or higher than that derived here. Such information could be obtained either from appropriate absorption studies in animals or from in vitro extraction experiments under conditions mimicking the stomach, i.e., pH 2.

AAF (Dermal-Soil)

The AAF (dermal-soil) is defined for this chemical as: (absorption in humans from dermal contact with soil) / (absorption from food in the toxicokinetic model). The AAF (dermal-soil) of 0.04 is derived below. This value is to be used with the RfD for diet.

A recommended default value for inorganics of 0.1 percent for the dermal absorption of cadmium from soil (USEPA, 2000) has been used. Assuming that the gastrointestinal absorption of cadmium from food is 2.5%, results in an AAF (dermal-soil) of 0.1%/2.5% = 0.04.

AAF (Dermal-Water)
The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming or potable water when bathing. The methodology for quantitating risks posed by these exposure pathways uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. The dose-response value for cadmium, however, is based on administered dose. Thus, the AAF (dermal-water) is defined as: (100%) / (absorption from diet in the toxicokinetic model).

To derive the AAF (dermal-water), the absorption from food of 2.5% assumed in the toxicokinetic model is used. Accordingly, the AAF (dermal-water) is 100% / 2.5% = 40. This value is for use with the RfD for diet.

AAF (Inhalation)
The AAF (inhalation) is defined for potential carcinogenic effects as: (absorption in humans from inhaled materials)/(absorption in workers from inhaled materials). The inhalation AAF (carcinogenic) of 1.0 is derived below

The inhalation unit risk for cadmium (1.8×10^{-3} $(ug/m^3)^{-1}$) is derived from a human occupational inhalation study. This corresponds to an inhalation CSF of 6.3 $(mg/kg/day)^{-1}$. It is assumed that absorption in humans from respirable soil particles retained in the lung is the same as absorption of cadmium by workers in the dose-response study. Thus, the AAF (inhalation) for carcinogenic effects is 1.

Summary of AAFs Derived for Cadmium

Oral-Water	1	(use with RfD-water: 0.0005 mg/kg-day)
Oral-Diet	1	(use with RfD-food: 0.001 mg/kg-day)
Oral-Soil	1	(use with RfD-food: 0.001 mg/kg-day)
Dermal-Soil	0.04	(use with RfD-food)
Dermal-Water	40 (use with RfD-food)	
Inhalation	1	(carcinogenic - use with inhalation CSF: 6.3 $(mg/kg\text{-}day)^{-1}$)

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CHROMIUM VI

The oral-dose response value for chromium VI (0.005 mg/kg-day) is a chronic RfD based on a drinking water study in rats. The RfD is based on administered dose units. In order to derive AAFs for chromium, it is important to understand the degree to which it is excreted in the feces. Therefore, this topic is addressed first, followed by the estimation of absorption in the chromium VI dose-response study, and finally the derivation of the AAFs.

Fecal Excretion of Chromium

As discussed in the introduction, most absorption studies rely on quantitation of a compound in urine and/or feces for absorption determinations. For orally administered compounds, presence of the compound in the feces could merely indicate transit of the compound through the GI tract, or could indicate absorption of the compound with subsequent excretion into the feces. The best method for the determination of fecal excretion is quantitation of the compound in urine and feces after administration of an IV or IP dose. From the data, the ratio of the compound present in the feces to the compound present in the urine can be determined. This ratio can then be used with urinary excretion data from oral absorption studies to estimate the amount of fecal excretion. The sum of urinary and fecal excretion is a estimate of absorption.

Several studies demonstrate that fecal excretion of absorbed chromium is a significant pathway of elimination for chromium VI. As the results of these studies are integral to the determination of chromium absorption, these studies are reviewed below. A summary of the results are presented in Table 5-1.

1. Sayato et al. (1980) administered radioactive sodium chromate by intravenous injection to male Wistar rats. At both 4 and 25 days post-injection, fecal excretion was 50% of urinary excretion.

2. Visek et al. (1953) administered intravenous injections of radioactive sodium chromate to rats of the Rockland and Carworth strains and measured the metal in urine and feces. At four days, fecal excretion was 49% of urinary excretion.

3. Cikrt and Bencko (1979) administered radioactive sodium chromate to female Wistar rats after a 24 hour fast by intravenous injection. After 24 hours, fecal chromium was 52% of urinary chromium.

4. Manzo et al. (1983) dosed five male COBS albino rats with radiolabelled chromic chloride by intravenous injection. At 24 hours, fecal excretion was 99% of urinary excretion.

TABLE - Excretion Patterns of IV Administered Chromium VI

Study	Route	Species	Dose (mg Cr/kg)	Time (days)	% Dose in Urine	% Dose in Feces	% F/U
Sayto (1980)	IV	rat	0.02	4 25	45% 50%	22% 25%	50%
Visek (1953)	IV	rat	0.05 to 0.3	4	35%	17%	49%
Cikrt & Benko (1979)	IV	rat	0.05	1	20.8%	7.3% + 3.5% (in bile)	52%
Manzo (1983)	IV	rat	0.11	1	3.27%	3.24%	99%
Bryson, Goodson (1983)	IP	mouse	2.2	7	45%	25%	56%

5. Bryson and Goodall (1983) administered chromic chloride to CxO mice by IP injection. Urine and feces were analyzed by a diphenylcarbazone spectrophotometric method. At four days, 45% of the dose was recovered in the urine, and 25% of the dose was in the feces. Thus, fecal excretion was 56% of urinary excretion.

The measured values of fecal excretion as a percentage of urinary excretion from these studies vary from 49% to 99%. Not all of these studies are appropriate for the derivation of an average value. Several issues must be considered. First, it is not necessary to include the mouse data from the Bryson and Goodall (1983) study here, because the study upon which the RfD for chromium III is based was performed in rats, and the remaining studies do use rats as the experimental animal.

Second, the duration of the experiments must be considered. One study presents the time course of elimination of chromium VI in both urine and feces (Sayato et al., 1980). The results of this study shows that after a single dose, both urinary and fecal excretion begin to plateau after 4 days. Therefore, only studies that have a duration of at least 96 hours should be included in this fecal elimination analysis. This means that the results of Cikrt and Bencko (1979) and Manzo et al. (1983) will be excluded from analysis as these studies lasted only 24 hours.

This evaluation leaves the first two studies mentioned above and as listed in Table 5-1. Thus, the results of Sayato (1980) and Visek (1953) on the ratio of fecal to urinary excretion, 50% and 49%, respectively, can be used to calculate a mean value of 49.5%. This value for estimating fecal excretion is appropriate to use with cumulative urinary excretion data from 4 days post dosing onward because it was shown by Sayato (1980) that urinary excretion generally begins to plateau at 4 days.

From the time courses of elimination (Sayato et al., 1980), the relationship between urinary excretion at 24 hours and at 96 hours can also be determined. Urinary excretion at 24 hr as a percent of urinary excretion at 96 hours is 68%. This value will be used to evaluate oral absorption data that only report results up to 24 hours post-dosing. Use of this value assumes that nearly all the administered dose will be excreted at 96 hours.

Therefore, in the absence of fecal excretion data for a study of oral absorption of chromium VI, it will be assumed that some of the chromium present in the feces is metal that was absorbed from the gastrointestinal tract and has been eliminated into the gastrointestinal tract either by biliary excretion, or some other mechanism. The fecal elimination will be estimated by assuming that an amount

equivalent to 49.5% of the amount eliminated in the urine is also eliminated in the feces. In addition, it will be assumed that urinary elimination at 24 hours post-dosing represents 68% of the total urinary output of chromium VI. This approach assumes that the degree of urinary or fecal elimination is independent of the route of administration, and moreover, that fecal elimination occurs in humans as is does in rats.

Estimation of Absorption in the Dose-Response Study

Donaldson and Barreras (1966) administered radioactive sodium chromate in water to six fasting female albino rats. Urine and feces were collected for seven days. On average, 98.5% of the chromium was recovered. On average, 0.8% was found in the urine and 97.7% was found in the feces. Individual subject data were not presented. The absorbed amount excreted in the feces is estimated as (0.495) x (0.008) x 100 = 0.4%. The total amount absorbed is thus estimated as (0.8%) + (0.4%) = 1.3%.

MacKenzie et al. (1959) gave radioactive sodium chromate solutions to nonfasting Sprague-Dawley rats. Urine, feces, and tissues were collected for 1, 7, or 14 days for different experimental groups. Data from the one day group were excluded, because of the slow clearance of chromium from tissues. Over 20% of the dose was still in the tissues. Data from the other two groups was used below. On average, 97.8% of the dose was recovered in the 7 day group, and 99.3% was recovered in the 14 day group.

Urinary Fecal	Fecal Absorbed	Urinary + Fecal Absorbed	
2.3%	95.3%	1.1%	3.4%
2.8%	94.7%	1.4%	4.2%

Sayato et al. (1980) gave radioactive sodium chromate to four male Wistar rats and collected urine and feces for ten days. On average, 99.6% of the chromium was recovered. Of the dose, 0.6% was found in the urine, and 99% was found in the feces. The absorbed amount in the feces is estimated as (0.495) x (0.006) x 100 = 0.3%. The total amount absorbed is thus estimated as (0.6%) + (0.3%) = (0.9%).

The average absorption value from the rodent data is calculated from the mean values from Donaldson and Barreras (1966) and Sayato et al. (1980) and the two values from MacKenzie et al. (1959) as 2.5%. The values range from 0.9% to 4.2%.

Oral-Water AAF

The oral-water AAF for chromium VI is defined as: (absorption of chromium VI in humans from ingested water) / (absorption of chromium VI in rats from ingested water). The absorption of chromium VI in rats was estimated above. The estimation of human absorption of chromium VI in drinking water follows.

Human Oral Absorption Studies

Donaldson and Barreras (1966) administered radioactive sodium chromate in water to six fasting human subjects. Urine was collected for 24 hours and feces were collected for 6 days. On average, 91.5% of the chromium was recovered. On average, 2.1% was found in the urine and 89.4% was found in the feces. Individual subject data were not presented. The absorbed amount excreted in the feces is estimated as (0.495) x (0.021) x 100 = 1.0%. The total amount absorbed is thus estimated as (2.1%) + (1%) = 3.1%.

Roche et al. (1957) administered radioactive chromate to four human subjects whose fasting state was not reported. Urine and feces were collected for five days. Recovery ranged from 60% to 103%. Data is presented for each subject below. Fecal chromium that was absorbed is estimated as above: (0.495) x (urinary chromium) x 100.

Urinary	Fecal	Fecal Absorbed	Urinary + Fecal Absorbed
9%	86.2%	4.5%	13.5%
1.8%	98%	0.9%	2.7%
7.4%	95.8%	3.7%	11.1%
1.0%	59.2%	0.5%	1.5%

In a third study, Ebaugh et al. (1958) orally administered radioactive sodium chromate in grape juice to two patients. On average, 94.5% of the dose was excreted into the feces. The amount not recovered in the feces can be presumed to be absorbed and either eliminated in the urine or stored in the tissues. Thus, an estimate of 5.5% can be made from this study.

Hansky and Connell (1962) gave human subjects sodium chromate in an aqueous solution, and chromium was analyzed in feces only, for several days. Urinary chromium was not measured. The average amount of the dose that was eliminated in the feces was 88.5%. Thus, an estimate of 11.5% can be made from this study.

The estimates of human oral absorption of chromium VI range from 1.5% to 13.5%. The average absorption of orally administered chromium VI in humans from the above studies is 7.6%.

Derivation of the Oral-Water AAF

To summarize the absorption data:

1. The average absorption value from the rodent data is calculated from the mean values from Donaldson and Barreras (1966) and Sayato et al. (1980) and the two values from MacKenzie et al. (1959) as 2.5%. The values range from 0.9% to 4.2%.

2. The estimates of human oral absorption of chromium VI range from 1.5% to 13.5%. The average absorption of orally administered chromium VI in humans from the above studies is 7.6%.

Although the average values of absorption in rats and humans are different, the range of values for both species overlap to the extent that it cannot be concluded that they are significantly different. Therefore, it is concluded that the oral absorption of chromium VI from water in rats and humans is not significantly different. Thus, the oral-water AAF is 1.0.

AAF (Oral-Diet)

The AAF (oral-diet) for this chemical is defined as: (absorption in humans from ingested diet) / (absorption in rats from ingested water). According to the U.S. EPA, the gastrointestinal absorption of chromium VI in rats and humans is similar. Thus, an experiment in which rats were fed chromium VI with or without fasting is used as the basis of the AAF (oral-diet). The AAF (oral-diet) is defined as: (absorption from diet)/(absorption from drinking water). In rats, Ogawa (1976) found this ratio to be 1.4%/11% = 0.13. In another experiment, MacKenzie et al. (1959) found the ratio in rats to be 3%/6% = 0.5. The mean of these two ratios is 0.3. Thus, the AAF (oral-diet) is 0.3.

Oral-Soil AAF

The Oral-Soil AAF for chromium VI is defined as: (absorption of chromium VI in humans from soil) / (absorption of chromium VI in rodents from drinking water).

No studies were found in which chromium VI was added to soil in the laboratory under controlled conditions and fed to animals. One laboratory (Witmer and Park, 1989; Witmer et al. 1991) orally administered chromium containing soil to rats. The chromium in the soil was approximately 30-35% hexavalent chromium. Because of the complicated experimental design, it is not possible to develop a reliable estimate of absorption from this study.

Estimates of oral absorption can be made form the data of MacKenzie et al. (1959) and Ogawa (1976) in which absorption in fasted and unfasted animals are compared.

An estimate of the oral-soil AAF is made from the data of MacKenzie et al. (1959). In this experiment the seven day excreta are compared between fasting and nonfasting female albino rats. MacKenzie et al. (1959) gave radioactive sodium chromate solutions to the rats. Urine, feces, and tissues were collected for 1, 7, or 14 days for different experimental groups. Data from the one day group were excluded, because of the slow clearance of chromium from tissues. Over 20% of the dose was still in the tissues. Data from the other two groups was used below. As done elsewhere, the amount of chromium in the feces that was absorbed and then excreted was estimate by multiplying the urinary amount by 0.495.

Not Fasting:

Urinary	Fecal Absorbed		Urinary + Fecal Absorbed
2.3%	1.1%		3.4%
2.8%	1.4%		4.2%
	Average:	3.8%	

Fasting:

Urinary	Fecal Absorbed		Urinary + Fecal Absorbed
5.3%	2.6%		7.9%
5.7%	2.8%		8.5%
	Average:	8.2%	

The ratio between the nonfasting rats and the fasting rats yields an estimate of the degree to which the presence of food in the gastrointestinal tract inhibits the absorption of chromium VI in rats. It is assumed that the absorption of chromium VI in soils would be inhibited to the same degree compared to drinking water. Thus, an estimate for the oral-soil AAF is (3.8%) / (8.2%) = 0.46.

In a separate experiment Ogawa (1976) fed rats chromium VI with or without fasting. Absorption was reported to be 1.4% in nonfasting animals and 11% in fasting animals. This study has been cited in U.S. EPA (1984) and ATSDR (1990). A second estimate of the oral-soil AAF can be made from this study: (1.4%) / (11%) = 0.13.

The oral-soil AAF to be used in human health risk assessment is the average of the two estimates made above: (0.46 + 0.13) / 2 = 0.3.

Dermal-Soil AAF

Cal-EPA (1994) recommends a dermal absorption adjustment factor of 0%, because chromium VI has not been shown to be carcinogenic by the dermal route. Horowitz and Finley (1993) demonstrated that the fraction of chromium VI released as soluble chromium by real human sweat is less than 0.1%. In addition to the low bioaccessibility of chromium VI, measurable absorption of soluble chromium VI is unlikely because the skin in an effective barrier (Paustenbach et al., 1997). Finley and Paustenbach (1997) state that systemic uptake of chromium VI following dermal contact with soil does not occur to a degree that warrants quantitative evaluation in a risk assessment. Accordingly, the dermal-soil AAF is 0.

Dermal-Water AAF

The dermal-water AAF is used when estimating the human risks posed by dermally contacting surface water when wading or swimming or potable water when bathing. The methodology for quantitating risks posed by these exposure pathways uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. The dose-response value for this chemical, however, is based on administered dose. The AAF can be used to make an adjustment of the exposure dose.

Thus, the dermal-water AAF is defined as: (100%)/ (absorption in rats from ingestion of aqueous solutions). This AAF is derived using the estimate of absorption from aqueous solutions derived above from rodents (2.5%). Accordingly, the dermal-water AAF is: (100%) / (2.5%) = 40.

Inhalation AAF

The CSF of 42 $(mg/kg/day)^{-1}$ for assessing carcinogenic effects of inhalation of chromium VI is based on human epidemiological studies. It corresponds to an inhalation unit risk of 1.2×10^{-2} $(\mu g/cu.m)^{-1}$. According to EPA, the CSF should not be used if air concentrations exceed 0.8 µg/cu.m. It is assumed that the absorption of chromium VI from respirable particles or aerosols that are retained in the lung is the same as the absorption of chromium VI by humans in the dose-response studies. Thus, the AAF (inhalation) is 1.0.

Summary of AAFs for Chromium VI

Oral-Water	1.0
Oral-Diet	0.3
Oral-Soil	0.3
Dermal-Soil	0
Dermal-Water	40
Inhalation	1.0

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COBALT

The oral noncarcinogenic dose-response value (RfD) (2E-2 mg/kg-day) is based on observations of humans undergoing dialysis. Absorption in the dose-response study is assumed to be 100%. It is assumed that absorption in this study is complete and is the same for drinking water, and soil ingestion exposures. Thus, the AAF (oral-water), and the AAF (oral-soil) are 1.

A recommended default value for organics of 1% was assumed for dermal absorption of cobalt from soil (U.S. EPA, 2000). Thus, the AAF (dermal-soil) is (1%)/(100%) = 0.01.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). Thus, the AAF (dermal-water) is (100%)/(100%) = 1.

The inhalation noncarcinogenic RfD value for cobalt (5E-06 mg/kg-day) is derived from a human occupational study. The inhalation CSF (9.8E+0 $(mg/kg\text{-}day)^{-1}$) is based on an inhalation study in mice. It is assumed that the absorption in humans is the same as absorption of cobalt in mice. Thus, the AAF (inhalation) for both carcinogenic and noncarcinogenic effects is 1.

Summary of AAFs for Cobalt

Oral-water	1
Oral-soil	1
Dermal-soil	0.01
Dermal-water	1
Inhalation	1

REFERENCE

USEPA. 2000. Region 4 Human Health Risk Assessment Bulletins - - Supplement to RAGS. USEPA Region 4. Atlanta, GA. Update 05/30/00. [URL:http://www.epa.gov/region4/waste/oftecser/otsguid.htm]

COPPER

The oral RfD for copper (3.7E-02 mg/kg-day) is converted from a drinking water standard of 1.3 mg/L, and is based on an oral study with copper sulfate in humans (USEPA, 1997). It is assumed that this was a dietary study and that the absorption from diet is the same as the absorption from drinking water. Thus, the AAF (oral-water) and the AAF (oral-diet) are both 1. It is also assumed that the gastrointestinal absorption from diet and soil is the same. Thus, the AAF (oral-soil) is 1.

The USEPA (USEPA, 2000) recommended default value of 0.1% for dermal absorption of inorganics was assumed for dermal absorption of copper. According to Weber et al. (1969) ingested copper salts are 60% absorbed in humans from the diet. Thus, the AAF (dermal-soil) is 0.1%/60% = 0.002.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For copper, the AAF (dermal-water) is (100%)/(60%) = 1.67.

Summary of AAFs for Copper

Oral-water	1
Oral-diet	1
Oral-soil	1
Dermal-soil	0.002
Dermal-water	1.67

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MANGANESE

The oral RfD for dietary intake of manganese is 1.4E-01 mg/kg-day based on human consumption studies. Because these are dietary studies, the AAF (oral-diet) is by definition 1.

The oral RfD for exposure to manganese in non-food media such as drinking water, soil, etc., is 2.4E-02 mg/kg-day. This value is based on the dietary RfD after the application of a modifying factor of 3 and subtraction of dietary intake from the LOAEL. The AAF (oral-water) and AAF (oral-soil) are assumed to be 1.

No studies have been found that address the dermal absorption of manganese from soils. A default value for the absorption of metals from soil is 0.1% (USEPA, 2000). Assuming a 10% absorption of manganese from the diet, the AAF (dermal-soil) is (0.1%/10%) = 0.01.

The inhalation RfC for manganese is 5.0E-05 mg/m^3. This corresponds to an inhalation RfD of 1.43E-05 mg/kg-day. The value is based on a human occupational epidemiological study. Absorption of airborne manganese is assumed not to differ from that in the dose-response study. Therefore, the AAF (inhalation) is 1.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantifying risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make adjustment to the absorbed dermal dose, rather than adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For manganese, the AAF (dermal-water) is 100%/10% = 10.

Summary of AAFs for Manganese

Oral-water	1.0
Oral-diet	1.0
Oral-soil	1.0
Dermal-soil	0.01
Dermal-water	10.0
Inhalation	1.0

REFERENCES

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INORGANIC MERCURY

The dose-response value for inorganic mercury (3.0E-4 mg/kg-day) is a chronic RfD based on three subchronic studies in which rats were dosed with mercuric chloride either by gavage or by subcutaneous injection. This RfD is intended to be used for risk assessment of water, soils, and sediments containing unspeciated mercury. In addition, it should be used in all situations in which mercury has been speciated and found to be inorganic mercury.

The above RfD should not be used for risk assessments in which fish uptake of mercury is modeled from any source, and human consumption of mercury-contaminated fish is estimated. This is because the mercury in fish is generally in the form of methyl mercury, or some other organomercury compound. Therefore, for fish consumption, the RfD for methyl mercury should be used. In addition, the RfD for inorganic mercury should not be used whenever methyl mercury has been specifically detected and quantitated in any environmental media.

The AAFs developed in this document for inorganic mercury are applicable to soluble forms of mercury; i.e., they are applicable to most forms of inorganic mercury except mercuric sulfide. As shown below, the gastrointestinal absorption of mercuric sulfide is much lower than that of mercuric chloride, the compound upon which the RfD is based. Thus, the use of the following AAFs will cause an overestimation of the risks posed by mercuric sulfide. If it is known from site history or mercury speciation analyses that the mercury present in some environmental media is mercuric sulfide, then it may be appropriate to derive a mercuric sulfide-specific set of AAFs.

Derivation of the RfD for Inorganic Mercury

The EPA-derived RfD for mercuric chloride is a consensus value determined by a panel of mercury experts who met at EPA in October, 1987. The rat LOAEL for autoimmune effects was based on three LOAELs identified in three rat studies. In two studies mercuric chloride was given to the animals by gavage as an aqueous solution. LOAELS in these studies were 0.32 and 0.63 mg/kg-day in administered dose units. In a third study, mercuric chloride was injected subcutaneously. EPA converted the LOAEL of 0.016 mg/kg-day to units comparable to the gavage studies by assuming the following: (1) 7% of mercuric chloride is absorbed from the gastrointestinal tract and (2) 100% of mercuric chloride is absorbed when injected subcutaneously. The converted LOAEL was 0.23 mg/kg-day.

From these three LOAELS, the experts determined that 0.3 mg/kg-day was an appropriate average LOAEL from which to derive a chronic RfD. The resulting RfD is in administered dose units assuming an oral gavage dosing regimen with aqueous solutions. Thus, an estimation of absorption of inorganic mercury in rats from oral gavage is required for the development of the AAFs.

Estimation of Absorption in the Dose-Response Study

Three studies have been used to estimate the absorption of orally administered inorganic mercury in rodents. Two of these studies have defined absorption based on the residual body burden following a dose of radiolabelled ^{203}Hg. One has determined absorption based on urinary excretion data. Each of these will be discussed in turn below.

<u>Residual Body Burden</u>

Clarkson (1971) fed mice diets containing an unreported dose of $^{203}HgCl_2$. The body burden of mercury was measured by whole body radioactivity counting. After an initial sharp increase in

radioactivity over the course of two days, whole body counts at steady state indicated that 1-2% of the daily dose was absorbed. The average of 1.5% is a minimum estimate of inorganic mercury absorption because it does not take into account the amount of the dose that was absorbed and then excreted either in urine or feces.

Walsh (1982) introduced $^{203}HgCl_2$ (46ug/kg) by gavage in aqueous solution to rats (3-6/group). At 4 hr and 43 hr post-dosing, radioactivity measurements were made on: 1) the contents of the GI tract (stomach and the regions of the intestine), and 2) the carcass after the GI contents had been removed. Radioactivity in the eliminated urine and feces were not determined. At 4 hr, 1.5% of the dose was associated with the carcass and the balance of the dose was recovered in the GI contents. At 43 hr, 2.4% of the dose was associated with the carcass and 3.3% of the dose was recovered in the GI contents. (This 3.3% may or may not be available for absorption, or may have already been absorbed and excreted.) Therefore, at 43 hr the remaining 94.3% of the dose had been eliminated from the body. The value of 2.4% then is an estimate of the body burden of inorganic mercury.

The above studies have estimated the following body burdens of inorganic mercury in rodents: 1.5% for inorganic mercury administered with food, and 2.4% for inorganic mercury administered in water. Because these values are similar, it can be assumed that the body burden of mercury administered with food is the same as the body burden resulting from exposure to mercury in drinking water. Thus, an average can be taken to estimate residual body burden of inorganic mercury after oral gavage, 2.0%.

Urinary Excretion Data

One study has reported the elimination of inorganic mercury as a fraction of the dose. This was a chronic feeding study conducted by Fitzhugh et al. (1950) in which mercuric acetate was administered in the diet to mice (20-24/sex/dose) at the following dietary concentrations: 0.5, 2.5, 10, 40, and 160 ppm. Six months into the study, urine and feces were collected for a 24 hour period and assayed for mercury content. Urinary excretion accounted for 0.5%-4.8% of the daily dose, and fecal elimination accounted for 40%-60% of the dose (values are the ranges of the averages for the dose groups).

To use the data of Fitzhugh et al. (1980) it is necessary to estimate fecal elimination from data on urinary elimination. The excretion of absorbed inorganic mercury into the urine and feces has been demonstrated by Gregus and Klassen (1986). Male Sprague-Dawley rats (4-6/group) were injected intravenously with $^{203}HgCl_2$. Urine and feces were collected, and after 4 days, fecal excretion accounted for 15.2% +/- 2.4% of the dose, and 16.3% +/- 1.4% of the dose was recovered in the urine. Thus it can be concluded from this study that fecal excretion of inorganic mercury does occur and that equal percentages of an absorbed dose are excreted into the feces and the urine.

Applying the results of the Gregus and Klassen (1986) study to the Fitzhugh et al. (1980) study, fecal excretion of absorbed inorganic mercury could also account for 0.5%-4.8% of the administered daily dose (i.e., assuming urinary and fecal excretion are equal). Therefore, it can be concluded from this study that 1%-9.6%, or an average of 5.3%, of the ingested dose was absorbed and excreted within a 24 hr time period. Alternatively, it could be concluded that the portion of the dose not excreted, i.e., 100% minus 40%-60% or approximately 50% of the dose, was absorbed. The former estimate of 5.3% and the latter estimate of 50% are minimum and maximum estimates respectively. The results of this study are difficult to interpret because the elimination data are from animals who were on a diet containing mercury for six months, and the elimination data are only for a 24 hour period. Therefore, the 24 hour determination of elimination in this study is not a complete estimation, and only minimum and maximum amounts of absorption can be identified.

Absorption Estimate

The elimination data of Fitzhugh et al. (1950) provide an estimate of the average minimum absorption of 5.3% of inorganic mercury based on excretion data. The total absorption of inorganic mercury can be represented by the amount excreted plus the amount retained in the body, which was shown above to be 2%. Therefore, the absorption estimate is 2.0% plus 5.3% or 7.3%.

This value is very similar to the value of 7% absorption assumed by EPA in the calculation of the third LOAEL used to derive the RfD for inorganic mercury. The 7% value is also supported by two additional studies described below.

Revis et al. (1992) orally gavaged five male mice with an unreported dose of $^{203}HgCl_2$ in a slurry with powdered mouse chow. After 10 days, the feces eliminated over that period and the contents of the GI tract were assayed for radioactivity. The remainder of the dose not present in the fecal sample or GI tract was assumed to have been absorbed. The value of absorption of inorganic mercury determined from this experiment, 2.1%, is a minimum estimate of absorption because the amount of the dose that was absorbed and excreted into the feces was not accounted for.

The data of Clarkson (1971) were reviewed by Clarkson (1972) where it was estimated that the measured body burden of inorganic mercury of 1-2%, when corrected for excretion, would result in an absorption estimate of 10-15% for inorganic mercury when given orally. Quantitation of this estimate was not included in the paper, and, therefore, the results are considered here only for qualitative purposes.

The oral absorption value of 7% for inorganic mercury derived above is midway between the minimum absorption estimate of 2.1% (Revis et al., 1992) and a maximum estimate of 10-15% (Clarkson, 1972).

The value of 7.3% will be used in the AAF determinations for inorganic mercury.

AAF (Oral-Water) and AAF (Oral-Diet)

The AAF (oral-water) and AAF (oral-diet) are defined for inorganic mercury as: (absorption of inorganic mercury in humans from ingestion) / (absorption of inorganic mercury in rats from oral gavage). The estimate of absorption in rats from oral gavage, 7.3%, was derived above. Human oral absorption is discussed below.

Absorption in Humans

Miettinen (1973) estimated the oral absorption of inorganic mercury in humans using radioactive mercury and performing whole body counting, as well as analyzing the radiolabel in excreta and blood. Ten volunteers ingested a single, unreported dose of mercuric nitrate either in water or bound to calf liver protein (4-14 uCi). During the first four to five days, 0.17% of the dose was excreted in the urine and 85% of the dose was excreted in the feces. No difference was observed between the water and calf liver protein vehicles.

As described above, fecal excretion is a route of elimination of inorganic mercury. Thus, some of the mercury found in the feces was unabsorbed metal and some was absorbed and excreted metal. The minimum percentage of the administered dose absorbed was 15% (100%-85%) in the Miettinen study, if it is assumed that all mercury not excreted in the feces was absorbed. If it is also assumed that fecal and urinary elimination are roughly equal in humans, as they are in rats (Gregus and Klaassen, 1986), one can estimate the fecal mercury that was excreted as approximately 0.17% of the dose. This

suggests that almost all of the metal present in the feces was unabsorbed. Thus, a minimum estimate of absorption is 14.8% (15%-0.17%).

The human gastrointestinal absorption value of 14.8% differs from a value of 7% that has been quoted in various articles, but which is based on the same experimental study. The Task Group on Metal Accumulation (1973) and WHO (1976) both report that 7% of soluble mercury is absorbed in humans and cite Rahola et al. (1973). This study is the original publication of work by Rahola and Miettinen. The Task Group (1973) and WHO (1976) erroneously gleaned a value of 7% from this work. The minimum absorption is, indeed, 14.8% from this experiment, as was reported in a later publication by Miettinen (1973).

Derivation of AAF (Oral-Water) and AAF (Oral-Diet)

The above experimental results indicate that the gastrointestinal absorption in humans of soluble inorganic mercury (mercuric nitrate) as an aqueous solution is the same as the absorption of the same compound when administered as a protein bound species (Miettinen, 1973). This value is 14.8%.

The estimate of absorption of mercury in rats from oral gavage was derived from the literature studies presented above to be 7.3%. Accordingly:

AAF (Oral-Water): (14.8%) / (7.3%) = 2.0

AAF (Oral-Diet): (14.8%) / (7.3%) = 2.0

AAF (Oral-Soil)

The AAF (oral-soil) is defined for inorganic mercury as: (absorption of inorganic mercury in humans from ingested soil) / (absorption of inorganic mercury in rats from oral gavage).

No relevant studies could be found in the literature regarding the gastrointestinal absorption of mercuric chloride, or other soluble mercury species, administered to any animal as a component of or mixed with soil. In the absence of absorption data from soil, it is assumed that mercuric chloride and other soluble inorganic mercury compounds are absorbed in humans from ingested soil to the same degree as when administered as an aqueous solution or as a protein bound species (Miettinen, 1973). This value is 14.8%. Therefore, the AAF (oral-soil) is:

AAF (Oral-Soil): (14.8%) / (7.3%) = 2.0

Mercuric Sulfide

Mercuric sulfide is very insoluble. According to Weast (1978), the solubility of alpha-mercuric sulfide is 0.000001 g/100 mL. Beta-mercuric sulfide is listed as insoluble. The only study in the literature that evaluates the oral absorption of mercury from soil used soils containing mercury primarily in the form of mercuric sulfide (Revis et al., 1990). Several experimental studies have shown that gastrointestinal absorption of mercuric sulfide is extremely low. The absorption of mercuric sulfide will be discussed here followed by a discussion of the Revis study.

Sin et al. (1983) administered mercuric sulfide to mice by gavage as an aqueous slurry. The amounts of mercury found in various tissues and organs after dosing of 300 μg Hg/week for 2-10 weeks were negligible and not statistically different from those of the controls. In the animals dosed with mercuric

chloride, however, significant accumulation had occurred in kidney and spleen. The authors attribute this lack of tissue accumulation to poor absorption of the mercuric sulfide.

In another experiment, Sin et al. (1989) administered mercuric sulfide (6-324 μg Hg/g/day) to mice for four days. Very little accumulation in liver and kidney was seen compared to mice receiving mercuric chloride. These results again suggest that absorption of mercuric sulfide is very low.

Yeoh et al. (1986) fed mercuric sulfide to Swiss mice as a component of their diet (2976 μg/g) for one week. Urinary mercury was analyzed on days 2, 4, and 6, and mercury in kidney and liver was measured after one week. Mercury excretion was extremely low. On average, urinary excretion was 2.55 ng/hr. The amount excreted over seven days at this rate would be 0.4 μg, which constitutes 0.001% of the total administered dose. Mercury accumulation in liver and kidney was also extremely low. Liver mercury levels were 0.6 μg Hg/g and kidney mercury levels were 2.7 μg Hg/g. A maximum mercury burden in these tissues can be estimated assuming that 50% of the mouse body weight is liver and 50% is kidney. This maximum body burden was 41 μg, which constitutes 0.08% of the total administered dose.

Revis et al. (1990) also showed that mercuric sulfide is poorly absorbed from the gastrointestinal tract. The authors performed feeding studies with pure mercuric sulfide which showed that intestinal transit time for this compound was much longer than for mercuric chloride. With the pure sulfide, 11.3% of the dose was found in the intestinal tract and contents at 96 hours. The time estimated for the metal to clear the intestinal tract was 10 days. At this time only 0.4% of the dose had not been accounted for in the feces, thus indicating very poor absorption.

In this same study, the absorption of mercury sulfide present in soil was investigated (Revis et al., 1990). Field samples of soil from a site were mixed with a powdered mouse diet and fed to Swiss mice. Analysis of the soil determined that the mercury in the soil was present as 88% mercuric sulfide, 0.01% methyl mercury, and 7% elemental mercury. The soils were collected from different areas of the site and ranged in mercury concentration from 88 ppm to 660 ppm. The various soils were administered as 5% of the mouse diet. Seventy animals of both sexes received soil from one of seven locations for 24 hours. Animals were returned to the normal diet for 72 hours. Fecal samples were collected for 96 hours and analyzed for mercury by the cold vapor technique.

Absorption was defined in this study as the fraction of the administered dose that was not present in the feces after 96 hours. The fraction not present in feces ranged from 4-16% for the different experimental groups, with an average being 9.1 +/- 4.3 (n=70). As shown above, however, fecal excretion is a route of elimination for inorganic mercury. Thus, it is not possible to determine what fraction of the amount present in the feces was unabsorbed metal and what fraction was absorbed and excreted metal. In addition, as shown below, mercuric sulfide has a long transit time in the intestinal tract. Thus, some material present in the animal's body is unabsorbed metal that has not made its way through the intestinal tract. The authors suggested that the mercury containing soil would also have shown a lower fraction <u>not</u> present in the feces if the animals had been followed for 10 days instead of 96 hours. Thus, the absorption estimate from this experiment is certainly an over-estimate.

All of the data presented above strongly suggest that the oral absorption of mercuric sulfide and mercury from mercuric sulfide containing soil is extremely low. Thus, the AAF (oral-soil) for soils containing primarily mercuric sulfide would be close to zero. However, the chemical species of mercury are not usually known for environmental samples. It is not known to what extent the presence of soil may retard the gastrointestinal absorption of soluble inorganic mercury compounds. Accordingly, the AAF (Oral-Soil) derived above must be applicable to mercury species other than mercuric sulfide. In the absence of data for soluble mercury species, it has been assumed that

gastrointestinal absorption is the same for a soil matrix and for aqueous oral gavage. In this case the AAF (Oral-Soil) is 1.0. If it is known that mercuric sulfide or another insoluble compound is present, a site-specific AAF can be derived based on animal feeding studies with site soil or extractability studies with acidic solutions that mimic the conditions of the stomach.

AAF (Dermal-Soil)
The AAF (dermal-soil) is defined for this chemical as: (absorption in humans from dermal contact with soil) / (absorption in rats from aqueous gavage).

The AAF (dermal-soil) was derived from the estimate of the fractional dermal absorption of mercury from soil documented elsewhere (0.05%) and the estimate rat absorption of 7.3% from Clarkson et al. (1972). Accordingly, the AAF (dermal-soil) is:

AAF (Dermal-Soil) = (0.05%) / (7.3%) = 0.007

AAF (Dermal-Water)
The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming or potable water when bathing. The methodology for quantitating risks posed by these exposure pathways uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. The AAF is used to make an adjustment of the exposure dose.

Thus, the AAF (dermal-water) is defined as: (100%) / (absorption of inorganic mercury in rats from aqueous gavage). This AAF is derived using the estimate of rat absorption of 7.3% from Clarkson et al. (1972). Accordingly, the AAF (dermal-water) is:

AAF (Dermal-Water) = (100%) / (7.3%) = 13.7

AAF (Inhalation)
The inhalation RfC for mercury is 3.0E-04 mg/m^3. This corresponds to an RfD of 8.57E-05 mg/kg-day. The value is based on inhalation exposure in humans. Therefore, the AAF (inhalation) is 1.0.

Summary of AAFs for Inorganic Mercury

Oral-Water	2.0
Oral-Diet	2.0
Oral-Soil	2.0
Dermal-Soil	0.007
Dermal-Water	13.7
Inhalation	1.0

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NICKEL

These AAFs are appropriate for use with the following dose-response values for nickel:

- The oral Reference Dose (RfD) for soluble nickel salts, which is 2E-02 mg/kg-day (USEPA, 2003)
- The inhalation cancer slope factor (CSF) for nickel refinery dust, which is 8.4E-01 (mg/kg-day)$^{-1}$ (USEPA, 2003)

Absorption in the Dose-Response Study

The USEPA oral dose-response value for the noncarcinogenic effects of nickel (2E-02 mg/kg-day) is based on a dietary study of nickel sulfate in rats. The RfD is to be used with both subchronic and chronic exposures. The RfD is based on administered dose units. Unfortunately, no detailed studies exist that measure the absorption of nickel from dietary components in the rat or any other laboratory animal. The absorption data for nickel in laboratory animals are limited to absorption from drinking water. Data do exist for absorption of nickel in humans from both drinking water and the diet. Comparison of the absorption of nickel from drinking water between laboratory animals and humans reveals that percent absorption is very similar for both, and that virtually all of the absorbed nickel is rapidly eliminated in the urine (USEPA, 1993). Therefore, for the purposes of developing AAFs for nickel, it will be assumed that the percent absorption of nickel from the diet is the same for humans and laboratory animals, and that urinary excretion is an accurate measurement of the amount absorbed. The absorption of nickel in the diet is discussed below.

Absorption from Diet

USEPA (1993) evaluated three studies where nickel was ingested by humans in food, using a pharmacokinetic model based on rate of urinary excretion (Horak and Sunderman, 1983; McNeeley et al., 1972; Sunderman et al., 1989). Estimated bioavailability of nickel in food ranged from 1.0 to 1.8%. Two additional studies show similar results. Tedeschi and Sunderman (1957) and Nomoto and Sunderman (1970) indicate that human absorption of nickel from diet is 1-2%.

The average of this range (1.5%) is pooled with the USEPA (1993) estimates of 1.0, 1.2, and 1.8, to derive a mean of 1.3%, which is used here as an estimate of absorption of nickel from the diet for both humans and rats.

AAF (Oral-Water)

The AAF (oral-water) is defined as: (absorption of nickel in humans from ingested water) / (absorption of nickel in rats from diet).

In 1993, USEPA performed a case study to determine if there was adequate evidence to support the derivation of a relative bioavailability factor for nickel in food and drinking water that could be used for assessing risks to the general population (USEPA, 1993). Eleven key studies on bioavailability of nickel ingested by humans as well as 8 studies on bioavailability of nickel administered to animals were evaluated using a pharmacokinetic model based on rate of urinary excretion. The conclusion of the case study was that, for non-fasting scenarios, there was no difference between the bioavailability of nickel ingested in water or in food (USEPA, 1993; Ruoff et al., 1994). Total diet, rather than the actual medium of exposure, appears to be more of a determining factor for the uptake of nickel from the GI tract. Therefore, for typical (non-fasting) human exposure scenarios, the bioavailability of nickel ingested in water is approximately equal to the bioavailability of nickel ingested in food. Therefore, the AAF (oral-water) is 1.

AAF (Oral-Diet)
The AAF (oral-diet) is defined as: (absorption in humans from ingested diet) / (absorption in rats from ingested diets). The AAF (oral-diet) of 1.0 is derived below.

Absorption in humans and rodents is assumed to be similar. USEPA (1993) evaluated three studies where nickel was ingested by humans in food, using a pharmacokinetic model based on rate of urinary excretion. Estimated bioavailability of nickel in food ranged from 1.0 to 1.8%.

Two additional studies show similar results. Tedeschi and Sunderman (1957) and Nomoto and Sunderman (1970) indicate that human absorption of nickel from diet is 1-2%. The average of this range (1.5%) is pooled with the USEPA (1993) estimates of 1.0, 1.2, and 1.8 to derive a mean estimate of 1.3%, which is used here as an estimate of the fractional absorption of nickel from diet. Thus, the AAF (oral-diet) is (1.3%)/(1.3%) = 1.

AAF (Oral-Soil)
The AAF (oral-soil) is defined as: (absorption in humans from ingested soil) / (absorption in rats from diet). It is likely that nickel absorption from ingested soil of some types would be less than its absorption from dietary components. However, no studies could be located in the scientific literature to test this hypothesis.

Griffin et al. (1991) have studied the absorption of radiolabelled $^{63}NiCl_2$ present in an aqueous slurry with sand or clay soils. Crl:CD BR rats (4/sex/dose) were administered nickel by iv (2.1 mg/kg), oral gavage of an aqueous solution (2.1 or 21 mg/kg), or oral gavage of an aqueous sandy-loam or clay-loam slurry (2.1 or 21 mg/kg). The nickel containing soils were prepared by mixing a soil sample with an aqueous solution of $^{63}NiCl_2$, allowing the soil to dry, and then resuspending the soil in an aqueous slurry. Blood was collected at intervals up to 48 hours post-dosing and analyzed for ^{63}Ni by liquid scintillation counting. Absorption of nickel was measured based on the area under the blood concentration vs. time curve (AUC), using either the iv group or the aqueous oral gavage group AUC as the comparative standard.

Two points must be considered before evaluating the data in this experiment. First, the concentration of nickel in soil that would support an 2.1 mg/kg-day dose in a 15 kg child assumed to exhibit pica behavior, i.e., ingest 10 g soil/day, would be 3,150 ppm. Likewise, a 21 mg/kg dose is equivalent to exposure to soils that are 31,500 ppm nickel. Because these concentrations span the upper end of the range of concentrations that could be encountered at USS Sites/Facilities, the results for both doses will be considered in the development of the AAF. Second, the method of preparation of nickel-containing soils is unlikely to mimic the physical state of nickel in weathered soils, where it would be expected to be present in complex mineralogical forms. However, since this is the only study available that evaluates nickel absorption from soils, it must be considered.

The results of the study are presented in Table 1. The average per cent absolute absorption for the sand-based soil was 2.95% and was 1.45% for the clay-based soil. The mean absorption for the four groups was 2.2% +/- 0.9%.

Table 1. Data from Griffin et al. (1991) for Nickel

TEST GROUP	ROUTE OF EXPOSURE	DOSE (mg/kg)	ABSOLUTE ABSORPTION*	RELATIVE ABSORPTION**
1	IV	2.1	100	-
2	Oral/Water	2.1	4.45	100
3	Oral/Water	21	5.2	100
4	Oral/Sand	2.1	2.8	65.1

TEST GROUP	ROUTE OF EXPOSURE	DOSE (mg/kg)	ABSOLUTE ABSORPTION*	RELATIVE ABSORPTION**
5	Oral/Sand	21	3.1	61.1
6	Oral/Clay	2.1	1.1	26.6
7	Oral/Clay	21	1.8	40.4

* Absolute absorption is relative to iv dose group data.
** Relative absorption is relative to aqueous oral gavage dose group data at the same dose.

The AAF (oral-soil) is defined as the ratio of the absorption from soil to the absorption from diet. The absorption from soil (2.2% +/- 0.9%) is not significantly different from the estimate of the absorption from diet described above (1.3% +/- 0.4%). Thus, gastrointestinal absorption of nickel from soil in rats is the same as the absorption in rats from dietary components. Assuming that absorption of nickel is similar in humans and rodents, the estimate of the AAF (oral-soil) is 1.0.

AAF (Dermal-Soil)
The AAF (dermal-soil) is defined as: (absorption in humans from dermal contact with soil) / (absorption in rats from diet). A recommended default value for inorganics of 0.1 percent for the dermal absorption of nickel from soil (USEPA, 2000) has been used. Assuming that the gastrointestinal absorption of nickel from the dietary study is as estimated by USEPA (1993), Tedeschi and Sunderman (1957), and Nomoto and Sunderman (1970) (e.g., 1.3%), an AAF (dermal-soil) of 0.1%/1.3% = 0.08 is calculated.

AAF (Dermal-Water)
The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming or potable water when bathing. The methodology for quantitating risks posed by these exposure pathways uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. The dose-response value for nickel, however, is based on administered dose. The AAF is used to make an adjustment of the exposure dose by this pathway. Thus, the AAF (dermal-water) is defined as: (100%) / (absorption in rats from ingestion of nickel in diet).

This AAF is derived using the estimate of absorption from diet from Sunderman et al. (1989), Tedeschi and Sunderman (1957) and Nomoto and Sunderman (1970) (1.3%). As above, the gastrointestinal absorption in rats from diet is assumed to be the same as the gastrointestinal absorption in humans from diet. Accordingly, the AAF (dermal-water) is:

AAF (Dermal-Water) = (100%) / (1.3%) = 77.

Summary of AAFs for Nickel

Oral-Water	1
Oral-Diet	1
Oral-Soil	1
Dermal-Water	77
Dermal-Soil	0.08

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THALLIUM

The U.S. EPA oral RfD for thallium sulfate (8E-05 mg/kg-day) is based upon a study in rats. The RfD has been adjusted for the molecular weight of thallium to 6.7E-05 mg/kg-day. Thallium sulfate was administered by gavage. There is limited evidence in animals and humans describing the oral absorption of thallium. A terminal cancer patient treated with a single dose of [^{204}Tl]-thallium nitrate appeared to absorb virtually the entire dose; only, 0.4% was recovered in the feces in a 72 hour collection period (Barclay et al., 1953 as cited in ATSDR, 1991). Single doses of radiolabeled thallium nitrate to rats also appear to be completely absorbed (Lie et al., 1960 as cited in ATSDR, 1991). Thus the AAF (oral-water) is (100%) / (100%) = 1.0. Absorption from diet and soil is assumed to be identical to that for absorption from water in the absence of other specific information. This is a conservative assumption since it is likely that gastrointestinal absorption of thallium from complex solid matrices such as food or soil is not as complete as thallium given orally in a liquid medium. Thus, the AAF (oral-diet) and the AAF (oral-soil) are both 1.0.

The recommended default value of 0.1% for inorganics was assumed for dermal absorption of thallium (U.S. EPA, 1995). Thus the AAF (dermal-soil) is (0.1%)/(100%) = 0.001.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For thallium, the AAF (dermal-water) is (100%)/(100%) = 1.0.

Summary of AAFs for Thallium

Oral-Water	1.0
Oral-Diet	1.0
Oral-Soil	1.0
Dermal-Soil	0.001
Dermal-Water	1.0

REFERENCES

ATSDR (Agency for Toxic Substances and Disease Registry). 1991. Toxicological Profile for Thallium (Draft for Public Comment) Washington DC:U.S. Department of Health and Human Services.

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VANADIUM

The oral RfD of 7E-03 mg/kg-day provided by HEAST (USEPA, 1997) is based on a drinking water study in rats using vanadium sulfate. Vanadium is very poorly absorbed across the gastrointestinal tract with several investigators reporting between 0.1% and greater than 18% absorption of ingested vanadium given in different forms (USEPA, 1987). Based on these studies and absorption for other metals, absorption of 10% was assumed for vanadium. It is assumed that the absorption of vanadium in the diet, water, soil, and sediment is the same as that in the dose-response study. Thus, the AAF (oral-diet), the AAF (oral-soil), and the AAF (oral-water) are all 1.

Dermal absorption of vanadium is assumed to be poor, although specific estimates were not located (USEPA, 1987). A recommended default value for inorganics of 0.1% for the dermal absorption of inorganics from soil (USEPA, 2000) has been used. Assuming that the gastrointestinal absorption of vanadium from the drinking water study was 10%, results in a AAF (dermal-soil/sediment) of 0.1%/10% = 0.01.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantifying risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make adjustment to the absorbed dermal dose, rather than adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For vanadium, the AAF (dermal-water) is 100%/10% = 10.

Summary of AAFs for Vanadium

Oral-water	1
Oral-diet	1
Oral-soil	1
Dermal-soil	0.01
Dermal-water	10

References

USEPA. 1987. Health Effects Assessment for Vanadium and Compounds. Environmental Criteria and Assessment Office: Cincinnati, OH. PB 88-176383.

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USEPA. 2003. Integrated Risk Information System (IRIS). [URL: http://www.epa.gov/ngispgm3/iris/]

ZINC

The oral RfD for zinc (3.0E-01 mg/kg-day) provided by IRIS (USEPA, 2003) is based on a human study with zinc sulfate in the diet. Thus, the AAF (oral-diet) is 1. The mean absorption of zinc from diet in ten humans has been determined by Sandstrom et al. (1987) as 33% (22-46%). The absorption of zinc from drinking water was determined in humans by several workers: 56% (Dinsmore et al., 1985), 42% (Milman et al., 1983), 58% (Farah et al., 1984) and 55% (Valberg et al., 1985). The mean of these four values is 53%. Thus, the AAF (oral-water) is 53%/33% = 1.6. The gastrointestinal absorption of zinc from soil is assumed to be identical to that from diet. Thus, the AAF (oral-soil) is 1. A recommended default value of 0.1% (USEPA, 2000) for inorganics was assumed for dermal absorption of zinc from contact with soil. Thus, the AAF (dermal-soil) is 0.1%/33% = 0.003.

The AAF (dermal-water) is used when estimating the human risks posed by dermally contacting surface water when wading or swimming. The methodology for quantitating risks posed by this exposure pathway uses a chemical-specific permeability constant that estimates the rate at which the chemical passes into and through the skin from an aqueous solution. By definition, the dose estimated by this procedure is an absorbed dose. Most dose-response criteria, however, are based on administered doses. An adjustment is necessary to account for the absorption in the dose-response study. In order to use consistent dose-response criteria across all exposure pathways, the AAF is used to make an adjustment to the absorbed dermal dose, instead of adjusting the dose-response criteria. Here, the AAF is defined as (100%)/(estimated absorption in the dose-response study). For zinc, the AAF (dermal-water) is 100%/33% = 3.03.

Summary of AAFs for Zinc

Oral-diet	1
Oral-water	1.6
Oral-soil	1
Dermal-soil	0.003
Dermal-water	3.03

References

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APPENDIX I

CALCULATION OF 95% UCLs

Appendix I
Calculation of 95% UCLs

The USEPA document "Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites" (USPEA, 2002a) provides guidance on the methodology for calculating 95% Upper Confidence Levels (UCLs). The calculation of the 95% UCL is dependent on the data distribution, which can be normal, lognormal, or nonparametric. For normally distributed datasets, the guidance recommends the use of the Student's t-statistic to calculate a 95% UCL. However, for lognormal or nonparametric datasets, a variety of methods are used, depending on the skewness and other charateristics of the data.

An ENSR-developed program has been used to implement the recommendations of the guidance. The USEPA program ProUCL, which has been developed to partially implement the guidance (USEPA, 2002a), does not always make a final selection as to which 95% UCL is appropriate. The ENSR program results were compared with the ProUCL results for several COPCs, and the 95% UCLs were similar. The table below presents the results of a benchmarking comparison indicating that the two programs arrive at the same value, except in two cases where the ProUCL program uses a slightly incorrect factor.

Comparison of ENSR Statistics Program and ProUCL

UCL_{95} Method	Included in ENSR Program?	Included in ENSR Decision Tree?	Included in ProUCL?	ProUCL Benchmark	ENSR Benchmark
Student's t-Distribution	Yes	Yes	Yes	519	519
Modified t-Distribution	No	No	Yes		
Land Method ("H-Statistic")	Yes	Yes	Yes	14.3	14.3
MVUE Log Jackknife	Yes	Yes	No		
MVUE Log Chebyshev	Yes	Yes	Yes	1965	1998[a]
Non-parametric Chebyshev	Yes	No	Yes	16.7	16.9[a]
Central Limit Theorem	Yes	No	No		
Adjusted Central Limit Theorem	Yes	No	Yes	41.5	41.5
Standard Bootstrap	Yes	Yes	No	12.2	12.3
Hall's Bootstrap	Yes	Yes	No		
Hall's Bootstrap-t	Yes	Yes	Yes	13.1	13.1
Maximum	Yes	Yes	Yes		

Notes:
[a] Factor in the UCL_{95} equation should be 4.47 not the ProUCL value of 4.36

The program documentation is presented below. Attachments A-H present the equations used in the program. Attachment I presents the input and output files for the calculation of each 95% UCL used in this risk assessment. Note that the input file is simply a list of numbers that represent the sample concentrations for the Constituent of Potential Concern (COPC) in question after non-detects were handled as discussed in Section 3.1.4 of the main text, and after duplicates were averaged. Attachment J presents the Exposure Point Concentration (EPC) selection procedure. For COPCs in areas/media with fewer than eight samples, the maximum detected concentration is selected as the EPC. For all other COPCs, the lower of the calculated 95% UCL and the maximum detect is selected as the EPC.

Advanced Statistical Analysis for Risk Assessment

Introduction

The cleanup costs for a contaminated site depend upon the risks associated with its use at its current level of contamination. Site cleanup measures are selected that will reduce the risk to an acceptable level. Calculated risks are based upon the average soil or groundwater concentrations for the area in question. Because the number of measurements is limited, there is some uncertainty in the average concentration. To account for this uncertainty, EPA requires that the 95th percent confidence limit of the mean value ("UCL_{95}") be used for the risk calculations.

Under the current EPA guidance, the first step in determining the UCL_{95} is to classify the observed frequency distribution of measured concentrations as either normal or lognormal. See Attachment A for a discussion of normal and lognormal distributions. The Shapiro Wilk/D'Agostino Test (see Attachment B) is used to determine whether the underlying distribution is more likely to be normal or lognormal. If the data are better characterized by a normal distribution, then the standard "t-statistic" (see Attachment C) is used to calculate the UCL_{95}. For lognormal distributions, the less-well-known "h-statistic" (see Attachment D) is used to calculate the UCL_{95}. In most cases the measurement data is classified as lognormal. For small data sets or those having distributions that are highly skewed, the use of the h-statistic can lead to the calculation of unrealistically high UCL_{95} values. This problem translates into a calculated risk and associated cleanup cost that is inflated.

Alternate Approach

ENSR has developed a statistical analysis protocol and associated software for the calculation of more realistic UCL_{95} values. The two major improvements over the current recommended methodology are introduced. The first is the consideration of non-parametric distributions for data that do not follow normal or lognormal distributions. The second is a more technically defensible scheme for the calculation of the UCL_{95} of a lognormal distribution that does not rely solely on the use of the h-statistic.

The data are first tested for normality by use of the Shapio-Wilk/D'Agostino Test (see Attachment B). If the data set passes this normality test at the 5 percent confidence level, then the UCL_{95} is calculated by use of the t-statistic as described in Attachment C. If the data set fails the normality test, then the natural logarithms of the data values are tested for normality by use of the Shapiro-Wilk/D'Agostino Test (see Attachment B). If the

data set of the logarithms does not pass this normality test, then the distribution is considered non-parametric and the UCL_{95} value is calculated by the methods described in Attachment E. If the data set of logarithms does pass the Shapiro-Wilk/D'Agostino Test, then the data set of logarithms is further tested for normality at the 10 percent confidence level by use of the Anderson-Darling Test (see Attachment F). If the data set of logarithms passes the Anderson-Darling Test, then the underlying distribution is considered to be "confirmed lognormal " Otherwise the distribution is characterized as "unconfirmed lognormal." The determination of the UCL_{95} for these two types of lognormal distributions is described in Attachment D.

Auxiliary Programs

Two auxiliary programs were developed for the statistical data analysis. The first is a program for calculating outliers (see Attachment G). During the calculation of the UCL_{95} both the data values and the logarithms of the data values are tested for outliers. The reporting of outliers is based upon the assumption that the underlying distribution is normal The outlier analysis is only for diagnostic purposes. No data values are discarded prior to the UCL_{95} calculation. The second program, in the form of an EXCEL workbook ("NormPlot"), displays the cumulative frequency distribution of the data values and the logarithms of the data values as a normal probability plot (see Attachment H) The data points are fitted to a straight line to graphically illustrate the departure the distribution of points from normal

This program was used to calculate UCL_{95} values for a number of constituents for this site. The program input and output files are included in Attachment I Attachment J selects the final EPCs.

Attachment A
Normal and Lognormal Distributions

A normal probability distribution is described by the following probability density function

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} \exp\left[-\frac{1}{2\sigma^2}(x-\mu)^2\right] \qquad -\infty < x < \infty \qquad (A-1)$$

where

= mean of the distribution (- < <)

^{2} = variance of the distribution (0 < ^{2})

The probability density f(x) given by Equation (A-1) represents the probability that the random variable X will take on a value between x- /2 and x+ /2, where is an infinitesimal increment in x The probability F(x) that the random variable X will take on a value less than or equal to the value x is called the cumulative frequency distribution and is given by

$$F(x) = \int_{-\infty}^{x} f(x)\,dx \qquad (A-2)$$

$$= \frac{1}{2}\left[1 + erf\left(\frac{x-\mu}{\sqrt{2}\sigma}\right)\right]$$

If the logarithm of x, ln(x), is normally distributed, then x is said to be described by a lognormal distribution with a probability density function given by

$$f(x) = \frac{1}{x\sigma_y\sqrt{2\pi}} \exp\left[-\frac{1}{2\sigma_y^2}(\ln x - \mu_y)^2\right] \quad x > 0 \qquad (A-3)$$

where

$_y$ = mean of the transformed variable y = ln(x), - < $_y$ <

$^2{}_y$ = variance of the transformed variable y = ln(x); $_y > 0$

The mean and variance of the non-transformed values are given in terms of the mean and variance of the transformed values as follows:

$$\mu = \exp\left(\mu_y + 0.5\sigma_y^2\right) \qquad (A-4)$$

$$\sigma = \sqrt{\exp(2\mu_y + \sigma_y^2)(\exp(\sigma_y^2) - 1)} \qquad (A-5)$$

Examples of normal and lognormal distributions are given in Figures A-1 and A-2 for a mean of 1.0 and a variance of 0.5.

Figure A-1. Normal Distribution: Mean=1.00; Variance=0.50

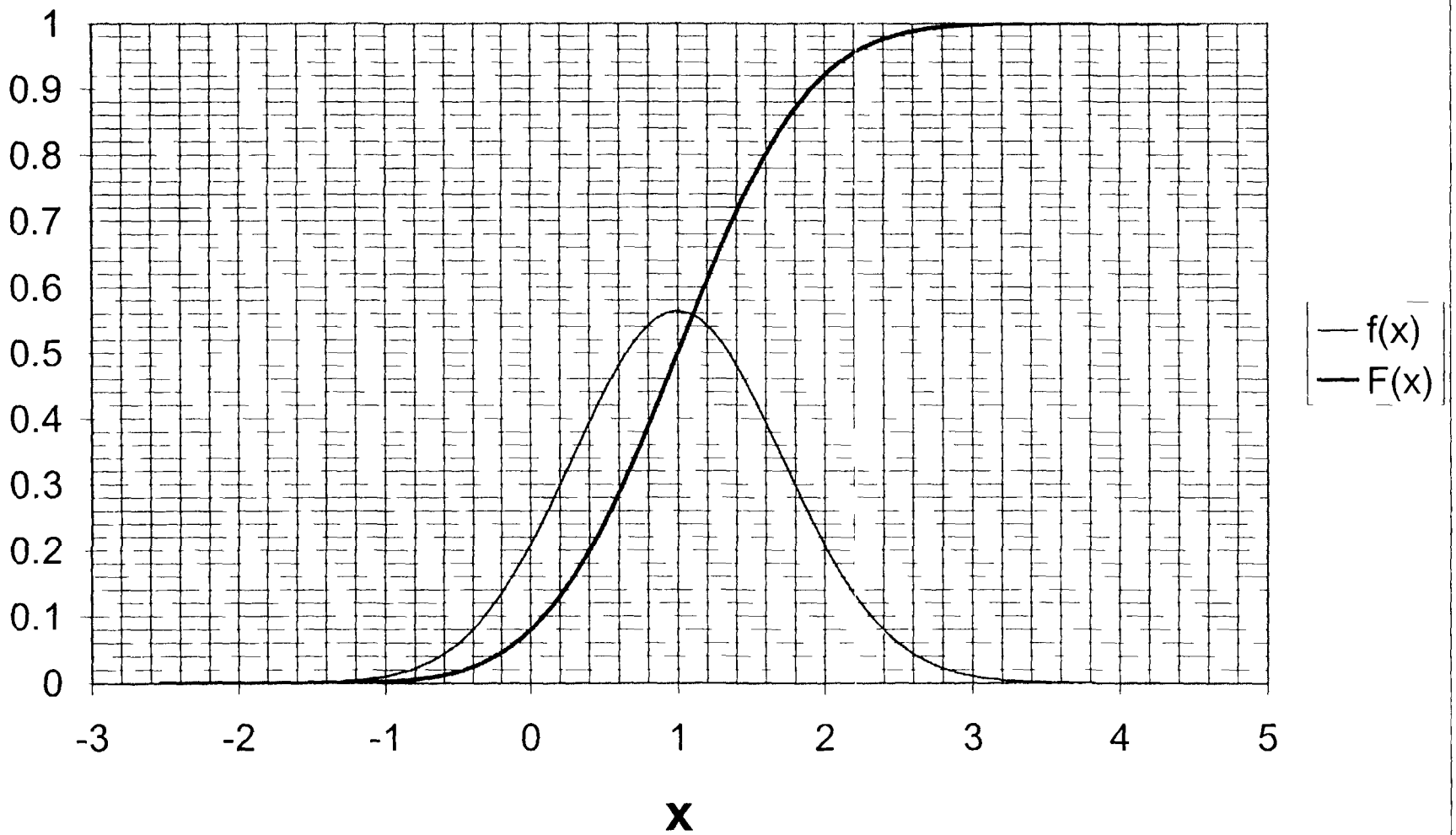
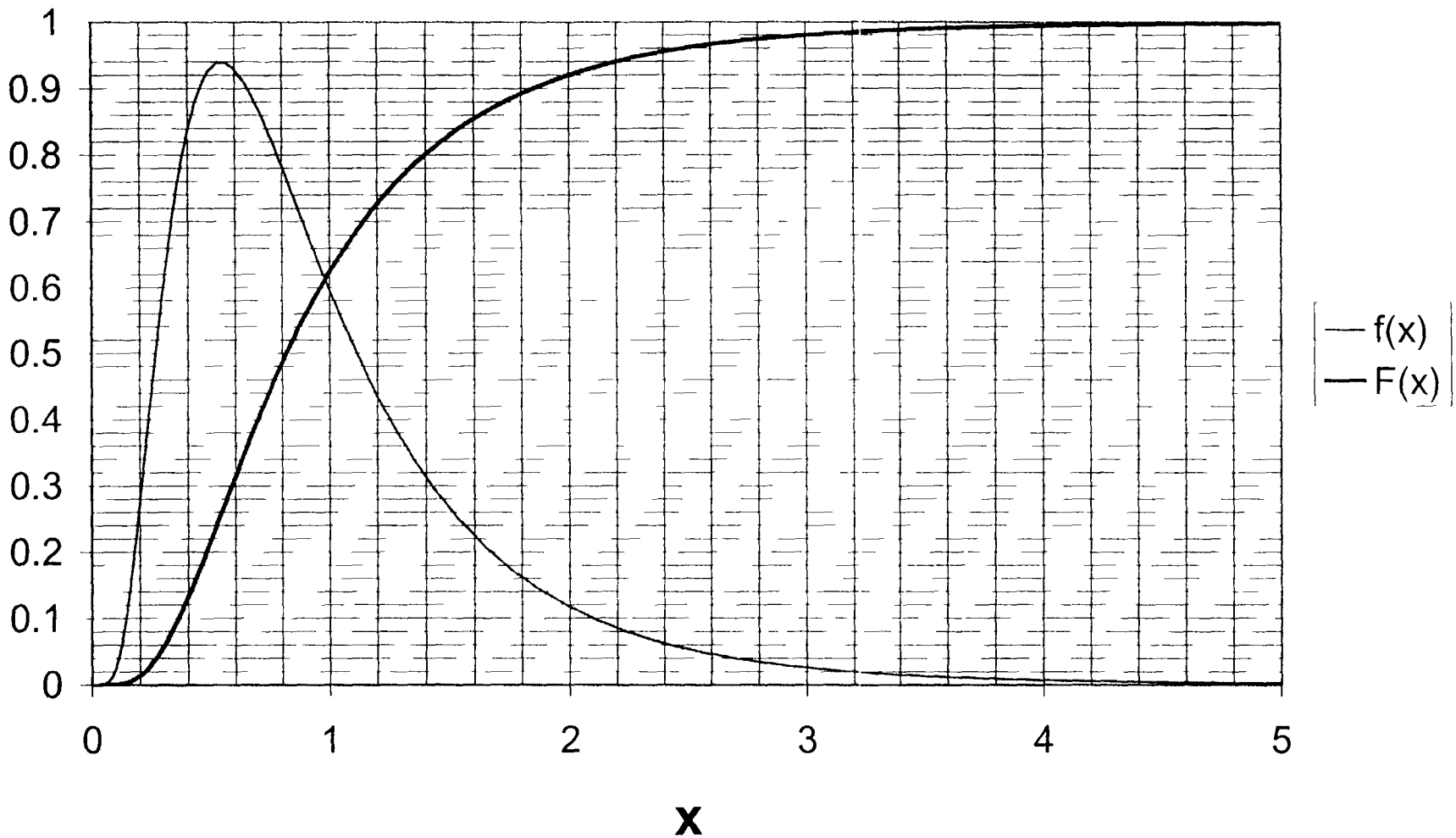


Figure A-2. Lognormal Distribution: Mean=1.00; Variance=0.50



Attachment B
Shapiro-Wilk and D'AgostinoTests for Normality

Consider a data set ($x_1, x_2, \ldots, x_n$) where n 50. The Shapiro-Wilk statistic W is proportional to the ratio of the slope of the normal probability plot to the mean square estimate:

$$W = \frac{\left(\sum_{i=1}^{n} a_{i,n} x_{(i)}\right)^2}{\sum_{i=1}^{n} (x_i - \bar{x})^2} \qquad (B-1)$$

where

$x_{(i)}$ = data values sorted from smallest to largest

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

Values of the $a_{i,n}$ coefficients are given in Table B-1 (Reference 1). If some of the values x_i are found to be the same, then an average $a_{i,n}$ value is applied across the range of identical sorted data values in Equation (B-1).

The larger the value of W, the less confident one can be about rejecting the assumption that the underlying frequency distribution from which the "n" values were selected is a normal distribution. The W values associated with a 5 percent probability of incorrectly rejecting the assumption of normality are given in Table B-2 (Reference 1). If the logarithms of the data values are used, then the W statistic can be used to test for lognormality of the distribution.

If the number of observations is greater than 50, then the D-statistic is computed as follows:

$$D = \frac{\sum_{i=1}^{n} [i - 0.5(n+1)] x_{(i)}}{n^2 s} \qquad (B-2)$$

where

$$s = \left[\frac{1}{n} \sum_{i=1}^{n} (x_i - \bar{x})^2 \right]^{1/2}$$

The D-Statistic is transformed to the Y-Statistic as follows

$$Y = \frac{(D - 0.28209479)\sqrt{n}}{0.02998598} \qquad (B-3)$$

The null hypothesis of normality is rejected at the 5 percent significance level if Y is less than the 2.5 percent quantile or greater than the 97.5 percent quantile of the distribution of Y values. These quantiles are given in Table B-3 as a function of the number of observations (Reference 2). Lognormality may be tested if the logarithms of the data are substituted for the data values in Equations (B-2) and (B-3).

References

1 Shapiro, S.S., and M.B. Wilk, 1965. An Analysis of Variance Test for Normality (complete samples), *Biometrika* **52**:591-611

2. D'Agostino, R.B., 1971. An Omnibus Test for Normality for Moderate and Large Size Samples, *Biometrika* **58**:341-348

Table B-1(a). A(i,n) Coefficients for the Shapio-Wilk Test of Normality (Part 1)

i	*n*																		
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	0 7071	0 7071	0 6872	0 6646	0 6431	0 6233	0 6052	0 5888	0 5739	0 5601	0 5475	0 5359	0 5251	0 5150	0 5056	0 4968	0 4886	0 4808	0 4734
2	0 7071	0 0000	0 1677	0 2413	0 2806	0 3031	0 3164	0 3244	0 3291	0 3315	0 3325	0 3325	0 3318	0 3306	0 3290	0 3273	0 3253	0 3232	0 3211
3	0 0000	-0 7071	-0 1677	0 0000	0 0875	0 1401	0 1743	0 1976	0 2141	0 2260	0 2347	0 2412	0 2460	0 2495	0 2521	0 2540	0 2553	0 2561	0 2565
4	0 0000	0 0000	-0 6872	-0 2413	-0 0875	0 0000	0 0561	0 0947	0 1224	0 1429	0 1586	0 1707	0 1802	0 1878	0 1939	0 1988	0 2027	0 2059	0 2085
5	0 0000	0 0000	0 0000	-0 6646	-0 2806	-0 1401	-0 0561	0 0000	0 0399	0 0695	0 0922	0 1099	0 1240	0 1353	0 1447	0 1524	0 1587	0 1641	0 1686
6	0 0000	0 0000	0 0000	0 0000	-0 6431	-0 3031	-0 1743	-0 0947	-0 0399	0 0000	0 0303	0 0539	0 0727	0 0880	0 1005	0 1109	0 1197	0 1271	0 1334
7	0 0000	0 0000	0 0000	0 0000	0 0000	-0 6233	-0 3164	0 1976	0 1224	-0 0695	-0 0303	0 0000	0 0240	0 0433	0 0593	0 0725	0 0837	0 0932	0 1013
8	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 6052	-0 3244	-0 2141	-0 1429	-0 0922	-0 0539	-0 0240	0 0000	0 0196	0 0359	0 0496	0 0612	0 0711
9	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 5888	0 3291	0 2260	0 1586	-0 1099	-0 0727	-0 0433	0 0196	0 0000	0 0163	0 0303	0 0422
10	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 5739	-0 3315	-0 2347	-0 1707	-0 1240	-0 0880	-0 0593	-0 0359	-0 0163	0 0000	0 0140
11	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 5601	-0 3325	-0 2412	-0 1802	0 1353	-0 1005	-0 0725	-0 0496	-0 0303	-0 0140
12	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 5475	-0 3325	-0 2460	0 1878	-0 1447	0 1109	-0 0837	-0 0612	-0 0422
13	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 5359	-0 3318	-0 2495	-0 1939	0 1524	0 1197	0 0932	-0 0711
14	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 5251	-0 3306	-0 2521	-0 1988	-0 1587	-0 1271	-0 1013
15	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 5150	0 3290	0 2540	0 2027	0 1641	-0 1334
16	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 5056	0 3273	-0 2553	0 2059	-0 1686
17	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 4968	0 3253	0 2561	0 2085
18	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 4886	0 3232	-0 2565
19	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 4808	-0 3211
20	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	-0 4734
21	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
22	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
23	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
24	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
25	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
26	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
27	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
28	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
29	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
30	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
31	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
32	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
33	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
34	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
35	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
36	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
37	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
38	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
39	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
40	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
41	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
42	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
43	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
44	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
45	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
46	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
47	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
48	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
49	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000
50	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000	0 0000

Table B-1(b) A(i,n) Coefficients for the Shapio-Wilk Test of Normality (Part 2)

i	n = 26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	0.4407	0.4366	0.4328	0.4291	0.4254	0.4220	0.4188	0.4156	0.4127	0.4096	0.4068	0.4040	0.4015	0.3989	0.3964	0.3940	0.3917	0.3894	0.3872	0.3850	0.3830	0.3808	0.3789	0.3770	0.3751
2	0.3043	0.3018	0.2992	0.2968	0.2944	0.2921	0.2898	0.2876	0.2854	0.2834	0.2813	0.2794	0.2774	0.2755	0.2737	0.2719	0.2701	0.2684	0.2667	0.2651	0.2635	0.2620	0.2604	0.2589	0.2574
3	0.2533	0.2522	0.2510	0.2499	0.2487	0.2475	0.2462	0.2451	0.2439	0.2427	0.2415	0.2403	0.2391	0.2380	0.2368	0.2357	0.2345	0.2334	0.2323	0.2313	0.2302	0.2291	0.2281	0.2271	0.2260
4	0.2151	0.2152	0.2151	0.2150	0.2148	0.2145	0.2141	0.2137	0.2132	0.2127	0.2121	0.2116	0.2110	0.2104	0.2098	0.2091	0.2085	0.2078	0.2072	0.2065	0.2058	0.2052	0.2045	0.2038	0.2032
5	0.1836	0.1848	0.1857	0.1864	0.1870	0.1874	0.1878	0.1880	0.1882	0.1883	0.1883	0.1883	0.1881	0.1880	0.1878	0.1876	0.1874	0.1871	0.1868	0.1865	0.1862	0.1859	0.1855	0.1851	0.1847
6	0.1563	0.1584	0.1601	0.1616	0.1630	0.1641	0.1651	0.1660	0.1667	0.1673	0.1678	0.1683	0.1686	0.1689	0.1691	0.1693	0.1694	0.1695	0.1695	0.1695	0.1695	0.1695	0.1693	0.1692	0.1691
7	0.1316	0.1346	0.1372	0.1395	0.1415	0.1433	0.1449	0.1463	0.1475	0.1487	0.1496	0.1505	0.1513	0.1520	0.1526	0.1531	0.1535	0.1539	0.1542	0.1545	0.1548	0.1550	0.1551	0.1553	0.1554
8	0.1089	0.1128	0.1162	0.1192	0.1219	0.1243	0.1265	0.1284	0.1301	0.1317	0.1331	0.1344	0.1356	0.1366	0.1376	0.1384	0.1392	0.1398	0.1405	0.1410	0.1415	0.1420	0.1423	0.1427	0.1430
9	0.0876	0.0923	0.0965	0.1002	0.1036	0.1066	0.1093	0.1118	0.1140	0.1160	0.1179	0.1196	0.1211	0.1225	0.1237	0.1249	0.1259	0.1269	0.1278	0.1286	0.1293	0.1300	0.1306	0.1312	0.1317
10	0.0672	0.0728	0.0778	0.0822	0.0862	0.0899	0.0931	0.0961	0.0988	0.1013	0.1036	0.1056	0.1075	0.1092	0.1108	0.1123	0.1136	0.1149	0.1160	0.1170	0.1180	0.1189	0.1197	0.1205	0.1212
11	0.0476	0.0540	0.0598	0.0650	0.0697	0.0739	0.0777	0.0812	0.0844	0.0873	0.0900	0.0924	0.0947	0.0967	0.0986	0.1004	0.1020	0.1035	0.1049	0.1062	0.1073	0.1085	0.1095	0.1105	0.1113
12	0.0284	0.0358	0.0424	0.0483	0.0537	0.0585	0.0629	0.0669	0.0706	0.0739	0.0770	0.0798	0.0824	0.0848	0.0870	0.0891	0.0909	0.0927	0.0943	0.0959	0.0972	0.0986	0.0998	0.1010	0.1020
13	0.0094	0.0178	0.0253	0.0320	0.0381	0.0435	0.0485	0.0530	0.0572	0.0610	0.0645	0.0677	0.0706	0.0733	0.0759	0.0782	0.0804	0.0824	0.0842	0.0860	0.0876	0.0892	0.0906	0.0919	0.0932
14	-0.0094	0.0000	0.0084	0.0159	0.0227	0.0289	0.0344	0.0395	0.0441	0.0484	0.0523	0.0559	0.0592	0.0622	0.0651	0.0677	0.0701	0.0724	0.0745	0.0765	0.0783	0.0801	0.0817	0.0832	0.0846
15	-0.0284	0.0178	-0.0084	0.0000	0.0076	0.0144	0.0206	0.0262	0.0314	0.0361	0.0404	0.0444	0.0481	0.0515	0.0546	0.0575	0.0602	0.0628	0.0651	0.0673	0.0694	0.0713	0.0731	0.0748	0.0764
16	-0.0476	0.0358	-0.0253	-0.0159	-0.0076	0.0000	0.0068	0.0131	0.0187	0.0239	0.0287	0.0331	0.0372	0.0409	0.0444	0.0476	0.0506	0.0534	0.0560	0.0584	0.0607	0.0628	0.0648	0.0667	0.0685
17	-0.0672	0.0540	-0.0424	0.0320	-0.0227	0.0144	-0.0068	0.0000	0.0062	0.0119	0.0172	0.0220	0.0264	0.0305	0.0343	0.0379	0.0411	0.0442	0.0471	0.0497	0.0522	0.0546	0.0568	0.0588	0.0608
18	-0.0876	0.0728	-0.0598	-0.0483	-0.0381	-0.0289	-0.0206	0.0131	-0.0062	0.0000	0.0057	0.0110	0.0158	0.0203	0.0244	0.0283	0.0318	0.0352	0.0383	0.0412	0.0439	0.0465	0.0489	0.0511	0.0532
19	-0.1089	0.0923	-0.0778	0.0650	0.0537	0.0435	-0.0344	-0.0262	-0.0187	0.0119	-0.0057	0.0000	0.0053	0.0101	0.0146	0.0188	0.0227	0.0263	0.0296	0.0328	0.0357	0.0385	0.0411	0.0436	0.0459
20	-0.1316	0.1128	-0.0965	-0.0822	-0.0697	0.0585	-0.0485	0.0395	-0.0314	0.0239	-0.0172	0.0110	0.0053	0.0000	0.0049	0.0094	0.0136	0.0175	0.0211	0.0245	0.0277	0.0307	0.0335	0.0361	0.0386
21	-0.1563	0.1346	-0.1162	0.1002	0.0862	-0.0739	-0.0629	0.0530	-0.0441	0.0361	-0.0287	0.0220	-0.0158	0.0101	-0.0049	0.0000	0.0045	0.0087	0.0126	0.0163	0.0197	0.0229	0.0259	0.0288	0.0314
22	-0.1836	0.1584	-0.1372	-0.1192	0.1036	-0.0899	0.0777	-0.0669	0.0572	0.0484	0.0404	0.0331	0.0264	0.0203	-0.0146	0.0094	0.0045	0.0000	0.0042	0.0081	0.0118	0.0153	0.0185	0.0215	0.0244
23	-0.2151	0.1848	0.1601	0.1395	0.1219	0.1066	-0.0931	0.0812	0.0706	0.0610	0.0523	-0.0444	0.0372	-0.0305	0.0244	-0.0188	-0.0136	0.0087	-0.0042	0.0000	0.0039	0.0076	0.0111	0.0143	0.0174
24	0.2533	0.2152	0.1857	0.1616	0.1415	0.1243	0.1093	0.0961	0.0844	0.0739	0.0645	0.0559	0.0481	-0.0409	0.0343	0.0283	0.0227	0.0175	0.0126	0.0081	0.0039	0.0000	0.0037	0.0071	0.0104
25	-0.3043	0.2522	0.2151	-0.1864	0.1630	-0.1433	0.1265	-0.1118	0.0988	0.0873	0.0770	0.0677	0.0592	0.0515	0.0444	0.0379	-0.0318	0.0263	0.0211	0.0163	0.0118	0.0076	-0.0037	0.0000	0.0035
26	-0.4407	0.3018	0.2510	0.2150	-0.1870	0.1641	0.1449	0.1284	0.1140	0.1013	0.0900	-0.0798	0.0706	-0.0622	0.0546	0.0476	-0.0411	0.0352	-0.0296	-0.0245	0.0197	0.0153	0.0111	0.0071	-0.0035
27	0.0000	0.4366	0.2992	0.2499	0.2148	0.1874	0.1651	0.1463	0.1301	0.1160	0.1036	0.0924	0.0824	0.0733	0.0651	0.0575	0.0506	0.0442	-0.0383	0.0328	0.0277	0.0229	-0.0185	0.0143	-0.0104
28	0.0000	0.0000	0.4328	-0.2968	0.2487	0.2145	0.1878	0.1660	0.1475	0.1317	-0.1179	0.1056	0.0947	0.0848	0.0759	0.0677	0.0602	0.0534	-0.0471	0.0412	0.0357	-0.0307	0.0259	-0.0215	-0.0174
29	0.0000	0.0000	0.0000	-0.4291	0.2944	0.2475	0.2141	-0.1880	0.1667	0.1487	-0.1331	0.1196	0.1075	0.0967	0.0870	0.0782	0.0701	-0.0628	0.0560	-0.0497	0.0439	0.0385	0.0335	0.0288	0.0244
30	0.0000	0.0000	0.0000	0.0000	0.4254	-0.2921	-0.2463	0.2137	0.1882	0.1673	0.1496	0.1344	0.1211	0.1092	-0.0986	-0.0891	-0.0804	0.0724	0.0651	0.0584	0.0522	0.0465	-0.0411	0.0361	-0.0314
31	0.0000	0.0000	0.0000	0.0000	0.0000	0.4220	-0.2898	0.2451	0.2132	0.1883	0.1678	0.1505	0.1356	-0.1225	0.1108	0.1004	0.0909	0.0824	-0.0745	0.0673	0.0607	-0.0546	0.0489	-0.0436	0.0386
32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4188	0.2876	0.2439	0.2127	0.1883	0.1683	0.1513	0.1366	0.1237	0.1123	0.1020	0.0927	0.0842	0.0765	0.0694	0.0628	0.0568	0.0511	0.0459
33	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4156	0.2854	0.2427	0.2121	0.1883	0.1686	0.1520	0.1376	0.1249	0.1136	0.1035	0.0943	0.0860	0.0783	0.0713	-0.0648	0.0588	0.0532
34	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4127	0.2834	0.2415	0.2116	0.1881	0.1689	0.1526	0.1384	0.1259	0.1149	0.1049	-0.0959	0.0876	-0.0801	-0.0731	0.0667	0.0608
35	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4096	0.2813	-0.2403	0.2110	0.1880	0.1691	0.1531	-0.1392	0.1269	0.1160	-0.1062	0.0972	-0.0892	0.0817	0.0748	-0.0685
36	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.4068	0.2794	0.2391	0.2104	0.1878	-0.1693	0.1535	0.1398	0.1278	0.1170	0.1073	-0.0986	-0.0906	-0.0832	0.0764
37	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.4040	-0.2774	0.2380	-0.2098	-0.1876	-0.1694	0.1539	0.1405	-0.1286	0.1180	0.1085	-0.0998	-0.0919	0.0846
38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.4015	-0.2755	0.2368	0.2091	0.1874	0.1695	-0.1542	-0.1410	0.1293	-0.1189	-0.1095	-0.1010	0.0932
39	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3989	0.2737	-0.2357	-0.2085	-0.1871	-0.1695	-0.1545	0.1415	-0.1300	-0.1197	-0.1105	-0.1020
40	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3964	0.2719	-0.2345	0.2078	0.1868	-0.1695	0.1548	-0.1420	-0.1306	0.1205	-0.1113
41	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3940	-0.2701	0.2334	0.2072	0.1865	0.1695	0.1550	-0.1423	-0.1312	0.1212
42	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3917	0.2684	-0.2323	-0.2065	0.1862	-0.1695	-0.1551	0.1427	0.1317
43	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3894	-0.2667	0.2313	0.2058	-0.1859	0.1693	-0.1553	-0.1430
44	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3872	-0.2651	0.2302	0.2052	-0.1855	-0.1692	-0.1554
45	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3850	0.2635	-0.2291	-0.2045	-0.1851	0.1691
46	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3830	-0.2620	-0.2281	0.2038	0.1847
47	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3808	0.2604	0.2271	0.2032
48	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3789	-0.2589	-0.2260
49	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3770	-0.2574
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.3751

Table B-2. Five Percent Confidence Limits for Shapiro-Wilk Test	
n	$W_{0.05}$
1	0.767
2	0.767
3	0.767
4	0.748
5	0.762
6	0.788
7	0.803
8	0.818
9	0.829
10	0.842
11	0.850
12	0.859
13	0.866
14	0.874
15	0.881
16	0.887
17	0.892
18	0.897
19	0.901
20	0.905
21	0.908
22	0.911
23	0.914
24	0.916
25	0.918
26	0.920
27	0.923
28	0.924
29	0.926
30	0.927
31	0.929
32	0.930
33	0.931
34	0.933
35	0.934
36	0.935
37	0.936
38	0.938
39	0.939
40	0.940
41	0.941
42	0.942
43	0.943
44	0.944
45	0.945
46	0.945
47	0.946
48	0.947
49	0.947
50	0.947

Table B-3. Agostino Test Quantiles		
n	$Y_{0.025}$	$Y_{0.975}$
50	-2.757	1.038
60	-2.699	1.115
70	-2.652	1.176
80	-2.613	1.226
90	-2.580	1.268
100	-2.552	1.303
150	-2.452	1.423
200	-2.391	1.496
250	-2.348	1.545
300	-2.316	1.528
350	-2.291	1.610
400	-2.270	1.633
450	-2.253	1.652
500	-2.239	1.668
550	-2.226	1.682
600	-2.215	1.694
650	-2.206	1.704
700	-2.197	1.714
750	-2.189	1.722
800	-2.182	1.730
850	-2.176	1.737
900	-2.170	1.743
950	-2.164	1.749
1000	-2.159	1.754

Attachment C
Calculation of the UCL_{95} for the Mean of a Normal Distribution

If a distribution of data values has been classified as normal, the upper 95 percent confidence limit (UCL_{95}) of the mean of the distribution is calculated as follows:

$$UCL_{95} = \bar{x} + \frac{s\, t_{0.05,n-1}}{\sqrt{n}} \qquad (C-1)$$

where

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2}$$

n = number of samples

$t_{0.05,n-1}$ = one-sided t-statistic for 5 percent error (see Table C-1)

Table C-1. One-sided t-statistics for 5 Percent Error

Degrees of Freedom (n-1)	One-sided t-statistic for 5 Percent Error
1	6 314
2	2 920
3	2 353
4	2 132
5	2 015
6	1 943
7	1 895
8	1 860
9	1 833
10	1 812
11	1 796
12	1 782
13	1 771
14	1 761
15	1 753
16	1 746
17	1 740
18	1 734
19	1 729
20	1 725
21	1 721
22	1 717
23	1 714
24	1 711
25	1 708
26	1 706
27	1 703
28	1 701
29	1 699
30	1 697
40	1 684
50	1 676
60	1 671
75	1 665
100	1 660
120	1 658
200	1 653
1000	1 646
>1000	1 645

Attachment D
Calculation of the UCL_{95} for the Mean of a Lognormal Distribution

Data Transformation and Testing

If a data set of concentration measurements fails the Shapiro-Wilk/D'Agostino test for normality, then the measurement values are transformed by taking the natural logarithm of each data value

$$y_i = \ln(x_i) \qquad (D-1)$$

The transformed values, y_i, are then subjected to the Shapiro-Wilk/D'Agostino test to determine whether they conform to a normal distribution If the transformed values pass the Shapiro-Wilk/D'Agostino test for normality, then they are further checked for normality by use of the Anderson-Darling test If the transformed values pass both tests for normality, then the non-transformed values are characterized by a "confirmed" lognormal distribution If the transformed values pass the Shapiro-Wilk/D'Agostino test but fail the Anderson-Darling test, then the underlying distribution of the non-transformed values is considered to be "unconfirmed" lognormal Separate methods are used to find the upper 95 percent confidence limit (UCL_{95}) of the mean for these two distributions

Unconfirmed Lognormal Distribution

The first step in determining the UCL_{95} of the mean of an unconfirmed lognormal distribution is to calculate the minimum variance unbiased estimate (MVUE) of the mean, μ, given by (Reference 1)

$$\mu = \exp(\bar{y}) g_n\left(\frac{s_y^2}{2}\right) \qquad (D-2)$$

where

$$\bar{y} = \frac{\sum_{i=1}^{n} y_i}{n}$$

$$s_y = \sqrt{\frac{\sum_{i=1}^{n}(y_i - \bar{y})^2}{n-1}}$$

$$g_n(t) = 1 + \frac{(n-1)t}{n} + \frac{(n-1)^3 t^2}{2!n^2(n+1)} + \frac{(n-1)^5 t^3}{3!n^3(n+1)(n+3)} + \frac{(n-1)^7 t^4}{4!n^4(n+1)(n+3)(n+5)} + \ldots$$

$$t = \frac{s_y^2}{2}$$

A "Jackknife" procedure is then employed to generate "n" values of μ by alternately leaving out one of the data values. The Jackknifed mean value, Φ, is given as follows:

$$\Phi = \frac{\sum_{i=1}^{n}\mu_{(-i)}}{n} \qquad (D-3)$$

where

$\mu_{(-i)}$ = MVUE of the mean obtained by evaluating Equation (D-2) with the ith term deleted

The UCL_{95} of the mean is then calculated by the following expression:

$$UCL_{95} = \Phi + t_{0.05,n-1} S_{MVUE} \qquad (D-4)$$

where

$$S_{MVUE} = \sqrt{\frac{\sum_{i=1}^{n}(\mu_{(-i)} - \Phi)^2}{n(n-1)}}$$

$t_{0.05,n-1}$ = one-sided t-statistic for 5 percent error

Confirmed Lognormal Distribution

If the number of observations is greater than or equal to 30, then calculate the coefficient of variation, CV, as follows:

$$CV = \frac{s}{\bar{x}} \qquad (D-5)$$

where

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2}$$

If CV is less than 1, then theUCL_{95} for the arithmetic mean of the lognormal distribution is calculated as follows (Reference 2):

$$UCL_{95} = \exp\left(\bar{y} + 0.5s_y^2 + \frac{s_y H_{0.95,n,s_y}}{\sqrt{n-1}}\right) \qquad (D-6)$$

where

$H_{0.95,n,Sy}$ = H-statistic for 95 percent confidence limit (see Table D-1)

If the UCL_{95}, calculated by use of Equation (D-6) is greater than the maximum non-transformed data value, then the Chebychev theorem is used to obtain an alternate UCL_{95} value as follows:

$$UCL_{95} = \mu + 4.47\sigma_\mu \qquad (D-7)$$

The value for μ in Equation (D-7) is obtained from Equation (D-1). The value for σ_μ, the MVUE of the standard deviation of the mean of a lognormal distribution, is given by the following expression (Reference 1):

$$\sigma_{\mu} = \sqrt{\exp(2\bar{y})\left[\left(g_n\left(\frac{s_y^2}{2}\right)\right)^2 - g_n\left((n-2)\frac{s_y^2}{(n-1)}\right)\right]} \qquad (D-8)$$

The value for the UCL_{95} is then taken to be the lesser of the maximum data value and the UCL_{95} calculated by use of Equation (D-7)

If either CV 1 or the number of data values is less than 30, then the UCL_{95} is calculated by use of Equation (D-4).

References

1. Gilbert, R.O., 1987. *Statistical Methods for Environmental Pollution Monitoring*, Van Nostrand Reinhold, pp.164-166

2 Land, C.E., 1971. Confidence intervals for linear functions of the normal mean and variance, *Annals of Mathematical Statistics* **42**:1187-1205.

Table D-1 H-Statistic (95% UCL)

Stdev of Log Values	Number of Points																		
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	23
0.10	2.750	2.222	2.035	1.942	1.886	1.849	1.822	1.802	1.787	1.775	1.763	1.756	1.749	1.743	1.738	1.733	1.729	1.722	1.716
0.20	3.295	2.463	2.198	2.069	1.992	1.943	1.908	1.881	1.860	1.843	1.830	1.818	1.809	1.800	1.793	1.787	1.781	1.771	1.763
0.30	4.109	2.777	2.402	2.226	2.125	2.058	2.011	1.977	1.949	1.927	1.909	1.894	1.882	1.871	1.861	1.853	1.845	1.833	1.822
0.40	5.220	3.175	2.651	2.415	2.282	2.195	2.134	2.089	2.054	2.026	2.003	1.984	1.968	1.954	1.942	1.931	1.921	1.905	1.892
0.50	6.495	3.658	2.947	2.638	2.465	2.354	2.277	2.220	2.176	2.141	2.112	2.088	2.068	2.050	2.035	2.021	2.009	1.989	1.973
0.60	7.807	4.209	3.287	2.892	2.673	2.534	2.439	2.368	2.314	2.271	2.235	2.206	2.181	2.160	2.141	2.124	2.110	2.085	2.065
0.70	9.120	4.801	3.662	3.173	2.904	2.735	2.618	2.532	2.466	2.414	2.371	2.336	2.306	2.280	2.258	2.238	2.221	2.191	2.167
0.80	10.430	5.414	4.082	3.477	3.155	2.952	2.813	2.710	2.632	2.570	2.520	2.479	2.443	2.412	2.386	2.362	2.342	2.307	2.279
0.90	11.740	6.038	4.478	3.796	3.420	3.184	3.021	2.902	2.810	2.738	2.679	2.631	2.589	2.554	2.523	2.498	2.472	2.432	2.399
1.00	13.050	6.669	4.905	4.127	3.698	3.426	3.239	3.103	2.998	2.915	2.848	2.792	2.744	2.704	2.669	2.638	2.611	2.564	2.526
1.25	16.330	8.265	6.001	4.990	4.426	4.068	3.820	3.639	3.500	3.389	3.300	3.226	3.163	3.109	3.062	3.021	2.984	2.923	2.873
1.50	19.600	9.874	7.120	5.880	5.184	4.741	4.433	4.207	4.033	3.896	3.784	3.691	3.612	3.544	3.485	3.434	3.388	3.311	3.248
1.75	22.870	11.490	8.250	6.786	5.960	5.432	5.065	4.795	4.587	4.422	4.288	4.176	4.081	4.000	3.929	3.867	3.812	3.719	3.643
2.00	26.140	13.110	9.387	7.701	6.747	6.135	5.710	5.396	5.154	4.962	4.805	4.675	4.564	4.470	4.387	4.314	4.251	4.141	4.052
2.50	32.690	16.350	11.670	9.546	8.339	7.563	7.021	6.621	6.312	6.067	5.866	5.698	5.557	5.435	5.328	5.236	5.153	5.013	4.898
3.00	39.230	19.600	13.970	11.400	9.945	9.006	8.350	7.864	7.489	7.191	6.947	6.743	6.570	6.422	6.293	6.179	6.078	5.907	5.766
3.50	45.770	22.850	16.270	13.270	11.560	10.460	9.688	9.118	8.677	8.326	8.039	7.799	7.596	7.422	7.269	7.136	7.016	6.815	6.649
4.00	52.310	26.110	18.580	15.140	13.180	11.920	11.030	10.380	9.872	9.469	9.140	8.864	8.630	8.429	8.254	8.100	7.963	7.731	7.540
4.50	58.850	29.360	20.880	17.010	14.800	13.380	12.380	11.640	11.070	10.620	10.240	9.933	9.669	9.442	9.244	9.070	8.916	8.652	8.437
5.00	65.390	32.620	23.190	18.880	16.430	14.840	13.730	12.910	12.270	11.770	11.350	11.010	10.710	10.460	10.240	10.040	9.872	9.579	9.338
6.00	78.470	39.130	27.810	22.630	19.680	17.780	16.440	15.450	14.690	14.080	13.580	13.160	12.810	12.500	12.230	12.000	11.790	11.440	11.150
7.00	91.550	45.650	32.430	26.390	22.940	20.720	19.160	18.000	17.100	16.390	15.810	15.320	14.900	14.550	14.240	13.960	13.720	13.310	12.970
8.00	104.600	52.160	37.060	30.140	26.200	23.660	21.870	20.550	19.530	18.710	18.040	17.480	17.010	16.600	16.240	15.930	15.650	15.180	14.790
9.00	117.700	58.680	41.680	33.900	29.460	26.600	24.590	23.100	21.950	21.030	20.280	19.650	19.110	18.650	18.250	17.900	17.590	17.050	16.620
10.00	130.800	65.200	46.310	37.660	32.730	29.540	27.310	25.660	24.380	23.350	22.510	21.820	21.220	20.710	20.260	19.870	19.520	18.930	18.440

Stdev of Log Values	Number of Points																		
	25	28	31	36	41	46	51	61	71	81	101	121	161	201	251	301	401	601	1001
0.10	1.711	1.706	1.701	1.695	1.690	1.687	1.684	1.679	1.676	1.674	1.670	1.668	1.664	1.662	1.661	1.659	1.658	1.656	1.654
0.20	1.756	1.749	1.742	1.734	1.727	1.722	1.718	1.711	1.708	1.703	1.697	1.693	1.688	1.685	1.682	1.680	1.677	1.674	1.671
0.30	1.813	1.802	1.793	1.783	1.773	1.766	1.761	1.752	1.745	1.740	1.733	1.727	1.720	1.716	1.712	1.709	1.705	1.700	1.696
0.40	1.881	1.867	1.856	1.841	1.830	1.821	1.813	1.802	1.794	1.787	1.777	1.770	1.761	1.755	1.749	1.746	1.740	1.734	1.728
0.50	1.959	1.942	1.928	1.910	1.896	1.884	1.876	1.861	1.851	1.842	1.830	1.822	1.810	1.802	1.795	1.790	1.784	1.776	1.769
0.60	2.048	2.027	2.010	1.988	1.971	1.957	1.946	1.929	1.916	1.906	1.891	1.881	1.866	1.857	1.849	1.843	1.835	1.825	1.816
0.70	2.147	2.122	2.102	2.075	2.055	2.038	2.025	2.005	1.989	1.977	1.960	1.947	1.930	1.919	1.909	1.902	1.892	1.881	1.870
0.80	2.255	2.225	2.202	2.171	2.146	2.127	2.112	2.088	2.070	2.056	2.035	2.020	2.001	1.988	1.976	1.968	1.957	1.944	1.931
0.90	2.371	2.337	2.310	2.273	2.246	2.224	2.206	2.178	2.157	2.141	2.117	2.100	2.077	2.062	2.049	2.040	2.027	2.012	1.997
1.00	2.495	2.458	2.423	2.383	2.352	2.327	2.306	2.202	2.251	2.232	2.205	2.186	2.160	2.143	2.128	2.117	2.102	2.085	2.068
1.25	2.830	2.779	2.737	2.682	2.641	2.607	2.580	2.275	2.507	2.483	2.447	2.421	2.387	2.364	2.344	2.330	2.310	2.288	2.266
1.50	3.195	3.130	3.077	3.008	2.956	2.915	2.881	2.538	2.789	2.758	2.713	2.681	2.637	2.609	2.584	2.566	2.542	2.514	2.486
1.75	3.578	3.501	3.437	3.355	3.292	3.241	3.200	2.828	3.089	3.052	2.997	2.958	2.906	2.872	2.842	2.820	2.791	2.757	2.723
2.00	3.977	3.886	3.812	3.715	3.640	3.582	3.533	3.136	3.403	3.359	3.295	3.250	3.188	3.148	3.113	3.088	3.053	3.013	2.974
2.50	4.802	4.683	4.588	4.463	4.367	4.290	4.228	3.458	4.059	4.003	3.920	3.861	3.781	3.729	3.683	3.650	3.605	3.553	3.503
3.00	5.649	5.504	5.388	5.234	5.117	5.023	4.947	4.131	4.740	4.671	4.569	4.496	4.399	4.334	4.278	4.238	4.183	4.119	4.057
3.50	6.510	6.340	6.201	6.020	5.881	5.771	5.681	4.828	5.435	5.354	5.233	5.148	5.032	4.956	4.889	4.842	4.776	4.700	4.627
4.00	7.380	7.184	7.024	6.816	6.656	6.528	6.424	5.540	6.141	6.047	5.908	5.809	5.675	5.588	5.512	5.456	5.380	5.293	5.208
4.50	8.257	8.034	7.854	7.618	7.437	7.293	7.174	6.262	6.854	6.747	6.590	6.478	6.326	6.227	6.140	6.077	5.991	5.892	5.796
5.00	9.137	8.889	8.688	8.424	8.222	8.061	7.929	6.991	7.572	7.453	7.277	7.152	6.982	6.871	6.774	6.704	6.608	6.497	6.390
6.00	10.910	10.610	10.360	10.050	9.803	9.608	9.449	7.725	9.017	8.871	8.661	8.509	8.305	8.170	8.053	7.968	7.852	7.718	7.588
7.00	12.680	12.330	12.050	11.680	11.390	11.160	10.980	10.690	10.470	10.300	10.050	9.876	9.637	9.479	9.342	9.242	9.106	8.949	8.797
8.00	14.470	14.060	13.740	13.310	12.990	12.730	12.510	12.180	11.930	11.740	11.450	11.250	10.970	10.790	10.640	10.520	10.370	10.190	10.010
9.00	16.250	15.800	15.430	14.950	14.580	14.290	14.050	13.670	13.390	13.180	12.850	12.630	12.320	12.110	11.940	11.810	11.630	11.430	11.230
10.00	18.040	17.530	17.130	16.590	16.180	15.850	15.590	15.170	14.860	14.620	14.260	14.010	13.660	13.430	13.240	13.100	12.900	12.670	12.450

Attachment E
Calculation of the UCL_{95} for the Mean of a Non-Parametric Distribution

If it is found that the underlying distribution of a set of concentration measurements is neither normal nor lognormal, then the distribution is considered non-parametric If there are 15 or more data values then the upper 95 percent confidence limit (UCL_{95}) of the mean is calculated by application of the bootstrap method In the standard bootstrap simulation, n data values are *randomly* selected with *replacement* from a data set containing n values A randomly selected sample will likely differ from the actual set of observations in that some of the observations will be omitted and others will be repeated. This process is repeated 10,000 times with the mean of the chosen values calculated each time The UCL_{95} of the mean is determined from the 10,000 simulated mean values as follows

$$UCL_{95} = \overline{X}_B + 1\ 645 S_B \qquad (E-1)$$

where

$$\overline{X}_B = \frac{\sum_{k=1}^{IT} \overline{X}_k}{IT}$$

$$S_B = \sqrt{\frac{1}{IT-1}\left(\sum_{k=1}^{IT}\left(\overline{X}_k - \overline{X}_B\right)^2\right)}$$

IT = number of bootstrap iterations (10,000)

$$\overline{X}_k = \frac{\sum_{i=1}^{n} x_{ki}}{n}$$

x_{ki} = i^{th} randomly selected data value for the kth bootstrap iteration

Two variations of this bootstrap method are also used to calculate the UCL_{95} of the mean Each of these is described below

"Bootstrap-t" Method

In addition to the mean value of the randomly selected samples, the parameter S_k is also calculated after each bootstrap iteration:

$$S_k = \sqrt{\frac{\sum_{i=1}^{n}\left(x_{ki} - \overline{X}_k\right)^2}{n}} \qquad (E-2)$$

For each bootstrap iteration a W-value is calculated as follows:

$$W_k = \frac{\left(\overline{X}_k - \overline{x}\right)}{S_k} \qquad (E-3)$$

where

$$\overline{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

x_i = actual (not bootstrapped) data values

The UCL_{95} for this bootstrap method is given by the following expression (Reference 1):

$$UCL_{95} = \overline{x} - W_{0.05}\, S \qquad (E-4)$$

where

$$S = \sqrt{\frac{\sum_{i=1}^{n}\left(x_i - \overline{x}\right)^2}{n}}$$

$W_{0.05}$ = 5th percentile of the distribution of W_k values obtained from bootstrapping (500th value of W for 10,000 bootstrapped values sorted from smallest to largest)

Hall's Bootstrap-t Transformation

For each bootstrap sample a Q-value is calculated as follows:

$$Q_k = W_k + \frac{\nu_k W_k^2}{3} + \frac{\nu_k^2 W_k^3}{27} + \frac{\nu_k}{6n} \qquad (E-5)$$

where

$$\nu_k = \frac{\sum_{i=1}^{n} (x_{ki} - \bar{X}_k)^3}{n S_k^3}$$

The Q-values calculated by use of Equation (E-5) are sorted from smallest to largest to identify the 5th percentile value $Q_{0.05}$. The corresponding W-value is then calculated as follows:

$$W(Q_{0.05}) = \frac{3\left\{\left[1 + \nu\left(Q_{0.05} - \frac{\nu}{6n}\right)\right]^{1/3} - 1\right\}}{\nu} \qquad (E-6)$$

where

$$\nu = \frac{\sum_{i=1}^{n} (x_i - \bar{x})^3}{n S^3}$$

The UCL_{95} is then given by

$$UCL_{95} = \bar{x} - W(Q_{0.05}) S \qquad (E-7)$$

UCL_{95} Selection

To determine which of the 3 bootstrap calculated UCL_{95} values will be selected, the frequency distributions of the following bootstrapped values are analyzed to determine which of the following bootstrapped quantities is best described by a normal distribution:

$\overline{X}_k$ (Standard Bootstrap)
W_k (Bootstrap – t)
Q_k (Hall's Bootstrap – t)

Each of these bootstrapped quantities is sorted from smallest to largest value to determine values corresponding to the following cumulative distribution percentiles: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90 and 95. The correlation coefficient is determined between these values and the corresponding percentile "Z-values" of a normal distribution. The parameter having the highest correlation is determined and the UCL_{95} for the associated bootstrap method is selected to be the UCL_{95} for the non-parametric data set.

Small Data Sets

For non-parametric data sets with less than 15 observations, the UCL_{95} of the mean of the underlying distribution is calculated as follows:

$$UCL_{95} = \bar{x} + \frac{s\, t_{0.05,n-1}}{\sqrt{n}} \qquad (E-8)$$

where

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2}$$

$t_{0.05,n-1}$ = one-sided t-statistic for 5 percent error

Reference for Appendix E

1.) Manly, B.F.J., 1997.*Randomization, Bootstrap and Monte Carlo Methods in Biology.* 2nd edition, Chapman & Hall, pp.34-62.

Attachment F
Anderson-Darling Test for Normality

Consider a data set ($x_1, x_2, \ldots, x_n$) and the corresponding set of values ($x_{(1)}, x_{(2)}, \ldots, x_{(n)}$) sorted from smallest to largest. The standard deviation of the data values is calculated by use of the following expression:

$$s = \left(\frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1} \right)^{1/2} \qquad (F-1)$$

where

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

The Anderson-Darling test statistic, A^2, is given by

$$A_m{}^2 = -n - \sum_{i=1}^{n} \frac{(2i-1)}{n} \left[\ln(F_i) + \ln(1 - F_{n+1-i}) \right] \qquad (F-2)$$

$$A^2 = A_m^2 \left(1 + \frac{0.75}{n} + \frac{2.25}{n^2} \right) \qquad (F-3)$$

where

$$F_i = 0.5 \left[1 + erf\left(\frac{x_{(i)} - \bar{x}}{\sqrt{2}\, s} \right) \right]$$

The greater the value of A^2, the less confidence one has that the data values come from a normal distribution. Values of A^2 corresponding to 1, 5 and 10 percent confidence limits are 3.857, 2.492 and 1.933, respectively (Reference 1).

If the logarithms of the data values are used in place of the data values, then the Anderson-Darling test statistic can be used to test whether the underlying distribution can be characterized as lognormal

Reference

1 Giles, D.E.A., April, 2000. A Saddlepoint Approximation to the Distribution Function of the Anderson-Darling Test Statistic, University of Victoria Econometrics Working Paper EWP0005, ISBN 1485-6441

Attachment G
Outlier Testing

Dixon Test

For data sets having 25 or fewer members, statistical outliers may be identified by application of the Dixon Test (Reference 1). This test examines extreme values at both ends of the distribution. The assumption is made that the underlying distribution of these data is normal. Let $x_{(1)}, x_{(2)}, \ldots, x_{(n)}$ represent the data sorted from smallest to largest value. To test whether the smallest value $x_{(1)}$ is an outlier, the test statistic C is computed as follows:

$$C = \frac{x_{(2)} - x_{(1)}}{x_{(n)} - x_{(1)}} \qquad for\, 3 \le n \le 7 \qquad (G-1a)$$

$$C = \frac{x_{(2)} - x_{(1)}}{x_{(n-1)} - x_{(1)}} \qquad for\, 8 \le n \le 10 \qquad (G-1b)$$

$$C = \frac{x_{(3)} - x_{(1)}}{x_{(n-1)} - x_{(1)}} \qquad for\, 11 \le n \le 13 \qquad (G-1c)$$

$$C = \frac{x_{(3)} - x_{(1)}}{x_{(n-2)} - x_{(1)}} \qquad for\, 14 \le n \le 25 \qquad (G-1d)$$

If the value of C exceeds the 5% level of significance given in Table G-1, then $x_{(1)}$ is considered an outlier and should be investigated further

To test whether the largest data value $x_{(n)}$ is an outlier, the test statistic C is computed as follows:

$$C = \frac{x_{(n)} - x_{(n-1)}}{x_{(n)} - x_{(1)}} \qquad for\, 3 \le n \le 7 \qquad (G-2a)$$

$$C = \frac{x_{(n)} - x_{(n-1)}}{x_{(n)} - x_{(2)}} \qquad for\, 8 \le n \le 10 \qquad (G-2b)$$

$$C = \frac{x_{(n)} - x_{(n-2)}}{x_{(n)} - x_{(2)}} \qquad for\, 11 \le n \le 13 \qquad (G-2c)$$

$$C = \frac{x_{(n)} - x_{(n-2)}}{x_{(n)} - x_{(3)}} \qquad for\, 14 \le n \le 25 \qquad (G-2d)$$

If the value of C exceeds the 5% level of significance given in Table G-1, then $x_{(n)}$ is considered an outlier and should be investigated further.

Rosner Test

Rosner's Test (Reference 1) can identify up to 10 outliers in a data set having 25 or more members. It is assumed that the distribution underlying the data is normal. Let $x_{(1)}$, $x_{(2)}$, , $x_{(n)}$ represent the data sorted from smallest to largest value Compute the sample mean, $x^{(0)}_{avg}$, and standard deviation, $s^{(0)}$, for all the data as follows

$$x^{(0)}_{avg} = \frac{\sum_{i=1}^{n} x_{(i)}}{n} \qquad (G-3)$$

$$s^{(0)} = \left[\frac{1}{n-1} \sum_{i=1}^{n} (x_{(i)} - x^{(0)}_{avg})^2 \right]^{1/2} \qquad (G-4)$$

Determine the observation farthest from $x^{(0)}_{avg}$ and label this observation $y^{(0)}$. This observation is then deleted from the data set and the sample mean $x^{(1)}_{avg}$ and standard deviation $s^{(1)}$ are computed with the remaining data This process is repeated until 10 extreme values have been eliminated At the end of this process the following quantities have been obtained:

$$\left\{x^{(0)}_{avg}, s^{(0)}, y^{(0)}\right\}, \left\{x^{(1)}_{avg}, s^{(1)}, y^{(1)}\right\}, \quad , \left\{x^{(9)}_{avg}, s^{(9)}, y^{(9)}\right\}$$

For each potential outlier "r", the statistic R_r is calculated as follows:

$$R_r = \frac{\left| y^{(r-1)} - x_{avg}^{(r-1)} \right|}{s^{(r-1)}} \qquad (G-5)$$

If R_r is greater than the appropriate critical value for 5 percent significance (see Table G-2), then there are "r" outliers that should be investigated.

Reference

1. Guidance for Data Quality Assessment: Practical Methods for Data Analysis: EPA QA/G-9. QA96 Version. EPA Report Number 600R96084.

Table G-1. Critical Values for Dixon's Test	
Number of Points	**0.05 Level of Significance**
3	0.941
4	0.765
5	0.642
6	0.560
7	0.507
8	0.554
9	0.512
10	0.477
11	0.576
12	0.546
13	0.521
14	0.546
15	0.525
16	0.507
17	0.490
18	0.475
19	0.462
20	0.450
21	0.440
22	0.430
23	0.421
24	0.413
25	0.406

Table G-2. 5% Critical Values for Rosner's Test										
	Number of Potential Outliers									
Number of Points	1	2	3	4	5	6	7	8	9	10
25	2 820	2 800	2 780	2 760	2 730	2 702	2 674	2 646	2 618	2 590
26	2 840	2 820	2 800	2 780	2 760	2 732	2 704	2 676	2 648	2 620
27	2 860	2 840	2 820	2 800	2 780	2 754	2 728	2 702	2 676	2 650
28	2 880	2 860	2 840	2 820	2 800	2 776	2 752	2 728	2 704	2 680
29	2 890	2 880	2 860	2 840	2 820	2 798	2 776	2 754	2 732	2 710
30	2 910	2 890	2 880	2 860	2 840	2 818	2 796	2 774	2 752	2 730
31	2 920	2 910	2 890	2 880	2 860	2 840	2 820	2 800	2 780	2 760
32	2 940	2 920	2 910	2 890	2 880	2 860	2 840	2 820	2 800	2 780
33	2 950	2 940	2 920	2 910	2 890	2 872	2 854	2 836	2 818	2 800
34	2 970	2 950	2 940	2 920	2 910	2 892	2 874	2 856	2 838	2 820
35	2 980	2 970	2 950	2 940	2 920	2 904	2 888	2 872	2 856	2 840
36	2 990	2 980	2 970	2 950	2 940	2 924	2 908	2 892	2 876	2 860
37	3 000	2 990	2 980	2 970	2 950	2 936	2 922	2 908	2 894	2 880
38	3 010	3 000	2 990	2 980	2 970	2 958	2 946	2 934	2 922	2 910
39	3 030	3 010	3 000	2 990	2 980	2 966	2 952	2 938	2 924	2 910
40	3 040	3 030	3 010	3 000	2 990	2 976	2 962	2 948	2 934	2 920
41	3 050	3 040	3 030	3 010	3 000	2 988	2 976	2 964	2 952	2 940
42	3 060	3 050	3 040	3 030	3 010	2 998	2 986	2 974	2 962	2 950
43	3 070	3 060	3 050	3 040	3 030	3 018	3 006	2 994	2 982	2 970
44	3 080	3 070	3 060	3 050	3 040	3 028	3 016	3 004	2 992	2 980
45	3 090	3 080	3 070	3 060	3 050	3 038	3 026	3 014	3 002	2 990
46	3 090	3 090	3 080	3 070	3 060	3 048	3 036	3 024	3 012	3 000
47	3 100	3 090	3 090	3 080	3 070	3 058	3 046	3 034	3 022	3 010
48	3 110	3 100	3 090	3 090	3 080	3 070	3 060	3 050	3 040	3 030
49	3 120	3 110	3 100	3 090	3 090	3 080	3 070	3 060	3 050	3 040
50	3 130	3 120	3 110	3 100	3 090	3 082	3 074	3 066	3 058	3 050
60	3 200	3 190	3 190	3 180	3 170	3 164	3 158	3 152	3 146	3 140
70	3 260	3 250	3 250	3 240	3 240	3 234	3 228	3 222	3 216	3 210
80	3 310	3 300	3 300	3 290	3 290	3 284	3 278	3 272	3 266	3 260
90	3 350	3 340	3 340	3 340	3 330	3 326	3 322	3 318	3 314	3 310
100	3 380	3 380	3 380	3 370	3 370	3 366	3 362	3 358	3 354	3 350
150	3 520	3 510	3 510	3 510	3 510	3 508	3 506	3 504	3 502	3 500
200	3 610	3 600	3 600	3 600	3 600	3 598	3 596	3 594	3 592	3 590
250	3 670	3 670	3 670	3 670	3 670	3 668	3 666	3 664	3 662	3 660
300	3 720	3 720	3 720	3 720	3 720	3 718	3 716	3 714	3 712	3 710
350	3 770	3 760	3 760	3 760	3 760	3 760	3 760	3 760	3 760	3 760
400	3 800	3 800	3 800	3 800	3 800	3 800	3 800	3 800	3 800	3 800
450	3 840	3 830	3 830	3 830	3 830	3 830	3 830	3 830	3 830	3 830
500	3 860	3 860	3 860	3 860	3 860	3 860	3 860	3 860	3 860	3 860

Attachment H
Cumulative Frequency Distribution Plots

Before a set of data is tested for normality or lognormality by use of the Shapiro-Wilk/D'Agostino or Anderson-Darling tests, it is advisable to examine the data graphically to determine whether a normal, lognormal or non-parametric distribution is appropriate. This graphical presentation can also reveal the presence of potential outliers in the data set. Consider a set of n data values x_i. These data points can represent either the actual measurements or the data transformed by taking the logarithm of each measurement. The cumulative frequency distribution of these values is given by the following expression:

$$F_n(x_{(i)}) = \frac{i - 0.5}{n} \qquad (H-1)$$

where

$x_{(i)}$ = i^{th} value of (x_j, j = 1,n) sorted from smallest to largest

The standardized normal variable, Z, associated with this cumulative frequency is given by the following approximation:

$$Z = sign(F_n(x) - 0.5)(1.238t(1 + 0.0262t)) \qquad (H-2)$$

where

$$t = \{-\ln[4F_n(x)(1 - F_n(x))]\}^{1/2}$$

$$sign(F_n(x) - 0.5) = +1 \text{ if } F_n(x) - 0.5 > 0$$
$$-1 \text{ if } F_n(x) - 0.5 < 0$$

In Figure H-1, a plot of Z vs. x is shown for 22 data points generated from an EXCEL spreadsheet normal distribution random number generator. Not surprisingly the data points fall along a straight line, indicating that the underlying distribution of the data values is normal. A least-squares fit of a straight line to the data points in Figure H-1 provides an estimate of the mean, , and square root of the variance, , of the best-fit

normal distribution. If Z = A x + B is the equation of the best-fit line, then the corresponding best-fit values of and are given by:

$$\mu = \frac{-B}{A} \qquad (H-3a)$$

$$\sigma = \frac{1}{A} \qquad (H-3b)$$

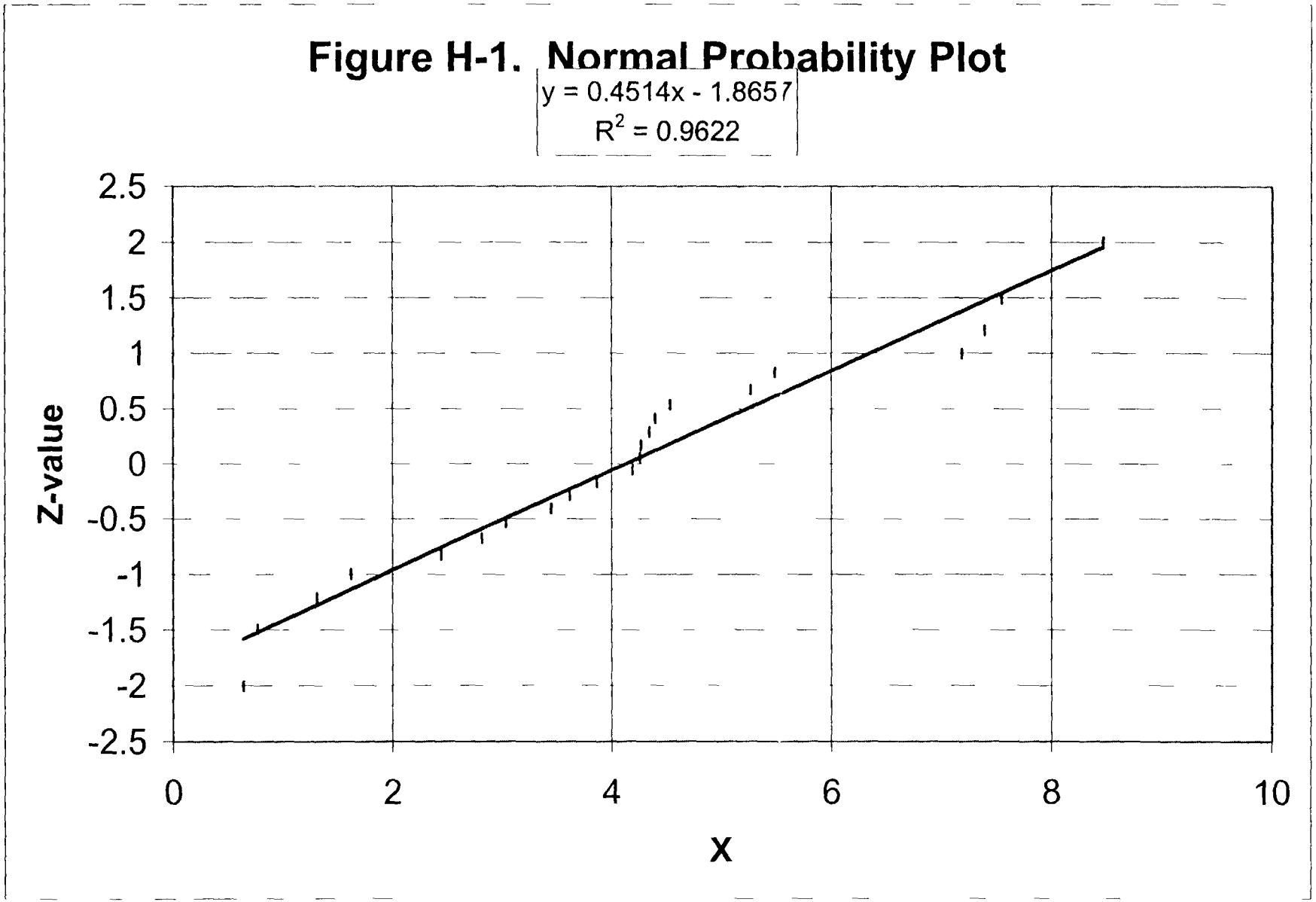


Figure H-1. Normal Probability Plot
y = 0.4514x - 1.8657
R2 = 0.9622
2.5
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
-2.5
Z-value
0
2
4
6
8
10
X

ATTACHMENT I

PROGRAM INPUT AND OUTPUT FILES

surfacesoil_qsouth_2378TCDDTEQ_data

0.00004924
5.58055E-05
0.000097905
0.000051915
0.000038011
6.23465E-05
0.000072015
4.49225E-05
0.000094285
0.00682
0.00040966
0.00047766

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.16934E-02

surfacesoil_qsouth_2378TCDDTEQ_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.6895E-03
SQUARE ROOT OF VARIANCE= 0.1854E-02
STANDARD DEVIATION= 0.1936E-02
SKEWNESS= 0.2984E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2808E+01
MINIMUM = 0.3801E-04
MAXIMUM = 0.6820E-02

MEAN OF LOG DATA = -0.8994E+01
STANDARD DEVIATION OF LOG DATA = 0.1504E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3904E+01

MVUE ESTIMATE OF THE MEAN = 0.3265E-03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.595E-03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1553E-03

MLE ESTIMATE OF THE MEAN = 0.3849E-03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1129E-02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2470E-03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2326E-03

AVERAGE OF BOOTSTRAPPED VALUES = 0.6853E-03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5322E-03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6614E-03
B = 0.5364E-03
R = 0.9521E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1372E+01
B = 0.2110E+01
R = 0.8796E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3349E+01
B = 0.6785E+01
R = 0.6239E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1785E-02

UCL95 STANDARD BOOT = 0.1561E-02

UCL95 BOOTSTRAP-T FROM SORT = 0.1205E-01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1208E-01

UCL95 T-DISTRIBUTION = 0.1693E-02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1609E-02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2124E-02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3188E-02

UCL95 FROM LOG JACKKNIFE = 0.6648E-03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1020E-02

UCL95 FROM H-STATISTIC = 0.2261E-02

surfacesoil_qsouth_antimony_data

1.05
1.1
1.1
1.35
1.1
1.3
1.3
1.15
1.25
2.75
47
23

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.14250E+02

surfacesoil_qsouth_antimony_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.6954E+01
SQUARE ROOT OF VARIANCE= 0.1347E+02
STANDARD DEVIATION= 0.1407E+02
SKEWNESS= 0.2268E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2023E+01
MINIMUM = 0.1050E+01
MAXIMUM = 0.4700E+02

MEAN OF LOG DATA = 0.7933E+00
STANDARD DEVIATION OF LOG DATA = 0.1295E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3479E+01

MVUE ESTIMATE OF THE MEAN = 0.4581E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.689E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1865E+01

MLE ESTIMATE OF THE MEAN = 0.5114E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1067E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3881E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2871E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.6958E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3930E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6780E+01
B = 0.4088E+01
R = 0.9880E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1212E+01
B = 0.2562E+01
R = 0.6475E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2552E+02
B = 0.5542E+02
R = 0.4853E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1445E+02

UCL95 STANDARD BOOT = 0.1342E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1791E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1770E+03

UCL95 T-DISTRIBUTION = 0.1425E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1364E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1648E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2511E+02

UCL95 FROM LOG JACKKNIFE = 0.9038E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1292E+02

UCL95 FROM H-STATISTIC = 0.1990E+02

surfacesoil_qsouth_arsenic_data

17
5
5.5
4.3
33
5.1
7.9
7.1
3.3
6
17.5
4.2

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.90583E+00
MAXIMUM DATA VALUE = 0.33000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.13449E+02

NUMBER OF DATA POINTS = 12
MEAN= 0.9658E+01
SQUARE ROOT OF VARIANCE= 0.8376E+01
STANDARD DEVIATION= 0.8749E+01
SKEWNESS= 0.1798E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.9058E+00
MINIMUM = 0.3300E+01
MAXIMUM = 0.3300E+02

MEAN OF LOG DATA = 0.2003E+01
STANDARD DEVIATION OF LOG DATA = 0.6984E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2412E+01

MVUE ESTIMATE OF THE MEAN = 0.9238E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.677E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1940E+01

MLE ESTIMATE OF THE MEAN = 0.9463E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.7503E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.9112E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2415E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.9684E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2417E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.9631E+01
B = 0.2426E+01
R = 0.9966E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1060E+00
B = 0.4082E+00
R = 0.9593E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.6517E-02
B = 0.2908E+00
R = 0.9938E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1397E+02

UCL95 STANDARD BOOT = 0.1366E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1806E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1697E+02

UCL95 T-DISTRIBUTION = 0.1419E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1381E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1521E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2095E+02

UCL95 FROM LOG JACKKNIFE = 0.1345E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.1791E+02

UCL95 FROM H-STATISTIC = 0.1572E+02

surfacesoil_qsouth_benzoaanthracene_data

0.065
0.085
2.515
0.2
0.041
0.03
1.42
0.045
0.045
0.21
1.8
0.23

0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.15317E+01
MAXIMUM DATA VALUE = 0.25150E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.10339E+01

surfacesoil_qsouth_benzoaanthracene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.5572E+00
SQUARE ROOT OF VARIANCE= 0.8171E+00
STANDARD DEVIATION= 0.8534E+00
SKEWNESS= 0.1400E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1532E+01
MINIMUM = 0.3000E-01
MAXIMUM = 0.2515E+01

MEAN OF LOG DATA = -0.1740E+01
STANDARD DEVIATION OF LOG DATA = 0.1580E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4062E+01

MVUE ESTIMATE OF THE MEAN = 0.5064E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.985E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2531E+00

MLE ESTIMATE OF THE MEAN = 0.6113E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2039E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.4748E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3113E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.5586E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2374E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.5545E+00
B = 0.2377E+00
R = 0.9973E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7319E-01
B = 0.3717E+00
R = 0.9693E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1298E-01
B = 0.2587E+00
R = 0.9931E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.9725E+00

UCL95 STANDARD BOOT = 0.9491E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.1321E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.9322E+00

UCL95 T-DISTRIBUTION = 0.9996E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.9624E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1069E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1658E+01

UCL95 FROM LOG JACKKNIFE = 0.1034E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1638E+01

UCL95 FROM H-STATISTIC = 0.4232E+01

surfacesoil_qsouth_benzoapyrene_data

0.205
2.975
1.8
0.046
0.04
0.18
0.23
0.048
0.2
0.092
1.29
0.075

surfacesoil_qsouth_benzoapyrene_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  12

COEFFICIENT OF VARIATION = 0.15648E+01
MAXIMUM DATA VALUE = 0.29750E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.10506E+01
```

surfacesoil_qsouth_benzoapyrene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.5984E+00
SQUARE ROOT OF VARIANCE= 0.8965E+00
STANDARD DEVIATION= 0.9364E+00
SKEWNESS= 0.1672E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1565E+01
MINIMUM = 0.4000E-01
MAXIMUM = 0.2975E+01

MEAN OF LOG DATA = -0.1563E+01
STANDARD DEVIATION OF LOG DATA = 0.1476E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3845E+01

MVUE ESTIMATE OF THE MEAN = 0.5322E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.946E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2482E+00

MLE ESTIMATE OF THE MEAN = 0.6222E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1740E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5004E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3063E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.5965E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2556E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.5913E+00
B = 0.2564E+00
R = 0.9968E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1002E+00
B = 0.3999E+00
R = 0.9451E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1231E-02
B = 0.2689E+00
R = 0.9978E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1051E+01

UCL95 STANDARD BOOT = 0.1017E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1630E+01

surfacesoil_qsouth_benzoapyrene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1153E+01

UCL95 T-DISTRIBUTION = 0.1084E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1043E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1183E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1807E+01

UCL95 FROM LOG JACKKNIFE = 0.1051E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1642E+01

UCL95 FROM H-STATISTIC = 0.3442E+01

surfacesoil_qsouth_benzobfluorene_data

0.056
0.2
0.19
3.3
0.036
1.475
0.22
0.069
0.033
0.21
0.23
2.69

surfacesoil_qsouth_benzobfluorene_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.15662E+01
MAXIMUM DATA VALUE = 0.33000E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.13467E+01

surfacesoil_qsouth_benzobfluorene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.7257E+00
SQUARE ROOT OF VARIANCE= 0.1088E+01
STANDARD DEVIATION= 0.1137E+01
SKEWNESS= 0.1495E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1566E+01
MINIMUM = 0.3300E-01
MAXIMUM = 0.3300E+01

MEAN OF LOG DATA = -0.1461E+01
STANDARD DEVIATION OF LOG DATA = 0.1576E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4054E+01

MVUE ESTIMATE OF THE MEAN = 0.6659E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.129E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3320E+00

MLE ESTIMATE OF THE MEAN = 0.8029E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2660E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6303E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3989E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.7249E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3135E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.7186E+00
B = 0.3146E+00
R = 0.9973E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.9185E-01
B = 0.4014E+00
R = 0.9275E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.5083E-02
B = 0.2692E+00
R = 0.9991E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1272E+01

UCL95 STANDARD BOOT = 0.1241E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.2102E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1501E+01

UCL95 T-DISTRIBUTION = 0.1315E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1266E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1417E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2193E+01

UCL95 FROM LOG JACKKNIFE = 0.1347E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.2150E+01

UCL95 FROM H-STATISTIC = 0.5510E+01

surfacesoil_qsouth_chromium_data

8.2
660
49.5
13
16
13
20
20
160
17
24
8

surfacesoil_qsouth_chromium_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.18058E+03

surfacesoil_qsouth_chromium_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.8406E+02
SQUARE ROOT OF VARIANCE= 0.1782E+03
STANDARD DEVIATION= 0.1862E+03
SKEWNESS= 0.2774E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2215E+01
MINIMUM = 0.8000E+01
MAXIMUM = 0.6600E+03

MEAN OF LOG DATA = 0.3297E+01
STANDARD DEVIATION OF LOG DATA = 0.1293E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3475E+01

MVUE ESTIMATE OF THE MEAN = 0.5588E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.839E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2272E+02

MLE ESTIMATE OF THE MEAN = 0.6236E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1297E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.4845E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3310E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.8322E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5087E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.8145E+02
B = 0.5104E+02
R = 0.9828E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7534E+00
B = 0.1511E+01
R = 0.7633E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.8001E+00
B = 0.1945E+01
R = 0.5521E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1804E+03

UCL95 STANDARD BOOT = 0.1669E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.1212E+04

surfacesoil_qsouth_chromium_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1213E+04

UCL95 T-DISTRIBUTION = 0.1806E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1725E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2185E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3243E+03

UCL95 FROM LOG JACKKNIFE = 0.1079E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1574E+03

UCL95 FROM H-STATISTIC = 0.2418E+03

surfacesoil_qsouth_dieldrin_data

0.28
0.021
0.00041
0.0088
0.0019
0.375
0.00066
0.0021
0.0033
0.1
0.0022
0.16

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  12

COEFFICIENT OF VARIATION = 0.16028E+01
MAXIMUM DATA VALUE = 0.37500E+00

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.26909E+00
```

surfacesoil_qsouth_dieldrin_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.7961E-01
SQUARE ROOT OF VARIANCE= 0.1222E+00
STANDARD DEVIATION= 0.1276E+00
SKEWNESS= 0.1415E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1603E+01
MINIMUM = 0.4100E-03
MAXIMUM = 0.3750E+00

MEAN OF LOG DATA = -0.4531E+01
STANDARD DEVIATION OF LOG DATA = 0.2413E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5872E+01

MVUE ESTIMATE OF THE MEAN = 0.1058E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.380E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.7715E-01

MLE ESTIMATE OF THE MEAN = 0.1978E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3629E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1067E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9041E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.7957E-01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3509E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.7901E-01
B = 0.3527E-01
R = 0.9978E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.8459E-01
B = 0.3901E+00
R = 0.9496E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1562E-02
B = 0.2788E+00
R = 0.9989E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1411E+00

UCL95 STANDARD BOOT = 0.1373E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.2160E+00

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1634E+00

UCL95 T-DISTRIBUTION = 0.1458E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1402E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1563E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2443E+00

UCL95 FROM LOG JACKKNIFE = 0.2691E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.4507E+00

UCL95 FROM H-STATISTIC = 0.1418E+02

surfacesoil_qsouth_manganese_data

630
460
2100
380
370
290
735
660
320
380
595
320

surfacesoil_qsouth_manganese_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.85995E+03

surfacesoil_qsouth_manganese_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.6033E+03
SQUARE ROOT OF VARIANCE= 0.4739E+03
STANDARD DEVIATION= 0.4950E+03
SKEWNESS= 0.2538E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.8204E+00
MINIMUM = 0.2900E+03
MAXIMUM = 0.2100E+04

MEAN OF LOG DATA = 0.6226E+01
STANDARD DEVIATION OF LOG DATA = 0.5486E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2202E+01

MVUE ESTIMATE OF THE MEAN = 0.5795E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.328E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.9433E+02

MLE ESTIMATE OF THE MEAN = 0.5876E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3482E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5731E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1234E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.6045E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1376E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6000E+03
B = 0.1377E+03
R = 0.9889E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2434E+00
B = 0.5701E+00
R = 0.9385E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1388E+00
B = 0.4702E+00
R = 0.9525E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8638E+03

UCL95 STANDARD BOOT = 0.8309E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.1280E+04

surfacesoil_qsouth_manganese_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1088E+04

UCL95 T-DISTRIBUTION = 0.8599E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8384E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.9502E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1242E+04

UCL95 FROM LOG JACKKNIFE = 0.7947E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1001E+04

UCL95 FROM H-STATISTIC = 0.8459E+03

surfacesoil_qsouth_totalpcbs_data

1.39785
0.437
10.905
0.03265
0.0292
0.02825
0.0303
0.03195
13.402
2.687
2.8831
1.1175

surfacesoil_qsouth_totalpcbs_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.51027E+01

surfacesoil_qsouth_totalpcbs_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2748E+01
SQUARE ROOT OF VARIANCE= 0.4348E+01
STANDARD DEVIATION= 0.4541E+01
SKEWNESS= 0.1655E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1652E+01
MINIMUM = 0.2825E-01
MAXIMUM = 0.1340E+02

MEAN OF LOG DATA = -0.9010E+00
STANDARD DEVIATION OF LOG DATA = 0.2461E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5979E+01

MVUE ESTIMATE OF THE MEAN = 0.4326E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.160E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3200E+01

MLE ESTIMATE OF THE MEAN = 0.8388E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1730E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.4907E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3145E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.2744E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1250E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2714E+01
B = 0.1259E+01
R = 0.9971E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1672E+00
B = 0.5371E+00
R = 0.8556E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4449E-01
B = 0.3689E+00
R = 0.9364E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4923E+01

UCL95 STANDARD BOOT = 0.4800E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1108E+02

surfacesoil_qsouth_totalpcbs_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1141E+02

UCL95 T-DISTRIBUTION = 0.5103E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4905E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5574E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.8608E+01

UCL95 FROM LOG JACKKNIFE = 0.1056E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.1863E+02

UCL95 FROM H-STATISTIC = 0.7086E+03

all_soil_p_14dichlorobenzene_data

2.1
0.205
19
0.205
65
39
1.3
1.4
0.19
3.75
0.9
160

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.19354E+01
MAXIMUM DATA VALUE = 0.16000E+03

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.66963E+02

all_soil_p_14dichlorobenzene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2442E+02
SQUARE ROOT OF VARIANCE= 0.4525E+02
STANDARD DEVIATION= 0.4726E+02
SKEWNESS= 0.2214E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1935E+01
MINIMUM = 0.1900E+00
MAXIMUM = 0.1600E+03

MEAN OF LOG DATA = 0.1132E+01
STANDARD DEVIATION OF LOG DATA = 0.2339E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5708E+01

MVUE ESTIMATE OF THE MEAN = 0.2698E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.924E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1921E+02

MLE ESTIMATE OF THE MEAN = 0.4780E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.7349E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2582E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2291E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2431E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1301E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2389E+02
B = 0.1305E+02
R = 0.9939E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1898E+00
B = 0.5266E+00
R = 0.9159E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3547E-01
B = 0.3255E+00
R = 0.9935E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4808E+02

UCL95 STANDARD BOOT = 0.4571E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.9976E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.7337E+02

UCL95 T-DISTRIBUTION = 0.4893E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4687E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5618E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.8541E+02

UCL95 FROM LOG JACKKNIFE = 0.6696E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.1129E+03

UCL95 FROM H-STATISTIC = 0.2675E+04

all_soil_p_2378 TCDD TEQ_data

0.001262
0.000281
6.66E-05
7.57E-05
0.000344
0.000264
3.7E-05
0.000418
5.82E-05
0.000364
0.000127
0.000105

all_soil_p_2378 TCDD TEQ_msdata

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.11871E+01
MAXIMUM DATA VALUE = 0.12621E-02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.44232E-03

all_soil_p_2378 TCDD TEQ_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2834E-03
SQUARE ROOT OF VARIANCE= 0.3221E-03
STANDARD DEVIATION= 0.3364E-03
SKEWNESS= 0.2210E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1187E+01
MINIMUM = 0.3702E-04
MAXIMUM = 0.1262E-02

MEAN OF LOG DATA = -0.8664E+01
STANDARD DEVIATION OF LOG DATA = 0.1030E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2970E+01

MVUE ESTIMATE OF THE MEAN = 0.2761E-03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.314E-03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.8799E-04

MLE ESTIMATE OF THE MEAN = 0.2935E-03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4033E-03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2740E-03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9374E-04

AVERAGE OF BOOTSTRAPPED VALUES = 0.2835E-03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.9356E-04

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2808E-03
B = 0.9367E-04
R = 0.9928E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1653E+00
B = 0.4641E+00
R = 0.9615E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.9955E-01
B = 0.4202E+00
R = 0.9743E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4575E-03

UCL95 STANDARD BOOT = 0.4373E-03

UCL95 BOOTSTRAP-T FROM SORT = 0.6416E-03

all_soil_p_2378 TCDD TEQ_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5379E-03

UCL95 T-DISTRIBUTION = 0.4578E-03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4431E-03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5093E-03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.7174E-03

UCL95 FROM LOG JACKKNIFE = 0.4423E-03

UCL95 LN CHEBYCHEV INEQUALITY = 0.6694E-03

UCL95 FROM H-STATISTIC = 0.7380E-03

all_soil_p_Arsenic_data

8.9
4
1.7
15
7.9
26
9.4
14
12
12
27
17

all_soil_p_Arsenic_mstat

0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NORMAL-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

UCL95(T-DIST.) = 0.16901E+02

all_soil_p_Arsenic_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1291E+02
SQUARE ROOT OF VARIANCE= 0.7373E+01
STANDARD DEVIATION= 0.7701E+01
SKEWNESS= 0.5761E+00
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.5966E+00
MINIMUM = 0.1700E+01
MAXIMUM = 0.2700E+02

MEAN OF LOG DATA = 0.2343E+01
STANDARD DEVIATION OF LOG DATA = 0.7721E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2525E+01

MVUE ESTIMATE OF THE MEAN = 0.1361E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.111E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3181E+01

MLE ESTIMATE OF THE MEAN = 0.1403E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1266E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1382E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2293E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1293E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2141E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1292E+02
B = 0.2134E+01
R = 0.9994E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2663E-01
B = 0.3318E+00
R = 0.9945E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1142E-01
B = 0.3299E+00
R = 0.9905E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1657E+02

UCL95 STANDARD BOOT = 0.1645E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1788E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1829E+02

UCL95 T-DISTRIBUTION = 0.1690E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1657E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1696E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2285E+02

UCL95 FROM LOG JACKKNIFE = 0.1794E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2783E+02

UCL95 FROM H-STATISTIC = 0.2525E+02

all_soil_p_benzene_data

0.00355
0.7
2.3
0.00475
0.28
0.355
0.0094
0.0038
2.2
0.64
0.78

all_soil_p_benzene_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  11

UCL95(T-DIST.) = 0.11196E+01
```

all_soil_p_benzene_sboot

NUMBER OF DATA POINTS = 11
MEAN= 0.6615E+00
SQUARE ROOT OF VARIANCE= 0.7994E+00
STANDARD DEVIATION= 0.8384E+00
SKEWNESS= 0.1215E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.1267E+01
MINIMUM = 0.3550E-02
MAXIMUM = 0.2300E+01

MEAN OF LOG DATA = -0.2088E+01
STANDARD DEVIATION OF LOG DATA = 0.2640E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.6641E+01

MVUE ESTIMATE OF THE MEAN = 0.1710E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.665E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1344E+01

MLE ESTIMATE OF THE MEAN = 0.4045E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1319E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2382E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9292E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6587E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2405E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6547E+00
B = 0.2421E+00
R = 0.9981E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.9706E-01
B = 0.4261E+00
R = 0.9412E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4427E-01
B = 0.3795E+00
R = 0.9533E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1078E+01

UCL95 STANDARD BOOT = 0.1054E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1650E+01

all_soil_p_benzene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1519E+01

UCL95 T-DISTRIBUTION = 0.1120E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1077E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1176E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1791E+01

UCL95 FROM LOG JACKKNIFE = 0.4066E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.7716E+01

UCL95 FROM H-STATISTIC = 0.1035E+04

all_soil_p_cadmium_data

1
0.62
3
93
3.6
0.75
1.2
2
2.3
6.8
8.1
5.6

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=   12

COEFFICIENT OF VARIATION = 0.24424E+01
MAXIMUM DATA VALUE = 0.93000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.13337E+02
```

all_soil_p_cadmium_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1066E+02
SQUARE ROOT OF VARIANCE= 0.2494E+02
STANDARD DEVIATION= 0.2605E+02
SKEWNESS= 0.2967E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2442E+01
MINIMUM = 0.6200E+00
MAXIMUM = 0.9300E+02

MEAN OF LOG DATA = 0.1132E+01
STANDARD DEVIATION OF LOG DATA = 0.1367E+01

HS STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3622E+01

MVUE ESTIMATE OF THE MEAN = 0.6953E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.112E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2995E+01

MLE ESTIMATE OF THE MEAN = 0.7894E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1847E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6096E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0 4032E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1070E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.7262E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1040E+02
B = 0.7187E+01
R = 0.9594E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1048E+01
B = 0 1632E+01
R = 0.8847E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4535E+00
B = 0.9175E+00
R = 0.9123E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2546E+02

UCL95 STANDARD BOOT = 0.2265E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1194E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.7181E+02

UCL95 T-DISTRIBUTION = 0.2417E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2303E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2992E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.4427E+02

UCL95 FROM LOG JACKKNIFE = 0.1334E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2034E+02

UCL95 FROM H-STATISTIC = 0.3512E+02

all_soil_p_dieldrin_data

0.003
0.12
0.0375
0.002
0.0405
0.038
0.0095
0.066
0.017
0.54
0.56
0.073

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.16022E+01
MAXIMUM DATA VALUE = 0.56000E+00

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.28249E+00

all_soil_p_dieldrin_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1255E+00
SQUARE ROOT OF VARIANCE= 0.1926E+00
STANDARD DEVIATION= 0.2011E+00
SKEWNESS= 0.1684E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1602E+01
MINIMUM = 0.2000E-02
MAXIMUM = 0.5600E+00

MEAN OF LOG DATA = -0.3264E+01
STANDARD DEVIATION OF LOG DATA = 0.1759E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4441E+01

MVUE ESTIMATE OF THE MEAN = 0.1393E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.314E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.7735E-01

MLE ESTIMATE OF THE MEAN = 0.1795E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.8236E+00

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1426E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.7786E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1255E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5588E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1239E+00
B = 0.5656E-01
R = 0.9950E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2406E+00
B = 0.6839E+00
R = 0.7904E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.6524E-01
B = 0.4167E+00
R = 0.8885E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2191E+00

UCL95 STANDARD BOOT = 0.2175E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.6412E+00

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4328E+00

UCL95 T-DISTRIBUTION = 0.2298E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2211E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2512E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3851E+00

UCL95 FROM LOG JACKKNIFE = 0.2825E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.4851E+00

UCL95 FROM H-STATISTIC = 0.1892E+01

all_soil_p_ethylbenzene_data

0.78
0.00026
0.11
10
2.5
0.0024
3.6
78
0.00475
0.007
0.59

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 11

COEFFICIENT OF VARIATION = 0.26674E+01
MAXIMUM DATA VALUE = 0.78000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.11038E+03

NUMBER OF DATA POINTS = 11
MEAN= 0.8690E+01
SQUARE ROOT OF VARIANCE= 0.2210E+02
STANDARD DEVIATION= 0.2318E+02
SKEWNESS= 0.2764E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.2667E+01
MINIMUM = 0.2600E-03
MAXIMUM = 0.7800E+02

MEAN OF LOG DATA = -0.1702E+01
STANDARD DEVIATION OF LOG DATA = 0.3973E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.9808E+01

MVUE ESTIMATE OF THE MEAN = 0.3166E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.239E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2987E+02

MLE ESTIMATE OF THE MEAN = 0.4884E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1309E+07

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.4648E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3526E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.8707E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.6673E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.8426E+01
B = 0.6719E+01
R = 0.9659E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1024E+01
B = 0.1826E+01
R = 0.8351E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4916E+00
B = 0.1186E+01
R = 0.7023E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2223E+02

UCL95 STANDARD BOOT = 0.1968E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1598E+03

all_soil_p_ethylbenzene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1390E+03

UCL95 T-DISTRIBUTION = 0.2135E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2019E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2641E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3993E+02

UCL95 FROM LOG JACKKNIFE = 0.1104E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1652E+03

UCL95 FROM H-STATISTIC = 0.1098E+09

1.15
1.15
1.15
1.25
1.1
210
1.15
27
1.1
11.5
1.25
1.25

all_soil_p_MCPA 2methyl 4cholorphenoxoxyacetic_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.52609E+02

all_soil_p_MCPA 2methyl 4cholorphenoxoxyacetic_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2159E+02
SQUARE ROOT OF VARIANCE= 0.5729E+02
STANDARD DEVIATION= 0.5983E+02
SKEWNESS= 0.2930E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2772E+01
MINIMUM = 0.1100E+01
MAXIMUM = 0.2100E+03

MEAN OF LOG DATA = 0.1042E+01
STANDARD DEVIATION OF LOG DATA = 0.1722E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4363E+01

MVUE ESTIMATE OF THE MEAN = 0.9836E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.215E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5353E+01

MLE ESTIMATE OF THE MEAN = 0.1250E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.5365E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6825E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.8058E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.2179E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1644E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2141E+02
B = 0.1631E+02
R = 0.9655E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.9097E+00
B = 0.1698E+01
R = 0.8084E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3689E+01
B = 0.8281E+01
R = 0.4738E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5508E+02

UCL95 STANDARD BOOT = 0.4883E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.4139E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4140E+03

UCL95 T-DISTRIBUTION = 0.5261E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5000E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.6562E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.9880E+02

UCL95 FROM LOG JACKKNIFE = 0.2130E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.3377E+02

UCL95 FROM H-STATISTIC = 0.1205E+03

all_soil_p_tetrachloroethane_data

0.24
0.0019
0.145
2.5
140
0.011
0.67
0.00475
0.4
0.0031
0.006

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 11

COEFFICIENT OF VARIATION = 0.32162E+01
MAXIMUM DATA VALUE = 0.14000E+03

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.15350E+02

all_soil_p_tetrachloroethene_sboot

NUMBER OF DATA POINTS = 11
MEAN= 0.1309E+02
SQUARE ROOT OF VARIANCE= 0.4014E+02
STANDARD DEVIATION= 0.4210E+02
SKEWNESS= 0.2844E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.3216E+01
MINIMUM = 0.1900E-02
MAXIMUM = 0.1400E+03

MEAN OF LOG DATA = -0.2349E+01
STANDARD DEVIATION OF LOG DATA = 0.3451E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.8561E+01

MVUE ESTIMATE OF THE MEAN = 0.5830E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.347E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5256E+01

MLE ESTIMATE OF THE MEAN = 0.3685E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1422E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3458E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6563E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1321E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1234E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1245E+02
B = 0.1213E+02
R = 0.9344E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.9622E+01
B = 0.1551E+02
R = 0.7840E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.7545E+03
B = 0.1507E+04
R = 0.5518E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3846E+02

UCL95 STANDARD BOOT = 0.3351E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.2517E+04

all_soil_p_tetrachloroethene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3031E+04

UCL95 T-DISTRIBUTION = 0.3609E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3397E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.4560E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.6983E+02

UCL95 FROM LOG JACKKNIFE = 0.1535E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2932E+02

UCL95 FROM H-STATISTIC = 0.4207E+06

all_soil_p_totalpcbs_data

0.95
26.78
5.552
2.295
2.22
2.647
0.04955
1.429
4.3
0.02975
0.0382
7.02

all_soil_p_totalpcbs_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.16612E+01
MAXIMUM DATA VALUE = 0.26780E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.16904E+02

all_soil_p_totalpcbs_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.4443E+01
SQUARE ROOT OF VARIANCE= 0.7066E+01
STANDARD DEVIATION= 0.7380E+01
SKEWNESS= 0.2554E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1661E+01
MINIMUM = 0.2975E-01
MAXIMUM = 0.2678E+02

MEAN OF LOG DATA = 0.1277E+00
STANDARD DEVIATION OF LOG DATA = 0.2214E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5432E+01

MVUE ESTIMATE OF THE MEAN = 0.8088E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.255E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5513E+01

MLE ESTIMATE OF THE MEAN = 0.1318E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1523E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.9947E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3874E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.4408E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2016E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.4342E+01
B = 0.2024E+01
R = 0.9884E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2651E+00
B = 0.5936E+00
R = 0.9332E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1396E+00
B = 0.4634E+00
R = 0.9609E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8266E+01

UCL95 STANDARD BOOT = 0.7724E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1532E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1872E+02

UCL95 T-DISTRIBUTION = 0.8269E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7947E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.9626E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1397E+02

UCL95 FROM LOG JACKKNIFE = 0.1690E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.3273E+02

UCL95 FROM H-STATISTIC = 0.4951E+03

all_soil_p_trichloroethylene_data

0.0015
0.007
0.3
0.076
0.99
0.0013
0.14
0.00079
0.55
0.00475
0.135

all_soil_p_trichloroethylene_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  11

COEFFICIENT OF VARIATION = 0.15558E+01
MAXIMUM DATA VALUE = 0.99000E+00

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.10091E+01
```

NUMBER OF DATA POINTS = 11
MEAN= 0.2006E+00
SQUARE ROOT OF VARIANCE= 0.2975E+00
STANDARD DEVIATION= 0.3120E+00
SKEWNESS= 0.1707E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.1556E+01
MINIMUM = 0.7900E-03
MAXIMUM = 0.9900E+00

MEAN OF LOG DATA = -0.3542E+01
STANDARD DEVIATION OF LOG DATA = 0.2628E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.6611E+01

MVUE ESTIMATE OF THE MEAN = 0.3912E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.151E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3063E+00

MLE ESTIMATE OF THE MEAN = 0.9142E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2884E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.4813E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2913E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.2010E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.9094E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1985E+00
B = 0.9052E-01
R = 0.9965E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1359E+00
B = 0.4766E+00
R = 0.9256E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2817E-01
B = 0.3439E+00
R = 0.9921E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3603E+00

UCL95 STANDARD BOOT = 0.3506E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.6400E+00

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4829E+00

UCL95 T-DISTRIBUTION = 0.3711E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3553E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.4071E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.6211E+00

UCL95 FROM LOG JACKKNIFE = 0.1009E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1760E+01

UCL95 FROM H-STATISTIC = 0.2222E+03

all_soil_p_xylenes total_data

31
380
0.00097
0.014
18
8.1
0.0043
0.0095
2.4
2.4
0.43

all_soil_p_xylenes total_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 11

COEFFICIENT OF VARIATION = 0.28130E+01
MAXIMUM DATA VALUE = 0.38000E+03

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.57230E+03

all_soil_p_xylenes total_sboot

NUMBER OF DATA POINTS = 11
MEAN= 0.4021E+02
SQUARE ROOT OF VARIANCE= 0.1079E+03
STANDARD DEVIATION= 0.1131E+03
SKEWNESS= 0.2808E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.2813E+01
MINIMUM = 0.9700E-03
MAXIMUM = 0.3800E+03

MEAN OF LOG DATA = -0.5499E+00
STANDARD DEVIATION OF LOG DATA = 0.4201E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1035E+02

MVUE ESTIMATE OF THE MEAN = 0.1608E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.134E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1538E+03

MLE ESTIMATE OF THE MEAN = 0.3918E+04
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2660E+08

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2538E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1758E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.3984E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3225E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3853E+02
B = 0.3270E+02
R = 0.9547E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1336E+01
B = 0.2135E+01
R = 0.8722E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1942E+01
B = 0.4172E+01
R = 0.5661E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1069E+03

UCL95 STANDARD BOOT = 0.9289E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.8011E+03

all_soil_p_xylenes total_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.8030E+03

UCL95 T-DISTRIBUTION = 0.1020E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.9632E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1272E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1927E+03

UCL95 FROM LOG JACKKNIFE = 0.5723E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.8483E+03

UCL95 FROM H-STATISTIC = 0.3678E+10

0.0163505
0.00036075
0.00028509
0.000193934
0.000338676
0.000187379
0.00396005
0.000033056
9.56443E-05

all_soil_qcentral_2378TCDD-TEQ_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

COEFFICIENT OF VARIATION = 0.22160E+01
MAXIMUM DATA VALUE = 0.16351E-01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.37854E-02

all_soil_qcentral_2378TCDD-TEQ_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.2423E-02
SQUARE ROOT OF VARIANCE= 0.5062E-02
STANDARD DEVIATION= 0.5369E-02
SKEWNESS= 0.2252E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.2216E+01
MINIMUM = 0.3306E-04
MAXIMUM = 0.1635E-01

MEAN OF LOG DATA = -0.7825E+01
STANDARD DEVIATION OF LOG DATA = 0.1889E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5422E+01

MVUE ESTIMATE OF THE MEAN = 0.1614E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.355E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1023E-02

MLE ESTIMATE OF THE MEAN = 0.2378E-02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1395E-01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1232E-02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1373E-02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2415E-02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1700E-02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2354E-02
B = 0.1711E-02
R = 0.9838E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2209E+01
B = 0.4414E+01
R = 0.6497E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4774E+01
B = 0.1059E+02
R = 0.4953E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5616E-02

UCL95 STANDARD BOOT = 0.5211E-02

UCL95 BOOTSTRAP-T FROM SORT = 0.1083E+00

all_soil_qcentral_2378TCDD-TEQ_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1383E+00

UCL95 T-DISTRIBUTION = 0.5752E-02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5367E-02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.6803E-02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1042E-01

UCL95 FROM LOG JACKKNIFE = 0.3785E-02

UCL95 LN CHEBYCHEV INEQUALITY = 0.6186E-02

UCL95 FROM H-STATISTIC = 0.8883E-01

all_soil_qcentral_aldrin_data

0.0021
0.0255
0.00105
0.0055
0.00525
0.00105
0.018
0.11
0.00185

all_soil_qcentral_aldrin_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=   9

COEFFICIENT OF VARIATION = 0.18609E+01
MAXIMUM DATA VALUE = 0.11000E+00

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.34019E-01
```

all_soil_qcentral_aldrin_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.1892E-01
SQUARE ROOT OF VARIANCE= 0.3320E-01
STANDARD DEVIATION= 0.3521E-01
SKEWNESS= 0.2216E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1861E+01
MINIMUM = 0.1050E-02
MAXIMUM = 0.1100E+00

MEAN OF LOG DATA = -0.5169E+01
STANDARD DEVIATION OF LOG DATA = 0.1594E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4668E+01

MVUE ESTIMATE OF THE MEAN = 0.1587E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.285E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.8672E-02

MLE ESTIMATE OF THE MEAN = 0.2026E-01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.6927E-01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1441E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1054E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1895E-01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1102E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1859E-01
B = 0.1116E-01
R = 0.9854E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4116E+00
B = 0.8928E+00
R = 0.8922E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1207E+00
B = 0.4839E+00
R = 0.9559E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4033E-01

UCL95 STANDARD BOOT = 0.3707E-01

UCL95 BOOTSTRAP-T FROM SORT = 0.1132E+00

all_soil_qcentral_aldrin_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1142E+00

UCL95 T-DISTRIBUTION = 0.4075E-01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3823E-01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.4749E-01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.7139E-01

UCL95 FROM LOG JACKKNIFE = 0.3402E-01

UCL95 LN CHEBYCHEV INEQUALITY = 0.5464E-01

UCL95 FROM H-STATISTIC = 0.2813E+00

all_soil_qcentral_arsenic_data

57
13
6.6
16
3.2
5.7
13
10.8
7.2

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=   9

COEFFICIENT OF VARIATION = 0.11128E+01
MAXIMUM DATA VALUE = 0.57000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.22176E+02
```

NUMBER OF DATA POINTS = 9
MEAN= 0.1472E+02
SQUARE ROOT OF VARIANCE= 0.1545E+02
STANDARD DEVIATION= 0.1638E+02
SKEWNESS= 0.2179E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1113E+01
MINIMUM = 0.3200E+01
MAXIMUM = 0.5700E+02

MEAN OF LOG DATA = 0.2343E+01
STANDARD DEVIATION OF LOG DATA = 0.8119E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2837E+01

MVUE ESTIMATE OF THE MEAN = 0.1385E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.117E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3858E+01

MLE ESTIMATE OF THE MEAN = 0.1448E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1399E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1353E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4649E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1471E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5167E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1455E+02
B = 0.5233E+01
R = 0.9852E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3810E+00
B = 0.7780E+00
R = 0.9320E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3012E+00
B = 0.7244E+00
R = 0.9388E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2481E+02

UCL95 STANDARD BOOT = 0.2321E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.4376E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3842E+02

UCL95 T-DISTRIBUTION = 0.2488E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2371E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2794E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3913E+02

UCL95 FROM LOG JACKKNIFE = 0.2218E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.3109E+02

UCL95 FROM H-STATISTIC = 0.3270E+02

all_soil_qcentral_benzoaanthacene_data

0.029
0.091
0.205
3.15
0.64
0.29
0.385
0.425
0.25

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

COEFFICIENT OF VARIATION = 0.15988E+01
MAXIMUM DATA VALUE = 0.31500E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.10669E+01

all_soil_qcentral_benzoaanthacene_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.6072E+00
SQUARE ROOT OF VARIANCE= 0.9153E+00
STANDARD DEVIATION= 0.9708E+00
SKEWNESS= 0.2311E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1599E+01
MINIMUM = 0.2900E-01
MAXIMUM = 0.3150E+01

MEAN OF LOG DATA = -0.1251E+01
STANDARD DEVIATION OF LOG DATA = 0.1291E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3918E+01

MVUE ESTIMATE OF THE MEAN = 0.5727E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.806E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2558E+00

MLE ESTIMATE OF THE MEAN = 0.6587E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1364E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5624E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2712E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6128E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3089E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6032E+00
B = 0.3101E+00
R = 0.9776E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5314E+00
B = 0.1035E+01
R = 0.8929E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3889E+00
B = 0.9407E+00
R = 0.8794E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1225E+01

UCL95 STANDARD BOOT = 0.1121E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.3250E+01

all_soil_qcentral_benzoaanthacene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3178E+01

UCL95 T-DISTRIBUTION = 0.1209E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1140E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1406E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2054E+01

UCL95 FROM LOG JACKKNIFE = 0.1067E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1716E+01

UCL95 FROM H-STATISTIC = 0.3937E+01

central_benzoapyrene_data

0.205
0.39
0.205
0.405
0.024
2.65
0.3
1.315
0.28

all_soil_qcentral_benzoapyrene_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=    9

COEFFICIENT OF VARIATION = 0.13060E+01
MAXIMUM DATA VALUE = 0.26500E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.12436E+01
```

all_soil_qcentral_benzoapyrene_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.6416E+00
SQUARE ROOT OF VARIANCE= 0.7900E+00
STANDARD DEVIATION= 0.8379E+00
SKEWNESS= 0.1778E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1306E+01
MINIMUM = 0.2400E-01
MAXIMUM = 0.2650E+01

MEAN OF LOG DATA = -0.1108E+01
STANDARD DEVIATION OF LOG DATA = 0.1308E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3959E+01

MVUE ESTIMATE OF THE MEAN = 0.6718E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.960E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3040E+00

MLE ESTIMATE OF THE MEAN = 0.7764E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1652E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6824E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3017E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6444E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2614E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6371E+00
B = 0.2641E+00
R = 0.9961E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3512E+00
B = 0.9050E+00
R = 0.8009E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3195E+00
B = 0.9818E+00
R = 0.7010E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1109E+01

UCL95 STANDARD BOOT = 0.1074E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.3404E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3083E+01

UCL95 T-DISTRIBUTION = 0.1161E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1101E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1278E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1890E+01

UCL95 FROM LOG JACKKNIFE = 0.1244E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.2030E+01

UCL95 FROM H-STATISTIC = 0.4842E+01

all_soil_qcentral_benzobfluoranthene_data

0.031
0.205
1.195
0.32
0.205
2.45
1.75
0.495
0.39

all_soil_qcentral_benzobfluoranthene_mstat

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=   9

COEFFICIENT OF VARIATION = 0.10665E+01
MAXIMUM DATA VALUE = 0.24500E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.15991E+01
```

all_soil_qcentral_benzobfluoranthene_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.7823E+00
SQUARE ROOT OF VARIANCE= 0.7866E+00
STANDARD DEVIATION= 0.8344E+00
SKEWNESS= 0.1055E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1066E+01
MINIMUM = 0.3100E-01
MAXIMUM = 0.2450E+01

MEAN OF LOG DATA = -0.8660E+00
STANDARD DEVIATION OF LOG DATA = 0.1331E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4015E+01

MVUE ESTIMATE OF THE MEAN = 0.8765E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.128E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4034E+00

MLE ESTIMATE OF THE MEAN = 0.1020E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2252E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.9120E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3694E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.7830E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2605E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.7786E+00
B = 0.2613E+00
R = 0.9983E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.8630E-01
B = 0.4469E+00
R = 0.9564E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1681E-02
B = 0.3271E+00
R = 0.9995E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1236E+01

UCL95 STANDARD BOOT = 0.1211E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1751E+01

all_soil_qcentral_benzobfluoranthene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1364E+01

UCL95 T-DISTRIBUTION = 0.1300E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1240E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1344E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2026E+01

UCL95 FROM LOG JACKKNIFE = 0.1599E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.2680E+01

UCL95 FROM H-STATISTIC = 0.6745E+01

all_soil_qcentral_copper_data

59.5
54
26
46
20.5
150
20000
225
40

all_soil_qcentral_copper_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

UCL95(T-DIST.) = 0.64087E+04

all_soil_qcentral_copper_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.2291E+04
SQUARE ROOT OF VARIANCE= 0.6261E+04
STANDARD DEVIATION= 0.6641E+04
SKEWNESS= 0.2474E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.2899E+01
MINIMUM = 0.2050E+02
MAXIMUM = 0.2000E+05

MEAN OF LOG DATA = 0.4689E+01
STANDARD DEVIATION OF LOG DATA = 0.2099E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5968E+01

MVUE ESTIMATE OF THE MEAN = 0.5860E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.147E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4040E+03

MLE ESTIMATE OF THE MEAN = 0.9844E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.8857E+04

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1781E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.5747E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.2266E+04

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2072E+04

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2287E+04
B = 0.2054E+04
R = 0.9349E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1170E+02
B = 0.1754E+02
R = 0.8228E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1460E+04
B = 0.2901E+04
R = 0.5777E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6709E+04

UCL95 STANDARD BOOT = 0.5675E+04

UCL95 BOOTSTRAP-T FROM SORT = 0.3765E+06

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3659E+06

UCL95 T-DISTRIBUTION = 0.6409E+04

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5933E+04

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7884E+04

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1219E+05

UCL95 FROM LOG JACKKNIFE = 0.1247E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.2392E+04

UCL95 FROM H-STATISTIC = 0.8253E+05

all_soil_qcentral_dieldrin_data

0.035
0.0465
0.00205
0.39
0.042
0.0036
0.048
0.0585
0.0052

all_soil_qcentral_dieldrin_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

COEFFICIENT OF VARIATION = 0.17385E+01
MAXIMUM DATA VALUE = 0.39000E+00

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.14657E+00

all_soil_qcentral_dieldrin_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.7009E-01
SQUARE ROOT OF VARIANCE= 0.1149E+00
STANDARD DEVIATION= 0.1219E+00
SKEWNESS= 0.2327E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1739E+01
MINIMUM = 0.2050E-02
MAXIMUM = 0.3900E+00

MEAN OF LOG DATA = -0.3720E+01
STANDARD DEVIATION OF LOG DATA = 0.1656E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4825E+01

MVUE ESTIMATE OF THE MEAN = 0.7279E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.137E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4116E-01

MLE ESTIMATE OF THE MEAN = 0.9540E-01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3634E+00

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.7501E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3847E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.7069E-01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3875E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6958E-01
B = 0.3886E-01
R = 0.9756E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5496E+00
B = 0.1015E+01
R = 0.8833E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.6178E+00
B = 0.1223E+01
R = 0.8837E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1479E+00

UCL95 STANDARD BOOT = 0.1344E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.3445E+00

all_soil_qcentral_dieldrin_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3058E+00

UCL95 T-DISTRIBUTION = 0.1456E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1369E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1706E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2517E+00

UCL95 FROM LOG JACKKNIFE = 0.1466E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.2568E+00

UCL95 FROM H-STATISTIC = 0.1607E+01

all_soil_qcentral_manganese_data

240
29
260
150
5450
305
310
170
660

all_soil_qcentral_manganese_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

2 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

COEFFICIENT OF VARIATION = 0.20638E+01
MAXIMUM DATA VALUE = 0.54500E+04

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.12910E+04

all_soil_qcentral_manganese_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.8416E+03
SQUARE ROOT OF VARIANCE= 0.1637E+04
STANDARD DEVIATION= 0.1737E+04
SKEWNESS= 0.2429E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.2064E+01
MINIMUM = 0.2900E+02
MAXIMUM = 0.5450E+04

MEAN OF LOG DATA = 0.5679E+01
STANDARD DEVIATION OF LOG DATA = 0.1386E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4149E+01

MVUE ESTIMATE OF THE MEAN = 0.6456E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.985E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3091E+03

MLE ESTIMATE OF THE MEAN = 0.7639E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1843E+04

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5805E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3819E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.8460E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5493E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.8345E+03
B = 0.5463E+03
R = 0.9599E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1257E+01
B = 0.2181E+01
R = 0.8452E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1540E+01
B = 0.3379E+01
R = 0.6032E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1966E+04

UCL95 STANDARD BOOT = 0.1750E+04

UCL95 BOOTSTRAP-T FROM SORT = 0.1270E+05

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1413E+05

UCL95 T-DISTRIBUTION = 0.1918E+04

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1794E+04

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2295E+04

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3429E+04

UCL95 FROM LOG JACKKNIFE = 0.1291E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.2027E+04

UCL95 FROM H-STATISTIC = 0.5831E+04

all_soil_qcentral_pentachorophenol_data

0.0565
0.63
0.0033
1.4
10.15
0.0105
0.012
0.0825
2.3

all_soil_qcentral_pentachorophenol_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

COEFFICIENT OF VARIATION = 0.20249E+01
MAXIMUM DATA VALUE = 0.10150E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.65183E+01

all_soil_qcentral_pentachorophenol_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.1627E+01
SQUARE ROOT OF VARIANCE= 0.3106E+01
STANDARD DEVIATION= 0.3295E+01
SKEWNESS= 0.2217E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.2025E+01
MINIMUM = 0.3300E-02
MAXIMUM = 0.1015E+02

MEAN OF LOG DATA = -0.1893E+01
STANDARD DEVIATION OF LOG DATA = 0.2775E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7750E+01

MVUE ESTIMATE OF THE MEAN = 0.2288E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.818E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1892E+01

MLE ESTIMATE OF THE MEAN = 0.7075E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3323E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2450E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2187E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1635E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1041E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1602E+01
B = 0.1048E+01
R = 0.9848E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4211E+00
B = 0.9064E+00
R = 0.8926E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1327E+00
B = 0.5143E+00
R = 0.9565E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3649E+01

UCL95 STANDARD BOOT = 0.3347E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1059E+02

all_soil_qcentral_pentachorophenol_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.8145E+01

UCL95 T-DISTRIBUTION = 0.3670E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3434E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.4301E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.6537E+01

UCL95 FROM LOG JACKKNIFE = 0.6518E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1075E+02

UCL95 FROM H-STATISTIC = 0.1417E+05

_qcentral_totalpcbs_data

2.6115
8.7375
0.915
0.42815
4.3675
2.063
1.769
0.2143
0.4586

all_soil_qcentral_totalpcbs_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

COEFFICIENT OF VARIATION = 0.11356E+01
MAXIMUM DATA VALUE = 0.87375E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.43521E+01

all_soil_qcentral_totalpcbs_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.2396E+01
SQUARE ROOT OF VARIANCE= 0.2565E+01
STANDARD DEVIATION= 0.2721E+01
SKEWNESS= 0.1539E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1136E+01
MINIMUM = 0.2143E+00
MAXIMUM = 0.8738E+01

MEAN OF LOG DATA = 0.2932E+00
STANDARD DEVIATION OF LOG DATA = 0.1203E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3708E+01

MVUE ESTIMATE OF THE MEAN = 0.2460E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.320E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1025E+01

MLE ESTIMATE OF THE MEAN = 0.2764E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4984E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2481E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1006E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.2386E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.8593E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2368E+01
B = 0.8654E+00
R = 0.9962E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1607E+00
B = 0.5346E+00
R = 0.9458E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.7857E-01
B = 0.4587E+00
R = 0.9746E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3927E+01

UCL95 STANDARD BOOT = 0.3800E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.6231E+01

all_soil_qcentral_totalpcbs_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5038E+01

UCL95 T-DISTRIBUTION = 0.4083E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3888E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.4385E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.6450E+01

UCL95 FROM LOG JACKKNIFE = 0.4352E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.7039E+01

UCL95 FROM H-STATISTIC = 0.1338E+02

...uth_2378TCDD TEQ_data

0.00043926
0.00054683
0.006845
0.000220345
0.000041361
0.00005484
0.000080815
6.29555E-05
0.000056015
6.98465E-05
0.001655345
0.000113905
4.90225E-05
0.00137244
0.00093605
0.0010195
0.02867525
0.000075483
0.000107485
0.00052666

all_soil_qsouth_2378TCDD TEQ_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

UCL95(STANDARD BOOTSTRAP)= 0.45053E-02

all_soil_qsouth_2378TCDD TEQ_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.2147E-02
SQUARE ROOT OF VARIANCE= 0.6262E-02
STANDARD DEVIATION= 0.6425E-02
SKEWNESS= 0.3799E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.2992E+01
MINIMUM = 0.4136E-04
MAXIMUM = 0.2868E-01

MEAN OF LOG DATA = -0.8130E+01
STANDARD DEVIATION OF LOG DATA = 0.1815E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3874E+01

MVUE ESTIMATE OF THE MEAN = 0.1276E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.363E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.6342E-03

MLE ESTIMATE OF THE MEAN = 0.1530E-02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.7796E-02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1123E-02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.8302E-03

AVERAGE OF BOOTSTRAPPED VALUES = 0.2157E-02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1428E-02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2091E-02
B = 0.1417E-02
R = 0.9812E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5047E+00
B = 0.1002E+01
R = 0.8003E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1187E+00
B = 0.4222E+00
R = 0.8837E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4908E-02

UCL95 STANDARD BOOT = 0.4505E-02

UCL95 BOOTSTRAP-T FROM SORT = 0.2621E-01

all_soil_qsouth_2378TCDD TEQ_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2325E-01

UCL95 T-DISTRIBUTION = 0.4631E-02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4511E-02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5815E-02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.8569E-02

UCL95 FROM LOG JACKKNIFE = 0.2558E-02

UCL95 LN CHEBYCHEV INEQUALITY = 0.4111E-02

UCL95 FROM H-STATISTIC = 0.7677E-02

all_soil_qsouth_aldrin_data

0.065
0.011
0.001525
0.0013
0.021
0.3
0.02425
0.0925
0.21
0.0011
0.00115
0.001
0.0115
0.00105
0.0115
0.005
0.0011
0.011
0.0011
0.012

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

UCL95(STANDARD BOOTSTRAP)= 0.67830E-01
```

all_soil_qsouth_aldrin_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.3920E-01
SQUARE ROOT OF VARIANCE= 0.7677E-01
STANDARD DEVIATION= 0.7876E-01
SKEWNESS= 0.2464E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.2009E+01
MINIMUM = 0.1000E-02
MAXIMUM = 0.3000E+00

MEAN OF LOG DATA = -0.4862E+01
STANDARD DEVIATION OF LOG DATA = 0.1881E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3988E+01

MVUE ESTIMATE OF THE MEAN = 0.3710E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.113E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1918E-01

MLE ESTIMATE OF THE MEAN = 0.4541E-01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2627E+00

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3598E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2173E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.3923E-01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1739E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3873E-01
B = 0.1732E-01
R = 0.9956E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1051E+00
B = 0.3547E+00
R = 0.9063E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.9955E-02
B = 0.2362E+00
R = 0.9935E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.7049E-01

UCL95 STANDARD BOOT = 0.6783E-01

UCL95 BOOTSTRAP-T FROM SORT = 0.1290E+00

all_soil_qsouth_aldrin_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1816E+00

UCL95 T-DISTRIBUTION = 0.6965E-01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.6817E-01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7854E-01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1179E+00

UCL95 FROM LOG JACKKNIFE = 0.7356E-01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1229E+00

UCL95 FROM H-STATISTIC = 0.2539E+00

_antimony_data

1.35
35
1.1
1.3
1.25
8.3
23
2.75
1.1
14
1.35
16
6.1
47
1.1
1.05
1.15
27
38.5
1.3

all_soil_qsouth_antimony_mstat

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

UCL95(HALLS BOOTSTRAP-T)= 0.18677E+02
```

NUMBER OF DATA POINTS = 20
MEAN= 0.1148E+02
SQUARE ROOT OF VARIANCE= 0.1435E+02
STANDARD DEVIATION= 0.1472E+02
SKEWNESS= 0.1205E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1282E+01
MINIMUM = 0.1050E+01
MAXIMUM = 0.4700E+02

MEAN OF LOG DATA = 0.1483E+01
STANDARD DEVIATION OF LOG DATA = 0.1475E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3307E+01

MVUE ESTIMATE OF THE MEAN = 0.1183E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.238E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4655E+01

MLE ESTIMATE OF THE MEAN = 0.1308E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3655E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1178E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4978E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1149E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3193E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1145E+02
B = 0.3206E+01
R = 0.9987E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3037E-01
B = 0.2474E+00
R = 0.9934E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1106E-02
B = 0.2176E+00
R = 0.9995E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1699E+02

UCL95 STANDARD BOOT = 0.1674E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1884E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1868E+02

UCL95 T-DISTRIBUTION = 0.1718E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1690E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1785E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2620E+02

UCL95 FROM LOG JACKKNIFE = 0.2039E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.3264E+02

UCL95 FROM H-STATISTIC = 0.4005E+02

all_soil_qsouth_arsenic_data

5.5
5
7.1
4.2
7.9
5.1
17.5
3.3
5.8
19
30
19
4.3
17
11.8
17
33
32
12
6

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

COEFFICIENT OF VARIATION = 0.73495E+00
MAXIMUM DATA VALUE = 0.33000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.17232E+02
```

all_soil_qsouth_arsenic_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.1313E+02
SQUARE ROOT OF VARIANCE= 0.9402E+01
STANDARD DEVIATION= 0.9646E+01
SKEWNESS= 0.9038E+00
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.7349E+00
MINIMUM = 0.3300E+01
MAXIMUM = 0.3300E+02

MEAN OF LOG DATA = 0.2317E+01
STANDARD DEVIATION OF LOG DATA = 0.7419E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2254E+01

MVUE ESTIMATE OF THE MEAN = 0.1314E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.106E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2341E+01

MLE ESTIMATE OF THE MEAN = 0.1336E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1145E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1313E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2371E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1314E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2100E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1312E+02
B = 0.2108E+01
R = 0.9996E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2111E-01
B = 0.2438E+00
R = 0.9948E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1491E-02
B = 0.2227E+00
R = 0.9999E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1670E+02

UCL95 STANDARD BOOT = 0.1660E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1769E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1824E+02

UCL95 T-DISTRIBUTION = 0.1685E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1667E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1714E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2277E+02

UCL95 FROM LOG JACKKNIFE = 0.1723E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2360E+02

UCL95 FROM H-STATISTIC = 0.1961E+02

2
0.0015
0.00465
0.0031
0.0044
0.17
0.0038
0.00086
0.46
0.0021
0.0015
0.0029
0.0024
0.0035
0.0037
0.00535
0.00375
0.0031
0.0018
0.0015

all_soil_qsouth_benzene_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

UCL95(STANDARD BOOTSTRAP)= 0.29767E+00
```

all_soil_qsouth_benzne_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.1340E+00
SQUARE ROOT OF VARIANCE= 0.4405E+00
STANDARD DEVIATION= 0.4520E+00
SKEWNESS= 0.3798E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.3373E+01
MINIMUM = 0.8600E-03
MAXIMUM = 0.2000E+01

MEAN OF LOG DATA = -0.5139E+01
STANDARD DEVIATION OF LOG DATA = 0.2042E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4266E+01

MVUE ESTIMATE OF THE MEAN = 0.3644E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.129E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2055E-01

MLE ESTIMATE OF THE MEAN = 0.4715E-01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3762E+00

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2089E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3394E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1341E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.9945E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1293E+00
B = 0.9877E-01
R = 0.9818E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4428E+00
B = 0.8818E+00
R = 0.8274E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.6614E+00
B = 0.1616E+01
R = 0.5282E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3251E+00

UCL95 STANDARD BOOT = 0.2977E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.1618E+01

all_soil_qsouth_benzne_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1619E+01

UCL95 T-DISTRIBUTION = 0.3087E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3003E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3920E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.5858E+00

UCL95 FROM LOG JACKKNIFE = 0.7956E-01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1283E+00

UCL95 FROM H-STATISTIC = 0.3478E+00

_south_benzeoa anthracene_data

0.16
0.045
2.515
0.84
0.23
0.21
0.085
0.045
0.2
0.48
1.8
0.22
1.42
0.041
0.065
1.2
0.26
1.8
0.2
0.03

all_soil_qsouth_benzeoa anthracene_mstat

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

COEFFICIENT OF VARIATION = 0.12562E+01
MAXIMUM DATA VALUE = 0.25150E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.10335E+01
```

all_soil_qsouth_benzeoa anthracene_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.5923E+00
SQUARE ROOT OF VARIANCE= 0.7252E+00
STANDARD DEVIATION= 0.7440E+00
SKEWNESS= 0.1323E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1256E+01
MINIMUM = 0.3000E-01
MAXIMUM = 0.2515E+01

MEAN OF LOG DATA = -0.1366E+01
STANDARD DEVIATION OF LOG DATA = 0.1404E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3193E+01

MVUE ESTIMATE OF THE MEAN = 0.6267E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.117E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2328E+00

MLE ESTIMATE OF THE MEAN = 0.6837E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1700E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6302E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2332E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.5911E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1622E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.5888E+00
B = 0.1620E+00
R = 0.9985E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3612E-01
B = 0.2513E+00
R = 0.9911E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2850E-03
B = 0.2162E+00
R = 0.9994E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8745E+00

UCL95 STANDARD BOOT = 0.8579E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.9847E+00

all_soil_qsouth_benzeoa anthracene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1095E+01

UCL95 T-DISTRIBUTION = 0.8800E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8660E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.9186E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1336E+01

UCL95 FROM LOG JACKKNIFE = 0.1034E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1667E+01

UCL95 FROM H-STATISTIC = 0.1912E+01

all_soil_qsouth_benzoapyrene_data

0.22
0.2
0.34
1.8
0.16
0.205
0.25
1.29
0.04
0.048
2.975
0.18
1.8
0.046
0.23
1.2
0.092
0.075
0.205
2.3

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

COEFFICIENT OF VARIATION = 0.12962E+01
MAXIMUM DATA VALUE = 0.29750E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.11431E+01
```

all_soil_qsouth_benzoapyrene_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.6828E+00
SQUARE ROOT OF VARIANCE= 0.8626E+00
STANDARD DEVIATION= 0.8850E+00
SKEWNESS= 0.1348E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1296E+01
MINIMUM = 0.4000E-01
MAXIMUM = 0.2975E+01

MEAN OF LOG DATA = -0.1228E+01
STANDARD DEVIATION OF LOG DATA = 0.1366E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3132E+01

MVUE ESTIMATE OF THE MEAN = 0.6871E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.123E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2472E+00

MLE ESTIMATE OF THE MEAN = 0.7448E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1741E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6829E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2662E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6833E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1915E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6808E+00
B = 0.1922E+00
R = 0.9990E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3389E-01
B = 0.2501E+00
R = 0.9892E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.2453E-02
B = 0.2146E+00
R = 0.9996E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1014E+01

UCL95 STANDARD BOOT = 0.9983E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.1153E+01

all_soil_qsouth_benzoapyrene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1035E+01

UCL95 T-DISTRIBUTION = 0.1025E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1008E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1072E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1567E+01

UCL95 FROM LOG JACKKNIFE = 0.1143E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1792E+01

UCL95 FROM H-STATISTIC = 0.1988E+01

all_soil_qsouth_benzobfluoranthene_data

0.56
2.2
0.21
0.056
0.23
0.036
0.18
1.4
0.44
0.22
3.3
0.069
0.033
0.19
0.22
0.2
0.22
1.475
0.25
2.69

all_soil_qsouth_benzobfluoranthene_mstat

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

COEFFICIENT OF VARIATION = 0.13722E+01
MAXIMUM DATA VALUE = 0.33000E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.11783E+01
```

all_soil_qsouth_benzobfluoranthene_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.7090E+00
SQUARE ROOT OF VARIANCE= 0.9482E+00
STANDARD DEVIATION= 0.9728E+00
SKEWNESS= 0.1583E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1372E+01
MINIMUM = 0.3300E-01
MAXIMUM = 0.3300E+01

MEAN OF LOG DATA = -0.1197E+01
STANDARD DEVIATION OF LOG DATA = 0.1366E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3133E+01

MVUE ESTIMATE OF THE MEAN = 0.7088E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.127E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2551E+00

MLE ESTIMATE OF THE MEAN = 0.7684E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1797E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.7042E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2742E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.7100E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2123E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.7070E+00
B = 0.2138E+00
R = 0.9983E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4266E-01
B = 0.2631E+00
R = 0.9824E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.4698E-02
B = 0.2141E+00
R = 0.9992E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1082E+01

UCL95 STANDARD BOOT = 0.1059E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1292E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1191E+01

UCL95 T-DISTRIBUTION = 0.1085E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1067E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1149E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1681E+01

UCL95 FROM LOG JACKKNIFE = 0.1178E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1849E+01

UCL95 FROM H-STATISTIC = 0.2052E+01

all_soil_qsouth_chromuim_data

13
106.5
13
17
20
160
24
8.2
8
74
16
91
49.5
110
16
130
660
20
130
98

all_soil_qsouth_chromuim_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

COEFFICIENT OF VARIATION = 0.16269E+01
MAXIMUM DATA VALUE = 0.66000E+03

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.13018E+03
```

all_soil_qsouth_chromuim_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.8821E+02
SQUARE ROOT OF VARIANCE= 0.1399E+03
STANDARD DEVIATION= 0.1435E+03
SKEWNESS= 0.3353E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1627E+01
MINIMUM = 0.8000E+01
MAXIMUM = 0.6600E+03

MEAN OF LOG DATA = 0.3742E+01
STANDARD DEVIATION OF LOG DATA = 0.1206E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2885E+01

MVUE ESTIMATE OF THE MEAN = 0.8242E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.123E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2565E+02

MLE ESTIMATE OF THE MEAN = 0.8730E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1582E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.8149E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2816E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.8837E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3192E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.8730E+02
B = 0.3183E+02
R = 0.9898E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1661E+00
B = 0.4021E+00
R = 0.9498E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1040E+00
B = 0.3601E+00
R = 0.9642E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1477E+03

UCL95 STANDARD BOOT = 0.1409E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.2243E+03

all_soil_qsouth_chromuim_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2281E+03

UCL95 T-DISTRIBUTION = 0.1437E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1410E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1667E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2316E+03

UCL95 FROM LOG JACKKNIFE = 0.1302E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1971E+03

UCL95 FROM H-STATISTIC = 0.1940E+03

all_soil_qsouth_dieldrin_data

0.00041
0.034
0.825
0.46
0.0088
0.029
0.375
0.2
0.28
0.0033
0.1
0.00805
0.0021
0.021
0.0022
0.16
0.00066
0.0019
0.12
0.022

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

COEFFICIENT OF VARIATION = 0.15964E+01
MAXIMUM DATA VALUE = 0.82500E+00

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.50361E+00

all_soil_qsouth_dieldrin_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.1327E+00
SQUARE ROOT OF VARIANCE= 0.2064E+00
STANDARD DEVIATION= 0.2118E+00
SKEWNESS= 0.2060E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1596E+01
MINIMUM = 0.4100E-03
MAXIMUM = 0.8250E+00

MEAN OF LOG DATA = -0.3732E+01
STANDARD DEVIATION OF LOG DATA = 0.2310E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4740E+01

MVUE ESTIMATE OF THE MEAN = 0.2377E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.108E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1516E+00

MLE ESTIMATE OF THE MEAN = 0.3455E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4972E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2653E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1378E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1325E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.4632E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1315E+00
B = 0.4588E-01
R = 0.9967E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.6248E-01
B = 0.2799E+00
R = 0.9744E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1058E-01
B = 0.2342E+00
R = 0.9992E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2147E+00

UCL95 STANDARD BOOT = 0.2087E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.2748E+00

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4007E+00

UCL95 T-DISTRIBUTION = 0.2146E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2106E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2339E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3444E+00

UCL95 FROM LOG JACKKNIFE = 0.5036E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.9154E+00

UCL95 FROM H-STATISTIC = 0.4262E+01

all_soil_qsouth_ethylbenzene_data

0.00074
0.00052
0.00142
0.00038
0.00052
0.00023
0.00465
0.00045
0.0029
0.45
0.69
0.00071
0.0044
0.0014
0.0031
0.0035
0.0005
0.00048
0.013
270

all_soil_qsouth_ethylbenzene_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

UCL95(STANDARD BOOTSTRAP)= 0.35322E+02

all_soil_qsouth_ethylbenzene_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.1356E+02
SQUARE ROOT OF VARIANCE= 0.5883E+02
STANDARD DEVIATION= 0.6036E+02
SKEWNESS= 0.4129E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.4452E+01
MINIMUM = 0.2300E-03
MAXIMUM = 0.2700E+03

MEAN OF LOG DATA = -0.5495E+01
STANDARD DEVIATION OF LOG DATA = 0.3385E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.6697E+01

MVUE ESTIMATE OF THE MEAN = 0.3825E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.434E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3272E+00

MLE ESTIMATE OF THE MEAN = 0.1264E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3889E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.2017E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.5075E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1368E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1316E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1285E+02
B = 0.1287E+02
R = 0.9292E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3055E+02
B = 0.4311E+02
R = 0.8551E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1360E+06
B = 0.2634E+06
R = 0.6060E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4055E+02

UCL95 STANDARD BOOT = 0.3532E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.8177E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.8169E+04

UCL95 T-DISTRIBUTION = 0.3690E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3576E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.4908E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.7389E+02

UCL95 FROM LOG JACKKNIFE = 0.6757E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.1845E+01

UCL95 FROM H-STATISTIC = 0.2292E+03

all_soil_qsouth_heptachlor epoxide_data

0.03
0.00105
0.0115
0.00295
0.0115
0.07
0.02425
0.23
0.00023
0.18
0.007
0.012
0.00266
0.0011
0.00057
0.012
0.0005
0.076
0.021
0.058

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

COEFFICIENT OF VARIATION = 0.16545E+01
MAXIMUM DATA VALUE = 0.23000E+00

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.10266E+00

all_soil_qsouth_heptachlor epoxide_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.3762E-01
SQUARE ROOT OF VARIANCE= 0.6066E-01
STANDARD DEVIATION= 0.6224E-01
SKEWNESS= 0.2165E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1655E+01
MINIMUM = 0.2300E-03
MAXIMUM = 0.2300E+00

MEAN OF LOG DATA = -0.4699E+01
STANDARD DEVIATION OF LOG DATA = 0.2005E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4202E+01

MVUE ESTIMATE OF THE MEAN = 0.5326E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.182E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2947E-01

MLE ESTIMATE OF THE MEAN = 0.6799E-01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.5029E+00

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5691E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2646E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.3761E-01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1375E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3730E-01
B = 0.1375E-01
R = 0.9967E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7981E-01
B = 0.3153E+00
R = 0.9429E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1456E-01
B = 0.2495E+00
R = 0.9878E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6201E-01

UCL95 STANDARD BOOT = 0.6022E-01

UCL95 BOOTSTRAP-T FROM SORT = 0.9324E-01

all_soil_qsouth_heptachlor epoxide_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1004E+00

UCL95 T-DISTRIBUTION = 0.6168E-01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.6051E-01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.6771E-01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.9982E-01

UCL95 FROM LOG JACKKNIFE = 0.1027E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.1850E+00

UCL95 FROM H-STATISTIC = 0.4698E+00

all_soil_qsouth_lead_data

1100
14
2300
27
48
1500
615
440
47
1600
1200
62
2300
60
15
30
29
20
2050
3100

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

UCL95(HALLS BOOTSTRAP-T)= 0.12308E+04
```

all_soil_qsouth_lead_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.8278E+03
SQUARE ROOT OF VARIANCE= 0.9678E+03
STANDARD DEVIATION= 0.9929E+03
SKEWNESS= 0.8670E+00
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1199E+01
MINIMUM = 0.1400E+02
MAXIMUM = 0.3100E+04

MEAN OF LOG DATA = 0.5339E+01
STANDARD DEVIATION OF LOG DATA = 0.2034E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4252E+01

MVUE ESTIMATE OF THE MEAN = 0.1278E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.449E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.7174E+03

MLE ESTIMATE OF THE MEAN = 0.1648E+04
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1293E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1386E+04
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6241E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.8287E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2182E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.8270E+03
B = 0.2197E+03
R = 0.9997E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2036E-01
B = 0.2453E+00
R = 0.9962E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1396E-02
B = 0.2237E+00
R = 0.9999E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1197E+04

UCL95 STANDARD BOOT = 0.1188E+04

UCL95 BOOTSTRAP-T FROM SORT = 0.1291E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1231E+04

UCL95 T-DISTRIBUTION = 0.1212E+04

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1193E+04

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1239E+04

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1820E+04

UCL95 FROM LOG JACKKNIFE = 0.2465E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.4484E+04

UCL95 FROM H-STATISTIC = 0.1198E+05

south_maganese_data

510
380
290
320
735
320
595
370
1000
660
380
1400
460
2100
650
755
1000
870
630
600

all_soil_qsouth_maganese_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

COEFFICIENT OF VARIATION = 0.61705E+00
MAXIMUM DATA VALUE = 0.21000E+04

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.85320E+03
```

all_soil_qsouth_maganese_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.7013E+03
SQUARE ROOT OF VARIANCE= 0.4217E+03
STANDARD DEVIATION= 0.4327E+03
SKEWNESS= 0.1886E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.6170E+00
MINIMUM = 0.2900E+03
MAXIMUM = 0.2100E+04

MEAN OF LOG DATA = 0.6414E+01
STANDARD DEVIATION OF LOG DATA = 0.5191E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2016E+01

MVUE ESTIMATE OF THE MEAN = 0.6928E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.375E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.8359E+02

MLE ESTIMATE OF THE MEAN = 0.6981E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3882E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6914E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9358E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.7016E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.9386E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6999E+03
B = 0.9375E+02
R = 0.9978E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5405E-01
B = 0.2716E+00
R = 0.9799E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2098E-01
B = 0.2609E+00
R = 0.9901E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8670E+03

UCL95 STANDARD BOOT = 0.8560E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.9688E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.9635E+03

UCL95 T-DISTRIBUTION = 0.8685E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8604E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.9040E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1134E+04

UCL95 FROM LOG JACKKNIFE = 0.8532E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1066E+04

UCL95 FROM H-STATISTIC = 0.8875E+03

all_soil_qsouth_mercury_data

0.021
0.16
0.96
0.059
0.505
1
0.49
0.275
0.021
2.6
36
5.1
0.052
0.13
3.2
0.078
0.065
0.62
0.036
0.14

all_soil_qsouth_mercury_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

COEFFICIENT OF VARIATION = 0.30975E+01
MAXIMUM DATA VALUE = 0.36000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.35765E+01

all_soil_qsouth_mercury_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.2576E+01
SQUARE ROOT OF VARIANCE= 0.7776E+01
STANDARD DEVIATION= 0.7978E+01
SKEWNESS= 0.3951E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.3097E+01
MINIMUM = 0.2100E-01
MAXIMUM = 0.3600E+02

MEAN OF LOG DATA = -0.1192E+01
STANDARD DEVIATION OF LOG DATA = 0.1990E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4176E+01

MVUE ESTIMATE OF THE MEAN = 0.1732E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.584E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.9510E+00

MLE ESTIMATE OF THE MEAN = 0.2200E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1578E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1574E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1158E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.2578E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1735E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2504E+01
B = 0.1735E+01
R = 0.9724E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4788E+00
B = 0.8530E+00
R = 0.8927E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1309E+00
B = 0.3893E+00
R = 0.9522E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6039E+01

UCL95 STANDARD BOOT = 0.5432E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.2300E+02

all_soil_qsouth_mercury_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2426E+02

UCL95 T-DISTRIBUTION = 0.5660E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5510E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7195E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1055E+02

UCL95 FROM LOG JACKKNIFE = 0.3576E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.5983E+01

UCL95 FROM H-STATISTIC = 0.1480E+02

_soil_qsouth_nickel_data

62
120
17
320
500
100
55
2730
22
58
22
56
22
29
12
77
27
19
11
16

all_soil_qsouth_nickel_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

UCL95(STANDARD BOOTSTRAP)= 0.43055E+03
```

all_soil_qsouth_nickel_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.2138E+03
SQUARE ROOT OF VARIANCE= 0.5890E+03
STANDARD DEVIATION= 0.6043E+03
SKEWNESS= 0.3881E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.2827E+01
MINIMUM = 0.1100E+02
MAXIMUM = 0.2730E+04

MEAN OF LOG DATA = 0.3961E+01
STANDARD DEVIATION OF LOG DATA = 0.1389E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3168E+01

MVUE ESTIMATE OF THE MEAN = 0.1266E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.232E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4644E+02

MLE ESTIMATE OF THE MEAN = 0.1378E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3341E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1141E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6691E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2128E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1324E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2068E+03
B = 0.1312E+03
R = 0.9767E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4119E+00
B = 0.7642E+00
R = 0.8920E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1233E+00
B = 0.3998E+00
R = 0.9051E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4722E+03

UCL95 STANDARD BOOT = 0.4305E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.1657E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3227E+04

UCL95 T-DISTRIBUTION = 0.4474E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4360E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5614E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.8178E+03

UCL95 FROM LOG JACKKNIFE = 0.2298E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.3342E+03

UCL95 FROM H-STATISTIC = 0.3780E+03

all_soil_qsouth_pentachlorophenol_data

0.0052
0.002
0.013
0.0155
0.0024
470
0.0905
0.01
0.0125
0.013
0.0055
0.002
240
2.95
0.41
0.01525
0.036
0.0675
0.0015
0.0011

all_soil_qsouth_pentachlorophenol_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

UCL95(STANDARD BOOTSTRAP)= 0.77356E+02
```

all_soil_qsouth_pentachlorophenol_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.3568E+02
SQUARE ROOT OF VARIANCE= 0.1125E+03
STANDARD DEVIATION= 0.1154E+03
SKEWNESS= 0.3150E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.3234E+01
MINIMUM = 0.1100E-02
MAXIMUM = 0.4700E+03

MEAN OF LOG DATA = -0.3243E+01
STANDARD DEVIATION OF LOG DATA = 0.3654E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7195E+01

MVUE ESTIMATE OF THE MEAN = 0.6865E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.961E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.6107E+01

MLE ESTIMATE OF THE MEAN = 0.3094E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2451E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.2063E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9966E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.3562E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2537E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3445E+02
B = 0.2573E+02
R = 0.9849E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5080E+01
B = 0.1026E+02
R = 0.5952E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.6243E+04
B = 0.1337E+05
R = 0.4990E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8271E+02

UCL95 STANDARD BOOT = 0.7736E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.6283E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.6279E+04

UCL95 T-DISTRIBUTION = 0.8030E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7813E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.9755E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1510E+03

UCL95 FROM LOG JACKKNIFE = 0.1517E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.3416E+02

UCL95 FROM H-STATISTIC = 0.1288E+05

all_soil_qsouth_toulene_data

0.0065
0.019
0.018
0.0044
0.42
0.00465
0.0055
0.0031
0.0036
0.00465
0.0013
0.0053
0.0053
0.0038
0.0034
0.0012
0.0018
0.0042
1300
0.001

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

UCL95(STANDARD BOOTSTRAP)= 0.16911E+03

all_soil_qsouth_toulene_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.6503E+02
SQUARE ROOT OF VARIANCE= 0.2833E+03
STANDARD DEVIATION= 0.2907E+03
SKEWNESS= 0.4129E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.4470E+01
MINIMUM = 0.1000E-02
MAXIMUM = 0.1300E+04

MEAN OF LOG DATA = -0.4665E+01
STANDARD DEVIATION OF LOG DATA = 0.3067E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.6110E+01

MVUE ESTIMATE OF THE MEAN = 0.4282E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.376E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3446E+00

MLE ESTIMATE OF THE MEAN = 0.1038E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1144E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.4035E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.5020E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6481E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.6340E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6160E+02
B = 0.6195E+02
R = 0.9283E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1493E+04
B = 0.2808E+04
R = 0.6278E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2928E+11
B = 0.6233E+11
R = 0.5091E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1950E+03

UCL95 STANDARD BOOT = 0.1691E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.4024E+07

all_soil_qsouth_toulene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3943E+07

UCL95 T-DISTRIBUTION = 0.1774E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1719E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2361E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3556E+03

UCL95 FROM LOG JACKKNIFE = 0.4644E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.1969E+01

UCL95 FROM H-STATISTIC = 0.7639E+02

_qsouth_total PCBS_data

2.792
0.0513
1.50035
1.3015
13.5245
10.023
2.9041
0.7089
1.1415
0.05395
0.552
0.04825
0.0512
0.05465
10.905
8.19
0.60275
1.635
25.0367
32.05

all_soil_qsouth_total PCBS_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

COEFFICIENT OF VARIATION = 0.15755E+01
MAXIMUM DATA VALUE = 0.32050E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.19040E+02

all_soil_qsouth_total PCBS_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.5656E+01
SQUARE ROOT OF VARIANCE= 0.8686E+01
STANDARD DEVIATION= 0.8911E+01
SKEWNESS= 0.1891E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.1575E+01
MINIMUM = 0.4825E-01
MAXIMUM = 0.3205E+02

MEAN OF LOG DATA = 0.1615E+00
STANDARD DEVIATION OF LOG DATA = 0.2192E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4531E+01

MVUE ESTIMATE OF THE MEAN = 0.9447E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.386E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5725E+01

MLE ESTIMATE OF THE MEAN = 0.1300E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1432E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1047E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4955E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.5652E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1960E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.5615E+01
B = 0.1966E+01
R = 0.9972E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5874E-01
B = 0.2804E+00
R = 0.9723E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.7775E-02
B = 0.2352E+00
R = 0.9978E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.9152E+01

UCL95 STANDARD BOOT = 0.8876E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1181E+02

all_soil_qsouth_total PCBS_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1558E+02

UCL95 T-DISTRIBUTION = 0.9102E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8934E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.9835E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1456E+02

UCL95 FROM LOG JACKKNIFE = 0.1904E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.3504E+02

UCL95 FROM H-STATISTIC = 0.1269E+03

all_soil_qsouth_trichloroethylene_data

0.00365
0.0017
0.0014
0.0031
0.38
0.0055
0.0017
0.0027
0.0022
0.0029
0.00375
0.0031
0.0032
0.0076
0.0034
0.0035
0.0016
0.00125
0.0013
0.00305

all_soil_qsouth_trichloroethylene_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 20

UCL95(STANDARD BOOTSTRAP)= 0.51594E-01

all_soil_qsouth_trichloroethylene_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.2183E-01
SQUARE ROOT OF VARIANCE= 0.8218E-01
STANDARD DEVIATION= 0.8432E-01
SKEWNESS= 0.4127E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.3862E+01
MINIMUM = 0.1250E-02
MAXIMUM = 0.3800E+00

MEAN OF LOG DATA = -0.5682E+01
STANDARD DEVIATION OF LOG DATA = 0.1207E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2886E+01

MVUE ESTIMATE OF THE MEAN = 0.6661E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.997E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2074E-02

MLE ESTIMATE OF THE MEAN = 0.7055E-02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1280E-01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5386E-02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3805E-02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2166E-01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1820E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2085E-01
B = 0.1801E-01
R = 0.9340E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4814E+01
B = 0.6699E+01
R = 0.8614E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2386E+02
B = 0.4156E+02
R = 0.7350E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5942E-01

UCL95 STANDARD BOOT = 0.5159E-01

UCL95 BOOTSTRAP-T FROM SORT = 0.1621E+01

all_soil_qsouth_trichloroethylene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1213E+01

UCL95 T-DISTRIBUTION = 0.5443E-01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5284E-01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7144E-01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1061E+00

UCL95 FROM LOG JACKKNIFE = 0.1196E-01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1593E-01

UCL95 FROM H-STATISTIC = 0.1569E-01

all_soil_qsouth_xylenestotal_data

0.0095
0.0017
0.0026
0.006
0.1585
0.0012
0.0044
0.00089
0.0024
0.0036
0.015
0.00078
0.00074
3.9
0.0008
0.00056
1900
2.2
0.0062
0.0018

all_soil_qsouth_xylenestotal_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  20

UCL95(STANDARD BOOTSTRAP)= 0.25159E+03
```

all_soil_qsouth_xylenestotal_sboot

NUMBER OF DATA POINTS = 20
MEAN= 0.9532E+02
SQUARE ROOT OF VARIANCE= 0.4140E+03
STANDARD DEVIATION= 0.4248E+03
SKEWNESS= 0.4129E+01
CRITICAL SKEWNESS = 0.7720E+00
COEFFICIENT OF VARIATION= 0.4457E+01
MINIMUM = 0.5600E-03
MAXIMUM = 0.1900E+04

MEAN OF LOG DATA = -0.4483E+01
STANDARD DEVIATION OF LOG DATA = 0.3772E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7416E+01

MVUE ESTIMATE OF THE MEAN = 0.2650E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.406E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2392E+01

MLE ESTIMATE OF THE MEAN = 0.1390E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1712E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.1978E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3819E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.9623E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.9445E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.9033E+02
B = 0.9058E+02
R = 0.9290E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4127E+02
B = 0.5915E+02
R = 0.8506E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3744E+06
B = 0.7341E+06
R = 0.5772E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2853E+03

UCL95 STANDARD BOOT = 0.2516E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.8264E+05

all_soil_qsouth_xylenestotal_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.8243E+05

UCL95 T-DISTRIBUTION = 0.2595E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2516E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3453E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.5199E+03

UCL95 FROM LOG JACKKNIFE = 0.4626E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1334E+02

UCL95 FROM H-STATISTIC = 0.8523E+04

all_soil_qnorth_1 2 dichloroethane_data

0.0036
0.00405
0.004
0.0027
0.00425
0.6
0.00285
0.0047
4
0.00445
0.0037
0.00475
0.195
0.00415
0.00285

all_soil_qnorth_1 2 dichloroethane_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.74270E+00

all_soil_qnorth_1 2 dichloroethane_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.3227E+00
SQUARE ROOT OF VARIANCE= 0.9945E+00
STANDARD DEVIATION= 0.1029E+01
SKEWNESS= 0.3345E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.3190E+01
MINIMUM = 0.2700E-02
MAXIMUM = 0.4000E+01

MEAN OF LOG DATA = -0.4515E+01
STANDARD DEVIATION OF LOG DATA = 0.2287E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5130E+01

MVUE ESTIMATE OF THE MEAN = 0.9499E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.358E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.6374E-01

MLE ESTIMATE OF THE MEAN = 0.1495E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2037E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.4067E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1017E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.3219E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2558E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3093E+00
B = 0.2568E+00
R = 0.9709E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.8854E+00
B = 0.1621E+01
R = 0.8043E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4393E+01
B = 0.9687E+01
R = 0.4881E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8286E+00

UCL95 STANDARD BOOT = 0.7427E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.6708E+01

all_soil_qnorth_1 2 dichloroethane_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.6708E+01

UCL95 T-DISTRIBUTION = 0.7908E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7600E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1005E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1511E+01

UCL95 FROM LOG JACKKNIFE = 0.2197E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.3799E+00

UCL95 FROM H-STATISTIC = 0.3437E+01

all_soil_qnorth_2378TCDDTEQ_data

5.27315E-05
0.0114545
0.008654
0.00005493
0.0011845
0.00010685
0.0006209
4.32535E-05
0.000096675
0.000135785
0.05513625
0.000764325
0.000078565
6.49315E-05
0.000151145

all_soil_qnorth_2378TCDDTEQ_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.11056E-01

all_soil_qnorth_2378TCDDTEQ_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.5240E-02
SQUARE ROOT OF VARIANCE= 0.1375E-01
STANDARD DEVIATION= 0.1423E-01
SKEWNESS= 0.3153E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.2717E+01
MINIMUM = 0.4325E-04
MAXIMUM = 0.5514E-01

MEAN OF LOG DATA = -0.7887E+01
STANDARD DEVIATION OF LOG DATA = 0.2260E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5077E+01

MVUE ESTIMATE OF THE MEAN = 0.3116E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.115E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2070E-02

MLE ESTIMATE OF THE MEAN = 0.4831E-02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.6196E-01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2304E-02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2875E-02

AVERAGE OF BOOTSTRAPPED VALUES = 0.5219E-02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3548E-02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.5081E-02
B = 0.3516E-02
R = 0.9829E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3512E+00
B = 0.7037E+00
R = 0.9070E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.9682E-01
B = 0.3811E+00
R = 0.9600E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1205E-01

UCL95 STANDARD BOOT = 0.1106E-01

UCL95 BOOTSTRAP-T FROM SORT = 0.3399E-01

all_soil_qnorth_2378TCDDTEQ_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3399E-01

UCL95 T-DISTRIBUTION = 0.1171E-01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1129E-01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1448E-01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2167E-01

UCL95 FROM LOG JACKKNIFE = 0.7367E-02

UCL95 LN CHEBYCHEV INEQUALITY = 0.1237E-01

UCL95 FROM H-STATISTIC = 0.1038E+00

all_soil_qnorth_246trichlorophenol_data

0.19
0.215
1
0.2
0.95
0.175
0.2
1
0.95
0.195
1.4
0.185
47
0.9

all_soil_qnorth_246trichlorophenol_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 14

UCL95(T-DIST.) = 0.97727E+01

all_soil_qnorth_246trichlorophenol_sboot

NUMBER OF DATA POINTS = 14
MEAN= 0.3897E+01
SQUARE ROOT OF VARIANCE= 0.1196E+02
STANDARD DEVIATION= 0.1241E+02
SKEWNESS= 0.3321E+01
CRITICAL SKEWNESS = 0.8700E+00
COEFFICIENT OF VARIATION= 0.3185E+01
MINIMUM = 0.1750E+00
MAXIMUM = 0.4700E+02

MEAN OF LOG DATA = -0.5359E+00
STANDARD DEVIATION OF LOG DATA = 0.1514E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3717E+01

MVUE ESTIMATE OF THE MEAN = 0.1589E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.305E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.7250E+00

MLE ESTIMATE OF THE MEAN = 0.1840E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.5487E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1224E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1069E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.3904E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3208E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3732E+01
B = 0.3178E+01
R = 0.9391E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2806E+01
B = 0.3780E+01
R = 0.8503E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2319E+01
B = 0.4041E+01
R = 0.7938E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1050E+02

UCL95 STANDARD BOOT = 0.9181E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1138E+03

all_soil_qnorth_246trichlorophenol_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1045E+03

UCL95 T-DISTRIBUTION = 0.9773E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.9355E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1250E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1873E+02

UCL95 FROM LOG JACKKNIFE = 0.3117E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.4829E+01

UCL95 FROM H-STATISTIC = 0.8764E+01

all_soil_qnorth_24dichlorophenol_data

0.195
0.2
0.215
0.03
0.175
0.2
0.95
1
1
65
270
2.9
0.185
0.9
0.95

all_soil_qnorth_24dichlorophenol_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.51861E+02

all_soil_qnorth_24dichlorophenol_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.2293E+02
SQUARE ROOT OF VARIANCE= 0.6795E+02
STANDARD DEVIATION= 0.7033E+02
SKEWNESS= 0.3191E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.3068E+01
MINIMUM = 0.3000E-01
MAXIMUM = 0.2700E+03

MEAN OF LOG DATA = -0.1799E+00
STANDARD DEVIATION OF LOG DATA = 0.2358E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5272E+01

MVUE ESTIMATE OF THE MEAN = 0.8193E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.326E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5643E+01

MLE ESTIMATE OF THE MEAN = 0.1346E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2165E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.4448E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.8238E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.2289E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1761E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2200E+02
B = 0.1789E+02
R = 0.9786E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3145E+01
B = 0.6255E+01
R = 0.6210E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1957E+03
B = 0.4202E+03
R = 0.4959E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5859E+02

UCL95 STANDARD BOOT = 0.5186E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.2188E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2227E+04

UCL95 T-DISTRIBUTION = 0.5491E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5280E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.6879E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1041E+03

UCL95 FROM LOG JACKKNIFE = 0.1896E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.3342E+02

UCL95 FROM H-STATISTIC = 0.3731E+03

all_soil_qnorth_2nitroailine_data

4.8
4.95
4.55
2.05
5
0.95
1
1.05
5
0.95
20
0.9
1.1
1

all_soil_qnorth_2nitroailine_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  14

UCL95(T-DIST.) = 0.61790E+01
```

all_soil_qnorth_2nitroailine_sboot

NUMBER OF DATA POINTS = 14
MEAN= 0.3807E+01
SQUARE ROOT OF VARIANCE= 0.4829E+01
STANDARD DEVIATION= 0.5011E+01
SKEWNESS= 0.2595E+01
CRITICAL SKEWNESS = 0.8700E+00
COEFFICIENT OF VARIATION= 0.1316E+01
MINIMUM = 0.9000E+00
MAXIMUM = 0.2000E+02

MEAN OF LOG DATA = 0.8251E+00
STANDARD DEVIATION OF LOG DATA = 0.9798E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2759E+01

MVUE ESTIMATE OF THE MEAN = 0.3520E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.385E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.9987E+00

MLE ESTIMATE OF THE MEAN = 0.3688E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4683E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3449E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1192E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.3795E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1291E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3753E+01
B = 0.1279E+01
R = 0.9905E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1797E+00
B = 0.4537E+00
R = 0.9559E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1063E+00
B = 0.3951E+00
R = 0.9665E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6207E+01

UCL95 STANDARD BOOT = 0.5919E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.9106E+01

all_soil_qnorth_2nitroailine_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.8484E+01

UCL95 T-DISTRIBUTION = 0.6179E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.6010E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7003E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.9794E+01

UCL95 FROM LOG JACKKNIFE = 0.5560E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.7984E+01

UCL95 FROM H-STATISTIC = 0.7806E+01

0.82
1.2
84
0.54
1.8
1.6
0.9
0.81
1.1
8.2
4.3
0.84
1.9
0.71
7.9

all_soil_qnorth_antimony_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.16579E+02

all_soil_qnorth_antimony_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.7775E+01
SQUARE ROOT OF VARIANCE= 0.2052E+02
STANDARD DEVIATION= 0.2124E+02
SKEWNESS= 0.3394E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.2731E+01
MINIMUM = 0.5400E+00
MAXIMUM = 0.8400E+02

MEAN OF LOG DATA = 0.6927E+00
STANDARD DEVIATION OF LOG DATA = 0.1334E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3311E+01

MVUE ESTIMATE OF THE MEAN = 0.4412E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.722E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1715E+01

MLE ESTIMATE OF THE MEAN = 0.4865E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1080E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3809E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2548E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.7796E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5339E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.7537E+01
B = 0.5290E+01
R = 0.9621E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7625E+00
B = 0.1241E+01
R = 0.8916E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4344E+00
B = 0.1015E+01
R = 0.7097E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1844E+02

UCL95 STANDARD BOOT = 0.1658E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.7815E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.7721E+02

UCL95 T-DISTRIBUTION = 0.1743E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1679E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2193E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3228E+02

UCL95 FROM LOG JACKKNIFE = 0.8295E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1208E+02

UCL95 FROM H-STATISTIC = 0.1584E+02

all_soil_qnorth_arsenic_data

6.8
8.9
11
13
10
6
27
7.9
6.3
9.1
3.1
10
5.6
40
12

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

COEFFICIENT OF VARIATION = 0.80814E+00
MAXIMUM DATA VALUE = 0.40000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.15378E+02

all_soil_qnorth_arsenic_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.1178E+02
SQUARE ROOT OF VARIANCE= 0.9197E+01
STANDARD DEVIATION= 0.9520E+01
SKEWNESS= 0.2101E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.8081E+00
MINIMUM = 0.3100E+01
MAXIMUM = 0.4000E+02

MEAN OF LOG DATA = 0.2260E+01
STANDARD DEVIATION OF LOG DATA = 0.6211E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2206E+01

MVUE ESTIMATE OF THE MEAN = 0.1145E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.747E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1918E+01

MLE ESTIMATE OF THE MEAN = 0.1162E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.7976E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1138E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2270E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1179E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2360E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1173E+02
B = 0.2369E+01
R = 0.9960E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1290E+00
B = 0.4259E+00
R = 0.9073E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.8600E-01
B = 0.4214E+00
R = 0.8862E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1603E+02

UCL95 STANDARD BOOT = 0.1567E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.2395E+02

all_soil_qnorth_arsenic_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2289E+02

UCL95 T-DISTRIBUTION = 0.1611E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1582E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1725E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2277E+02

UCL95 FROM LOG JACKKNIFE = 0.1538E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2002E+02

UCL95 FROM H-STATISTIC = 0.1677E+02

all_soil_qnorth_barium_data

87
61
2900
170
1400
81
110
150
1100
7200
85
120
230
6700
260

all_soil_qnorth_barium_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  15

UCL95(HALLS BOOTSTRAP-T)= 0.30255E+04
```

all_soil_qnorth_barium_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.1377E+04
SQUARE ROOT OF VARIANCE= 0.2311E+04
STANDARD DEVIATION= 0.2392E+04
SKEWNESS= 0.1797E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.1737E+01
MINIMUM = 0.6100E+02
MAXIMUM = 0.7200E+04

MEAN OF LOG DATA = 0.5864E+01
STANDARD DEVIATION OF LOG DATA = 0.1662E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3915E+01

MVUE ESTIMATE OF THE MEAN = 0.1171E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.262E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5773E+03

MLE ESTIMATE OF THE MEAN = 0.1402E+04
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.5402E+04

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1079E+04
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.7376E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.1384E+04

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5986E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1370E+04
B = 0.6028E+03
R = 0.9964E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.9277E-01
B = 0.3760E+00
R = 0.9186E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.3358E-03
B = 0.2562E+00
R = 0.9968E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2457E+04

UCL95 STANDARD BOOT = 0.2369E+04

UCL95 BOOTSTRAP-T FROM SORT = 0.4172E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3025E+04

UCL95 T-DISTRIBUTION = 0.2464E+04

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2393E+04

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2699E+04

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.4138E+04

UCL95 FROM LOG JACKKNIFE = 0.2378E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.3751E+04

UCL95 FROM H-STATISTIC = 0.7980E+04

all_soil_qnorth_benzene_data

0.0015
0.00285
0.00076
0.00076
0.0011
0.0027
8.8
0.43
0.0037
0.0036
0.00285
0.00445
0.024
0.87
0.00475

all_soil_qnorth_benzene_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.16061E+01

all_soil_qnorth_benzene_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.6769E+00
SQUARE ROOT OF VARIANCE= 0.2183E+01
STANDARD DEVIATION= 0.2260E+01
SKEWNESS= 0.3409E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.3339E+01
MINIMUM = 0.7600E-03
MAXIMUM = 0.8800E+01

MEAN OF LOG DATA = -0.4656E+01
STANDARD DEVIATION OF LOG DATA = 0.2811E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.6186E+01

MVUE ESTIMATE OF THE MEAN = 0.2145E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.119E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1688E+00

MLE ESTIMATE OF THE MEAN = 0.4943E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2571E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6777E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2608E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6840E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5605E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6708E+00
B = 0.5519E+00
R = 0.9598E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.9111E+00
B = 0.1617E+01
R = 0.8307E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3547E+01
B = 0.7853E+01
R = 0.4896E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1820E+01

UCL95 STANDARD BOOT = 0.1606E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1390E+02

all_soil_qnorth_benzene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1390E+02

UCL95 T-DISTRIBUTION = 0.1704E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1637E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2186E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3285E+01

UCL95 FROM LOG JACKKNIFE = 0.5271E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.9690E+00

UCL95 FROM H-STATISTIC = 0.5158E+02

all_soil_qnorth_benzoaanthracene_data

1.7
0.11
2.9
1.8
1.3
0.51
1.7
0.57
0.4
1
1.5
0.38
1.3
2.1

all_soil_qnorth_benzoaanthracene_mstat

0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NORMAL-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

UCL95(T-DIST.) = 0.16064E+01

all_soil_qnorth_benzoaanthracene_sboot

NUMBER OF DATA POINTS = 14
MEAN= 0.1234E+01
SQUARE ROOT OF VARIANCE= 0.7591E+00
STANDARD DEVIATION= 0.7878E+00
SKEWNESS= 0.3884E+00
CRITICAL SKEWNESS = 0.8700E+00
COEFFICIENT OF VARIATION= 0.6386E+00
MINIMUM = 0.1100E+00
MAXIMUM = 0.2900E+01

MEAN OF LOG DATA = -0.6719E-01
STANDARD DEVIATION OF LOG DATA = 0.8879E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2612E+01

MVUE ESTIMATE OF THE MEAN = 0.1337E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.130E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3403E+00

MLE ESTIMATE OF THE MEAN = 0.1387E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1519E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1363E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2400E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1234E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2027E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1233E+01
B = 0.2035E+00
R = 0.9998E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1164E-01
B = 0.2916E+00
R = 0.9993E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4155E-02
B = 0.2821E+00
R = 0.9998E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1576E+01

UCL95 STANDARD BOOT = 0.1567E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1628E+01

all_soil_qnorth_benzoaanthracene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1591E+01

UCL95 T-DISTRIBUTION = 0.1606E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1580E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1603E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2175E+01

UCL95 FROM LOG JACKKNIFE = 0.1788E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.2858E+01

UCL95 FROM H-STATISTIC = 0.2639E+01

all_soil_qnorth_benzoapyrene_data

2.7
1.7
1.6
2
1.9
0.13
1.4
1.2
1.8
0.58
0.34
0.42
0.98
1.7

all_soil_qnorth_benzoapyrene_mstat

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NORMAL-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


UCL95(T-DIST.) = 0.16694E+01
```

all_soil_qnorth_benzoapyrene_sboot

NUMBER OF DATA POINTS = 14
MEAN= 0.1318E+01
SQUARE ROOT OF VARIANCE= 0.7157E+00
STANDARD DEVIATION= 0.7427E+00
SKEWNESS= -0.7308E-01
CRITICAL SKEWNESS = 0.8700E+00
COEFFICIENT OF VARIATION= 0.5636E+00
MINIMUM = 0.1300E+00
MAXIMUM = 0.2700E+01

MEAN OF LOG DATA = 0.2962E-01
STANDARD DEVIATION OF LOG DATA = 0.8557E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2563E+01

MVUE ESTIMATE OF THE MEAN = 0.1437E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.134E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3512E+00

MLE ESTIMATE OF THE MEAN = 0.1485E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1543E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1467E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2178E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1317E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1940E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1317E+01
B = 0.1956E+00
R = 0.1000E+01

QUANTILE ANALYSIS FOR "W" VALUES
A = 0.2531E-02
B = 0.2976E+00
R = 0.9994E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3156E-02
B = 0.2838E+00
R = 0.9999E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1640E+01

UCL95 STANDARD BOOT = 0.1636E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1668E+01

all_soil_qnorth_benzoapyrene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1680E+01

UCL95 T-DISTRIBUTION = 0.1669E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1644E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1640E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2205E+01

UCL95 FROM LOG JACKKNIFE = 0.1853E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.3006E+01

UCL95 FROM H-STATISTIC = 0.2729E+01

all_soil_qnorth_benzobfluoranthene_data

0.99
0.11
1.8
1.8
0.55
2.2
1.6
0.37
1.9
1
0.48
0.39
1.8
1.5

all_soil_qnorth_benzobfluoranthene_mstat

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NORMAL-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


UCL95(T-DIST.) = 0.15092E+01
```

all_soil_qnorth_benzobfluoranthene_sboot

NUMBER OF DATA POINTS = 14
MEAN= 0.1178E+01
SQUARE ROOT OF VARIANCE= 0.6746E+00
STANDARD DEVIATION= 0.7001E+00
SKEWNESS= -0.1298E+00
CRITICAL SKEWNESS = 0.8700E+00
COEFFICIENT OF VARIATION= 0.5944E+00
MINIMUM = 0.1100E+00
MAXIMUM = 0.2200E+01

MEAN OF LOG DATA = -0.1011E+00
STANDARD DEVIATION OF LOG DATA = 0.8751E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2592E+01

MVUE ESTIMATE OF THE MEAN = 0.1279E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.122E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3206E+00

MLE ESTIMATE OF THE MEAN = 0.1325E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1422E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1305E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2176E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1179E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1814E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1180E+01
B = 0.1824E+00
R = 0.1000E+01

QUANTILE ANALYSIS FOR "W" VALUES
A = 0.7496E-02
B = 0.2909E+00
R = 0.9993E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1725E-02
B = 0.2647E+00
R = 0.9999E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1476E+01

UCL95 STANDARD BOOT = 0.1478E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1498E+01

all_soil_qnorth_benzobfluoranthene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1511E+01

UCL95 T-DISTRIBUTION = 0.1509E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1486E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1479E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2014E+01

UCL95 FROM LOG JACKKNIFE = 0.1691E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.2712E+01

UCL95 FROM H-STATISTIC = 0.2487E+01

all_soil_qnorth_cadmuim_data

4
0.57
0.66
5.1
0.82
51
8.9
92
6.2
2.5
0.4
1.3
1.5
1
8

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  15

COEFFICIENT OF VARIATION = 0.20727E+01
MAXIMUM DATA VALUE = 0.92000E+02

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.18849E+02
```

all_soil_qnorth_cadmuim_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.1226E+02
SQUARE ROOT OF VARIANCE= 0.2456E+02
STANDARD DEVIATION= 0.2542E+02
SKEWNESS= 0.2488E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.2073E+01
MINIMUM = 0.4000E+00
MAXIMUM = 0.9200E+02

MEAN OF LOG DATA = 0.1137E+01
STANDARD DEVIATION OF LOG DATA = 0.1603E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3803E+01

MVUE ESTIMATE OF THE MEAN = 0.9573E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.203E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4542E+01

MLE ESTIMATE OF THE MEAN = 0.1126E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3911E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.8805E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.5704E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1229E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.6467E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1206E+02
B = 0.6519E+01
R = 0.9938E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3549E+00
B = 0.8481E+00
R = 0.7557E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1031E+00
B = 0.4564E+00
R = 0.8506E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2410E+02

UCL95 STANDARD BOOT = 0.2292E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.9640E+02

all_soil_qnorth_cadmuim_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.8519E+02

UCL95 T-DISTRIBUTION = 0.2382E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2306E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2756E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.4160E+02

UCL95 FROM LOG JACKKNIFE = 0.1885E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2988E+02

UCL95 FROM H-STATISTIC = 0.5744E+02

all_soil_qnorth_dibenzo ah anthracene_data

0.37
0.18
0.066
0.11
0.185
0.26
0.13
0.4
0.2

all_soil_qnorth_dibenzo ah anthracene_mstat

0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NORMAL-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

UCL95(T-DIST.) = 0.28155E+00

all_soil_qnorth_dibenzo ah anthracene_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.2112E+00
SQUARE ROOT OF VARIANCE= 0.1070E+00
STANDARD DEVIATION= 0.1134E+00
SKEWNESS= 0.5596E+00
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.5371E+00
MINIMUM = 0.6600E-01
MAXIMUM = 0.4000E+00

MEAN OF LOG DATA = -0.1693E+01
STANDARD DEVIATION OF LOG DATA = 0.5760E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2399E+01

MVUE ESTIMATE OF THE MEAN = 0.2128E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.125E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4160E-01

MLE ESTIMATE OF THE MEAN = 0.2172E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1363E+00

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2134E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3885E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.2113E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3544E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2111E+00
B = 0.3562E-01
R = 0.9996E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4213E-01
B = 0.4014E+00
R = 0.9865E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1589E-01
B = 0.3733E+00
R = 0.9825E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2713E+00

UCL95 STANDARD BOOT = 0.2696E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.3077E+00

all_soil_qnorth_dibenzo ah anthracene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3001E+00

UCL95 T-DISTRIBUTION = 0.2816E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2734E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2810E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3802E+00

UCL95 FROM LOG JACKKNIFE = 0.2857E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.3987E+00

UCL95 FROM H-STATISTIC = 0.3540E+00

all_soil_qnorth_deldrin_data

0.018
1.2
0.077
0.013
0.011
0.054
0.0375
0.004
0.024
0.002
0.0064
3.2
0.1
0.0035
0.43

all_soil_qnorth_deldrin_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

COEFFICIENT OF VARIATION = 0.24590E+01
MAXIMUM DATA VALUE = 0.32000E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.58386E+00

all_soil_qnorth_dieldrin_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.3454E+00
SQUARE ROOT OF VARIANCE= 0.8205E+00
STANDARD DEVIATION= 0.8493E+00
SKEWNESS= 0.2836E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.2459E+01
MINIMUM = 0.2000E-02
MAXIMUM = 0.3200E+01

MEAN OF LOG DATA = -0.3307E+01
STANDARD DEVIATION OF LOG DATA = 0.2156E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4870E+01

MVUE ESTIMATE OF THE MEAN = 0.2553E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.869E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1626E+00

MLE ESTIMATE OF THE MEAN = 0.3738E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3798E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2177E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2079E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.3422E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2096E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3356E+00
B = 0.2118E+00
R = 0.9913E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3168E+00
B = 0.7292E+00
R = 0.8203E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1412E+00
B = 0.5242E+00
R = 0.7439E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.7363E+00

UCL95 STANDARD BOOT = 0.6871E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.2654E+01

all_soil_qnorth_dieldrin_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2644E+01

UCL95 T-DISTRIBUTION = 0.7315E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7061E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.8777E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1326E+01

UCL95 FROM LOG JACKKNIFE = 0.5839E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.9821E+00

UCL95 FROM H-STATISTIC = 0.6182E+01

all_soil_qnorth_ethylbenzene_data

40
0.99
0.00415
0.00425
0.007
0.00079
11
0.00475
0.0027
0.0037
0.00285
0.00058
0.00034
0.00405
0.00019

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.77759E+01

all_soil_qnorth_ethylbenzene_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.3468E+01
SQUARE ROOT OF VARIANCE= 0.1014E+02
STANDARD DEVIATION= 0.1049E+02
SKEWNESS= 0.3114E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.3025E+01
MINIMUM = 0.1900E-03
MAXIMUM = 0.4000E+02

MEAN OF LOG DATA = -0.4614E+01
STANDARD DEVIATION OF LOG DATA = 0.3664E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7934E+01

MVUE ESTIMATE OF THE MEAN = 0.1320E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.128E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1198E+01

MLE ESTIMATE OF THE MEAN = 0.8143E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.6692E+04

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.2121E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2002E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.3472E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2616E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3328E+01
B = 0.2624E+01
R = 0.9857E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1384E+01
B = 0.2801E+01
R = 0.6587E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.5672E+02
B = 0.1225E+03
R = 0.4885E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8335E+01

UCL95 STANDARD BOOT = 0.7776E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1435E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1435E+03

UCL95 T-DISTRIBUTION = 0.8240E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7925E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1025E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1558E+02

UCL95 FROM LOG JACKKNIFE = 0.3313E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.6675E+01

UCL95 FROM H-STATISTIC = 0.1926E+05

all_soil_qnorth_lead_data

270
500
550
230
380
1400
1100
150
24000
200
85
64
63
340
20

all_soil_qnorth_lead_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  15

COEFFICIENT OF VARIATION = 0.31227E+01
MAXIMUM DATA VALUE = 0.24000E+05

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.19846E+04
```

all_soil_qnorth_lead_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.1957E+04
SQUARE ROOT OF VARIANCE= 0.5903E+04
STANDARD DEVIATION= 0.6111E+04
SKEWNESS= 0.3450E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.3123E+01
MINIMUM = 0.2000E+02
MAXIMUM = 0.2400E+05

MEAN OF LOG DATA = 0.5714E+01
STANDARD DEVIATION OF LOG DATA = 0.1657E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3904E+01

MVUE ESTIMATE OF THE MEAN = 0.1001E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.223E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4917E+03

MLE ESTIMATE OF THE MEAN = 0.1196E+04
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4566E+04

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.8427E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6485E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.1951E+04

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1520E+04

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1880E+04
B = 0.1516E+04
R = 0.9481E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1487E+01
B = 0.2213E+01
R = 0.8757E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1044E+01
B = 0.2101E+01
R = 0.7182E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5071E+04

UCL95 STANDARD BOOT = 0.4451E+04

UCL95 BOOTSTRAP-T FROM SORT = 0.3953E+05

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3826E+05

UCL95 T-DISTRIBUTION = 0.4735E+04

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4552E+04

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.6054E+04

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.9009E+04

UCL95 FROM LOG JACKKNIFE = 0.1985E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.3199E+04

UCL95 FROM H-STATISTIC = 0.6740E+04

0.063
510
0.099
0.01
0.42
0.002
0.0055
0.03
0.047
290
0.013
0.17
0.096
0.0115
180

all_soil_qnorth_pentachlorophenol_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  15

UCL95(HALLS BOOTSTRAP-T)= 0.16294E+03
```

all_soil_qnorth_pentachlorophenol_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.6540E+02
SQUARE ROOT OF VARIANCE= 0.1443E+03
STANDARD DEVIATION= 0.1494E+03
SKEWNESS= 0.2159E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.2284E+01
MINIMUM = 0.2000E-02
MAXIMUM = 0.5100E+03

MEAN OF LOG DATA = -0.1624E+01
STANDARD DEVIATION OF LOG DATA = 0.4037E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.8706E+01

MVUE ESTIMATE OF THE MEAN = 0.6122E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.737E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5744E+02

MLE ESTIMATE OF THE MEAN = 0.6815E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2356E+07

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.5333E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9967E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.6541E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3732E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6470E+02
B = 0.3708E+02
R = 0.9932E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1081E+00
B = 0.3879E+00
R = 0.9296E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.2454E-02
B = 0.2445E+00
R = 0.9956E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1334E+03

UCL95 STANDARD BOOT = 0.1268E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.2369E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1629E+03

UCL95 T-DISTRIBUTION = 0.1333E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1288E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1518E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2378E+03

UCL95 FROM LOG JACKKNIFE = 0.1702E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.3180E+03

UCL95 FROM H-STATISTIC = 0.8184E+07

all_soil_qnorth_tetrachloroethene_data

0.0011
0.00285
1.1
0.195
0.0006
0.00044
0.0024
0.0007
0.00058
0.00047
0.0015
0.00043
0.0028
0.0099
28

all_soil_qnorth_tetrachloroethene_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  15

UCL95(STANDARD BOOTSTRAP)= 0.48954E+01
```

all_soil_qnorth_tetrachloroethene_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.1955E+01
SQUARE ROOT OF VARIANCE= 0.6966E+01
STANDARD DEVIATION= 0.7211E+01
SKEWNESS= 0.3465E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.3689E+01
MINIMUM = 0.4300E-03
MAXIMUM = 0.2800E+02

MEAN OF LOG DATA = -0.5279E+01
STANDARD DEVIATION OF LOG DATA = 0.3305E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7194E+01

MVUE ESTIMATE OF THE MEAN = 0.3124E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.241E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2705E+00

MLE ESTIMATE OF THE MEAN = 0.1200E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2823E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.4129E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4277E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1945E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1794E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1856E+01
B = 0.1784E+01
R = 0.9412E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5137E+01
B = 0.8924E+01
R = 0.7235E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1637E+04
B = 0.3499E+04
R = 0.4986E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5627E+01

UCL95 STANDARD BOOT = 0.4895E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.2826E+03

all_soil_qnorth_tetrachloroethene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2824E+03

UCL95 T-DISTRIBUTION = 0.5233E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5017E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.6798E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1028E+02

UCL95 FROM LOG JACKKNIFE = 0.7118E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.1522E+01

UCL95 FROM H-STATISTIC = 0.6899E+03

all_soil_qnorth_totalpcbs_data

2.483
0.8855
1.783
122.25
0.253
0.2764
1.339
0.678
189.61
0.5601
2.395
0.05015
116.022
0.2309
0.4725

all_soil_qnorth_totalpcbs_mstat

0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.53962E+02

all_soil_qnorth_totalpcbs_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.2929E+02
SQUARE ROOT OF VARIANCE= 0.5860E+02
STANDARD DEVIATION= 0.6066E+02
SKEWNESS= 0.1757E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.2071E+01
MINIMUM = 0.5015E-01
MAXIMUM = 0.1896E+03

MEAN OF LOG DATA = 0.5666E+00
STANDARD DEVIATION OF LOG DATA = 0.2480E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5517E+01

MVUE ESTIMATE OF THE MEAN = 0.2145E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.937E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1539E+02

MLE ESTIMATE OF THE MEAN = 0.3817E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.8258E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1497E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2215E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2918E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1507E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2888E+02
B = 0.1496E+02
R = 0.9946E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7284E-01
B = 0.3228E+00
R = 0.9701E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1115E-01
B = 0.2217E+00
R = 0.9845E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5485E+02

UCL95 STANDARD BOOT = 0.5396E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.7161E+02

all_soil_qnorth_totalpcbs_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.7160E+02

UCL95 T-DISTRIBUTION = 0.5687E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5505E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.6264E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.9929E+02

UCL95 FROM LOG JACKKNIFE = 0.5398E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.9026E+02

UCL95 FROM H-STATISTIC = 0.1479E+04

all_soil_qnorth_trichloroethylenes_data

0.195
0.0012
0.0015
0.00055
0.00093
0.00415
0.00051
0.0012
0.00071
0.0022
0.73
0.66
0.00056
0.00049
0.00076

all_soil_qnorth_trichloroethylenes_mstat

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=  15

UCL95(STANDARD BOOTSTRAP)= 0.20600E+00
```

all_soil_qnorth_trichloroethylenes_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.1067E+00
SQUARE ROOT OF VARIANCE= 0.2361E+00
STANDARD DEVIATION= 0.2444E+00
SKEWNESS= 0.2018E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.2291E+01
MINIMUM = 0.4900E-03
MAXIMUM = 0.7300E+00

MEAN OF LOG DATA = -0.5702E+01
STANDARD DEVIATION OF LOG DATA = 0.2623E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5805E+01

MVUE ESTIMATE OF THE MEAN = 0.5279E-01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.256E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3955E-01

MLE ESTIMATE OF THE MEAN = 0.1042E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3252E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2197E-01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6307E-01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1058E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.6089E-01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1037E+00
B = 0.6172E-01
R = 0.9954E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1733E+00
B = 0.5110E+00
R = 0.8372E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2362E-01
B = 0.2944E+00
R = 0.9582E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2120E+00

UCL95 STANDARD BOOT = 0.2060E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.5588E+00

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5587E+00

UCL95 T-DISTRIBUTION = 0.2178E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2104E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2456E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3887E+00

UCL95 FROM LOG JACKKNIFE = 0.1330E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.2296E+00

UCL95 FROM H-STATISTIC = 0.6105E+01

all_soil_qnorth_xylenestotal_data

0.006
0.04
300
0.00066
0.0022
0.0085
0.0075
1.7
0.00039
0.0018
0.008
0.008
0.0016
80
0.0055

all_soil_qnorth_xylenestotal_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 15

UCL95(STANDARD BOOTSTRAP)= 0.57918E+02

all_soil_qnorth_xylenestotal_sboot

NUMBER OF DATA POINTS = 15
MEAN= 0.2545E+02
SQUARE ROOT OF VARIANCE= 0.7602E+02
STANDARD DEVIATION= 0.7869E+02
SKEWNESS= 0.3133E+01
CRITICAL SKEWNESS = 0.8520E+00
COEFFICIENT OF VARIATION= 0.3092E+01
MINIMUM = 0.3900E-03
MAXIMUM = 0.3000E+03

MEAN OF LOG DATA = -0.3753E+01
STANDARD DEVIATION OF LOG DATA = 0.4069E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.8773E+01

MVUE ESTIMATE OF THE MEAN = 0.7845E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.962E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.7377E+01

MLE ESTIMATE OF THE MEAN = 0.9229E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3631E+06

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.4242E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1264E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2551E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1970E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2470E+02
B = 0.1980E+02
R = 0.9823E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5233E+01
B = 0.1060E+02
R = 0.5977E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.5046E+04
B = 0.1103E+05
R = 0.4632E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6534E+02

UCL95 STANDARD BOOT = 0.5792E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.4586E+04

all_soil_qnorth_xylenestotal_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4586E+04

UCL95 T-DISTRIBUTION = 0.6123E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5887E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7644E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1163E+03

UCL95 FROM LOG JACKKNIFE = 0.1801E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.4082E+02

UCL95 FROM H-STATISTIC = 0.1283E+07

all_soil_r_112trichloroethane_data

0.00245
0.0025
0.00235
9.5
0.0033
0.00265
4.45
0.00355
3.05
1.7
1.55
0.00275

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.31755E+01

all_soil_r_112trichloroethane_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1689E+01
SQUARE ROOT OF VARIANCE= 0.2745E+01
STANDARD DEVIATION= 0.2867E+01
SKEWNESS= 0.1880E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1697E+01
MINIMUM = 0.2350E-02
MAXIMUM = 0.9500E+01

MEAN OF LOG DATA = -0.2951E+01
STANDARD DEVIATION OF LOG DATA = 0.3663E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.8699E+01

MVUE ESTIMATE OF THE MEAN = 0.5386E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.394E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4942E+01

MLE ESTIMATE OF THE MEAN = 0.4292E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3523E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5938E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6869E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1689E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.7984E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1666E+01
B = 0.7999E+00
R = 0.9957E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1283E+00
B = 0.4351E+00
R = 0.9535E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2980E-01
B = 0.3233E+00
R = 0.9957E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3121E+01

UCL95 STANDARD BOOT = 0.3002E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.4900E+01

all_soil_r_112trichloroethane_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4982E+01

UCL95 T-DISTRIBUTION = 0.3175E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3051E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3531E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.5389E+01

UCL95 FROM LOG JACKKNIFE = 0.1827E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2748E+02

UCL95 FROM H-STATISTIC = 0.6389E+06

ll_soil_r_12dichloroethane_data

0.00245
0.00355
1.7
12
0.00275
87
0.0014
0.0026
0.225
0.0015
28
73

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.32793E+02

all_soil_r_12dichloroethane_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1683E+02
SQUARE ROOT OF VARIANCE= 0.2948E+02
STANDARD DEVIATION= 0.3079E+02
SKEWNESS= 0.1585E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1830E+01
MINIMUM = 0.1400E-02
MAXIMUM = 0.8700E+02

MEAN OF LOG DATA = -0.1913E+01
STANDARD DEVIATION OF LOG DATA = 0.4650E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1096E+02

MVUE ESTIMATE OF THE MEAN = 0.1280E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.147E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1246E+03

MLE ESTIMATE OF THE MEAN = 0.7304E+04
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3616E+09

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1710E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1814E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.1684E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.8575E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1664E+02
B = 0.8534E+01
R = 0.9977E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1322E+00
B = 0.4751E+00
R = 0.8854E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.5060E-02
B = 0.2929E+00
R = 0.9936E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3173E+02

UCL95 STANDARD BOOT = 0.3094E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.6565E+02

all_soil_r_12dichloroethane_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4792E+02

UCL95 T-DISTRIBUTION = 0.3279E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3145E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3580E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.5656E+02

UCL95 FROM LOG JACKKNIFE = 0.4968E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.6849E+03

UCL95 FROM H-STATISTIC = 0.3460E+11

ll_soil_r_12dichloroethene total_data

3.1
4.6
0.00094
0.0047
0.0055
0.007
0.00048
51
3.4
12
0.0055
0.005

all_soil_r_12dichloroethene total_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.13722E+02

all_soil_r_12dichloroethene total_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.6177E+01
SQUARE ROOT OF VARIANCE= 0.1393E+02
STANDARD DEVIATION= 0.1455E+02
SKEWNESS= 0.2728E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2356E+01
MINIMUM = 0.4800E-03
MAXIMUM = 0.5100E+02

MEAN OF LOG DATA = -0.2528E+01
STANDARD DEVIATION OF LOG DATA = 0.4184E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.9892E+01

MVUE ESTIMATE OF THE MEAN = 0.2472E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.232E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2357E+02

MLE ESTIMATE OF THE MEAN = 0.5052E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3198E+07

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2820E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3491E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.6234E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.4052E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6077E+01
B = 0.4036E+01
R = 0.9840E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4301E+00
B = 0.9075E+00
R = 0.8611E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1295E+00
B = 0.4956E+00
R = 0.9147E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1401E+02

UCL95 STANDARD BOOT = 0.1290E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.4982E+02

all_soil_r_12dichloroethene total_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3987E+02

UCL95 T-DISTRIBUTION = 0.1372E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1309E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1662E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2496E+02

UCL95 FROM LOG JACKKNIFE = 0.9089E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.1301E+03

UCL95 FROM H-STATISTIC = 0.1328E+09

all_soil_r_14dichlorobenzene_data

0.195
1.6
0.18
0.175
24
0.175
0.19
0.19
0.185
0.19
0.58

all_soil_r_14dichlorobenzene_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 11

UCL95(T-DIST.) = 0.64147E+01

all_soil_r_14dichlorobenzene_sboot

NUMBER OF DATA POINTS = 11
MEAN= 0.2515E+01
SQUARE ROOT OF VARIANCE= 0.6807E+01
STANDARD DEVIATION= 0.7139E+01
SKEWNESS= 0.2828E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.2839E+01
MINIMUM = 0.1750E+00
MAXIMUM = 0.2400E+02

MEAN OF LOG DATA = -0.9456E+00
STANDARD DEVIATION OF LOG DATA = 0.1536E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4112E+01

MVUE ESTIMATE OF THE MEAN = 0.1048E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.191E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.5223E+00

MLE ESTIMATE OF THE MEAN = 0.1264E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3912E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.7147E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.8027E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.2533E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2093E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2416E+01
B = 0.2071E+01
R = 0.9477E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2757E+01
B = 0.4699E+01
R = 0.7788E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1130E+03
B = 0.2463E+03
R = 0.4615E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6806E+01

UCL95 STANDARD BOOT = 0.5976E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.1399E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1398E+03

UCL95 T-DISTRIBUTION = 0.6415E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.6055E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.8017E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1214E+02

UCL95 FROM LOG JACKKNIFE = 0.2169E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.3382E+01

UCL95 FROM H-STATISTIC = 0.9310E+01

all_soil_r_2378TCDDTEQ_data

0.000041763
0.00059054
9.64105E-05
0.012177
0.00153257
5.88305E-05
7.70919E-05
0.000139174
0.000017781
0.0009294
3.78765E-05
0.000075455

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

COEFFICIENT OF VARIATION = 0.26269E+01
MAXIMUM DATA VALUE = 0.12177E-01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.17819E-02

all_soil_r_2378TCDDTEQ_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1314E-02
SQUARE ROOT OF VARIANCE= 0.3306E-02
STANDARD DEVIATION= 0.3453E-02
SKEWNESS= 0.2919E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2627E+01
MINIMUM = 0.1778E-04
MAXIMUM = 0.1218E-01

MEAN OF LOG DATA = -0.8611E+01
STANDARD DEVIATION OF LOG DATA = 0.1896E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4737E+01

MVUE ESTIMATE OF THE MEAN = 0.8030E-03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.201E-02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.4785E-03

MLE ESTIMATE OF THE MEAN = 0.1099E-02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.6544E-02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6451E-03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6330E-03

AVERAGE OF BOOTSTRAPPED VALUES = 0.1319E-02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.9661E-03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1285E-02
B = 0.9560E-03
R = 0.9676E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7418E+00
B = 0.1304E+01
R = 0.8792E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3215E+00
B = 0.7985E+00
R = 0.8289E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3260E-02

UCL95 STANDARD BOOT = 0.2909E-02

UCL95 BOOTSTRAP-T FROM SORT = 0.1522E-01

all_soil_r_2378TCDDTEQ_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1538E-01

UCL95 T-DISTRIBUTION = 0.3105E-02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2954E-02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3852E-02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.5770E-02

UCL95 FROM LOG JACKKNIFE = 0.1782E-02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2942E-02

UCL95 FROM H-STATISTIC = 0.1649E-01

all_soil_r_246trichlorophenol_data

21
120
650
0.18
0.19
0.175
0.185
0.175
0.195
0.1
0.19
89

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.16988E+03

all_soil_r_246trichlorophenol_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.7345E+02
SQUARE ROOT OF VARIANCE= 0.1781E+03
STANDARD DEVIATION= 0.1860E+03
SKEWNESS= 0.2781E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2532E+01
MINIMUM = 0.1000E+00
MAXIMUM = 0.6500E+03

MEAN OF LOG DATA = 0.3876E+00
STANDARD DEVIATION OF LOG DATA = 0.3273E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7810E+01

MVUE ESTIMATE OF THE MEAN = 0.6931E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.414E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.6076E+02

MLE ESTIMATE OF THE MEAN = 0.3123E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.6619E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3729E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9348E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.7355E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.5152E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.7178E+02
B = 0.5128E+02
R = 0.9803E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4195E+00
B = 0.8454E+00
R = 0.8897E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1271E+00
B = 0.4694E+00
R = 0.9359E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1744E+03

UCL95 STANDARD BOOT = 0.1583E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.5358E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5358E+03

UCL95 T-DISTRIBUTION = 0.1699E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1618E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2078E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3134E+03

UCL95 FROM LOG JACKKNIFE = 0.2052E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.3409E+03

UCL95 FROM H-STATISTIC = 0.6944E+06

all_soil_r_24dichlorophenol_data

0.185
3500
0.175
0.175
0.19
59
99
270
0.29
0.03
0.195
0.18

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.84708E+03

NUMBER OF DATA POINTS = 12
MEAN= 0.3275E+03
SQUARE ROOT OF VARIANCE= 0.9596E+03
STANDARD DEVIATION= 0.1002E+04
SKEWNESS= 0.2982E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.3061E+01
MINIMUM = 0.3000E-01
MAXIMUM = 0.3500E+04

MEAN OF LOG DATA = 0.6253E+00
STANDARD DEVIATION OF LOG DATA = 0.3839E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.9100E+01

MVUE ESTIMATE OF THE MEAN = 0.2772E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.221E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2582E+03

MLE ESTIMATE OF THE MEAN = 0.2963E+04
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4697E+07

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1054E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4153E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.3236E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2727E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3133E+03
B = 0.2772E+03
R = 0.9534E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1641E+01
B = 0.2735E+01
R = 0.8311E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.6570E+01
B = 0.1411E+02
R = 0.5002E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8932E+03

UCL95 STANDARD BOOT = 0.7723E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.1021E+05

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1021E+05

UCL95 T-DISTRIBUTION = 0.8471E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8034E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1070E+04

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1621E+04

UCL95 FROM LOG JACKKNIFE = 0.8512E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1432E+04

UCL95 FROM H-STATISTIC = 0.1112E+09

7.3
0.19
0.195
0.18
390
25
24
0.175
0.185
0.19
0.19
0.175

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.95100E+02

all_soil_r_2chlorophenol_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.3731E+02
SQUARE ROOT OF VARIANCE= 0.1067E+03
STANDARD DEVIATION= 0.1115E+03
SKEWNESS= 0.2978E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2987E+01
MINIMUM = 0.1750E+00
MAXIMUM = 0.3900E+03

MEAN OF LOG DATA = 0.7049E-01
STANDARD DEVIATION OF LOG DATA = 0.2743E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.6611E+01

MVUE ESTIMATE OF THE MEAN = 0.1867E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.824E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1486E+02

MLE ESTIMATE OF THE MEAN = 0.4617E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1986E+04

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.9873E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2154E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.3756E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3077E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3694E+02
B = 0.3028E+02
R = 0.9561E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1132E+01
B = 0.1857E+01
R = 0.8522E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1917E+01
B = 0.4046E+01
R = 0.6222E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1003E+03

UCL95 STANDARD BOOT = 0.8817E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.5879E+03

all_soil_r_2chlorophenol_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5828E+03

UCL95 T-DISTRIBUTION = 0.9510E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.9024E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1198E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1811E+03

UCL95 FROM LOG JACKKNIFE = 0.4856E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.8510E+02

UCL95 FROM H-STATISTIC = 0.1094E+05

all_soil_r_2nitroaniline_data

0.9
1
0.95
0.9
1
0.028
7
0.9
1

2 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

2 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 9

UCL95(T-DIST.) = 0.28082E+01

all_soil_r_2nitroaniline_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.1520E+01
SQUARE ROOT OF VARIANCE= 0.1959E+01
STANDARD DEVIATION= 0.2078E+01
SKEWNESS= 0.2363E+01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.1367E+01
MINIMUM = 0.2800E-01
MAXIMUM = 0.7000E+01

MEAN OF LOG DATA = -0.2219E+00
STANDARD DEVIATION OF LOG DATA = 0.1421E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.4238E+01

MVUE ESTIMATE OF THE MEAN = 0.1837E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.289E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.9016E+00

MLE ESTIMATE OF THE MEAN = 0.2200E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.5626E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1969E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.7782E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1511E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.6489E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1497E+01
B = 0.6564E+00
R = 0.9701E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1202E+01
B = 0.2341E+01
R = 0.6861E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3019E+01
B = 0.5309E+01
R = 0.7712E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2859E+01

UCL95 STANDARD BOOT = 0.2578E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.2679E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2377E+02

UCL95 T-DISTRIBUTION = 0.2808E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2659E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3242E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.4616E+01

UCL95 FROM LOG JACKKNIFE = 0.3417E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.5867E+01

UCL95 FROM H-STATISTIC = 0.1850E+02

all_soil_r_arsenic_data

7.2
6.4
7.2
2.5
6.2
5.5
3.6
6.1
12
5.4
4.7
6.6

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NORMAL-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

UCL95(T-DIST.) = 0.73235E+01

NUMBER OF DATA POINTS = 12
MEAN= 0.6117E+01
SQUARE ROOT OF VARIANCE= 0.2229E+01
STANDARD DEVIATION= 0.2328E+01
SKEWNESS= 0.1051E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.3805E+00
MINIMUM = 0.2500E+01
MAXIMUM = 0.1200E+02

MEAN OF LOG DATA = 0.1745E+01
STANDARD DEVIATION OF LOG DATA = 0.3863E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2012E+01

MVUE ESTIMATE OF THE MEAN = 0.6132E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.241E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.6939E+00

MLE ESTIMATE OF THE MEAN = 0.6172E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2476E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.6136E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.6525E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6111E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.6482E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6102E+01
B = 0.6457E+00
R = 0.9984E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5511E-01
B = 0.3465E+00
R = 0.9953E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4953E-01
B = 0.3922E+00
R = 0.9943E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.7225E+01

UCL95 STANDARD BOOT = 0.7177E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.7625E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.7694E+01

UCL95 T-DISTRIBUTION = 0.7323E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7222E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7440E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.9120E+01

UCL95 FROM LOG JACKKNIFE = 0.7308E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.9233E+01

UCL95 FROM H-STATISTIC = 0.7802E+01

all_soil_r_benzene_data

0.0016
110
0.006
22
4.2
28
0.023
0.00068
0.0021
0.0016
150
0.0014

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.52183E+02

all_soil_r_benzene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2619E+02
SQUARE ROOT OF VARIANCE= 0.4801E+02
STANDARD DEVIATION= 0.5014E+02
SKEWNESS= 0.1770E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1915E+01
MINIMUM = 0.6800E-03
MAXIMUM = 0.1500E+03

MEAN OF LOG DATA = -0.2019E+01
STANDARD DEVIATION OF LOG DATA = 0.5034E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1185E+02

MVUE ESTIMATE OF THE MEAN = 0.2768E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.373E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2722E+03

MLE ESTIMATE OF THE MEAN = 0.4217E+05
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1339E+11

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3467E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4434E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.2619E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1386E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2583E+02
B = 0.1399E+02
R = 0.9963E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2009E+00
B = 0.6035E+00
R = 0.8259E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3326E-01
B = 0.3528E+00
R = 0.9490E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5084E+02

UCL95 STANDARD BOOT = 0.4899E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1373E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.9208E+02

UCL95 T-DISTRIBUTION = 0.5218E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5000E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5790E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.9089E+02

UCL95 FROM LOG JACKKNIFE = 0.1143E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.1493E+04

UCL95 FROM H-STATISTIC = 0.2715E+13

0.105
2.2
0.0009
0.115
0.00095
0.0018
0.01
0.001
0.001
1.4
0.0009

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 11

UCL95(T-DIST.) = 0.75345E+00

all_soil_r_betaBHC_sboot

NUMBER OF DATA POINTS = 11
MEAN= 0.3488E+00
SQUARE ROOT OF VARIANCE= 0.7062E+00
STANDARD DEVIATION= 0.7407E+00
SKEWNESS= 0.1855E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.2124E+01
MINIMUM = 0.9000E-03
MAXIMUM = 0.2200E+01

MEAN OF LOG DATA = -0.4456E+01
STANDARD DEVIATION OF LOG DATA = 0.3089E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7701E+01

MVUE ESTIMATE OF THE MEAN = 0.3565E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.177E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3061E+00

MLE ESTIMATE OF THE MEAN = 0.1372E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1621E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2499E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4309E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.3479E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2115E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3399E+00
B = 0.2183E+00
R = 0.9951E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7258E+00
B = 0.1640E+01
R = 0.6710E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1221E+01
B = 0.2943E+01
R = 0.5091E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.7382E+00

UCL95 STANDARD BOOT = 0.6958E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.5855E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5905E+01

UCL95 T-DISTRIBUTION = 0.7534E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7162E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.8496E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1347E+01

UCL95 FROM LOG JACKKNIFE = 0.1031E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1725E+01

UCL95 FROM H-STATISTIC = 0.2538E+04

all_soil_r_chlorobenzene_data

0.0026
0.0014
0.055
0.0031
120
0.064
220
31
27
0.00355
2400
0.0018

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.58869E+03

all_soil_r_chlorobenzene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2332E+03
SQUARE ROOT OF VARIANCE= 0.6565E+03
STANDARD DEVIATION= 0.6857E+03
SKEWNESS= 0.2965E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2941E+01
MINIMUM = 0.1400E-02
MAXIMUM = 0.2400E+04

MEAN OF LOG DATA = -0.9346E+00
STANDARD DEVIATION OF LOG DATA = 0.5431E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1276E+02

MVUE ESTIMATE OF THE MEAN = 0.2075E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.326E+05
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2054E+04

MLE ESTIMATE OF THE MEAN = 0.9984E+06
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2538E+13

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2666E+04
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3392E+04

AVERAGE OF BOOTSTRAPPED VALUES = 0.2348E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1916E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2249E+03
B = 0.1908E+03
R = 0.9585E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1188E+01
B = 0.1962E+01
R = 0.8674E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2140E+01
B = 0.4672E+01
R = 0.5377E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6226E+03

UCL95 STANDARD BOOT = 0.5500E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.4515E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4491E+04

UCL95 T-DISTRIBUTION = 0.5887E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5588E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7398E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1118E+04

UCL95 FROM LOG JACKKNIFE = 0.8758E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.1126E+05

UCL95 FROM H-STATISTIC = 0.1195E+16

_soil_r_chloroform_data

9.8
0.00355
0.00245
0.0028
0.0025
5.6
0.0033
5.4
1.7
11
0.00275
0.00265

0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.49300E+01

all_soil_r_chloroform_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2793E+01
SQUARE ROOT OF VARIANCE= 0.3946E+01
STANDARD DEVIATION= 0.4121E+01
SKEWNESS= 0.1062E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1475E+01
MINIMUM = 0.2450E-02
MAXIMUM = 0.1100E+02

MEAN OF LOG DATA = -0.2704E+01
STANDARD DEVIATION OF LOG DATA = 0.3935E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.9321E+01

MVUE ESTIMATE OF THE MEAN = 0.1217E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.102E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1142E+02

MLE ESTIMATE OF THE MEAN = 0.1544E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3561E+06

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1390E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1650E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2795E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1136E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2783E+01
B = 0.1143E+01
R = 0.9982E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.5367E-01
B = 0.3486E+00
R = 0.9815E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.2740E-02
B = 0.2765E+00
R = 0.9990E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4776E+01

UCL95 STANDARD BOOT = 0.4664E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.6056E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5143E+01

UCL95 T-DISTRIBUTION = 0.4930E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4750E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5140E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.8111E+01

UCL95 FROM LOG JACKKNIFE = 0.4354E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.6322E+02

UCL95 FROM H-STATISTIC = 0.9809E+07

0.0014
1.8
0.22
0.00037
0.00195
0.01
0.001
0.0019
0.11
0.00175
1.6

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 11

COEFFICIENT OF VARIATION = 0.19867E+01
MAXIMUM DATA VALUE = 0.18000E+01

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.12155E+01

NUMBER OF DATA POINTS = 11
MEAN= 0.3408E+00
SQUARE ROOT OF VARIANCE= 0.6455E+00
STANDARD DEVIATION= 0.6770E+00
SKEWNESS= 0.1629E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.1987E+01
MINIMUM = 0.3700E-03
MAXIMUM = 0.1800E+01

MEAN OF LOG DATA = -0.4319E+01
STANDARD DEVIATION OF LOG DATA = 0.3092E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7708E+01

MVUE ESTIMATE OF THE MEAN = 0.4115E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.205E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3535E+00

MLE ESTIMATE OF THE MEAN = 0.1589E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1895E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3206E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.4939E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.3369E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1920E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3310E+00
B = 0.1954E+00
R = 0.9902E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3960E+00
B = 0.9951E+00
R = 0.7187E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2870E+00
B = 0.8999E+00
R = 0.6183E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.6602E+00

UCL95 STANDARD BOOT = 0.6528E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.3315E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3308E+01

UCL95 T-DISTRIBUTION = 0.7106E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.6765E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7837E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1253E+01

UCL95 FROM LOG JACKKNIFE = 0.1215E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1991E+01

UCL95 FROM H-STATISTIC = 0.2982E+04

all_soil_r_ethylbenzene_data

0.00044
0.00031
8.5
0.00044
0.00038
0.00024
0.0019
21
0.0066
12
42
25

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=   12

UCL95(T-DIST.) = 0.16146E+02
```

NUMBER OF DATA POINTS = 12
MEAN= 0.9043E+01
SQUARE ROOT OF VARIANCE= 0.1312E+02
STANDARD DEVIATION= 0.1370E+02
SKEWNESS= 0.1345E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1515E+01
MINIMUM = 0.2400E-03
MAXIMUM = 0.4200E+02

MEAN OF LOG DATA = -0.3034E+01
STANDARD DEVIATION OF LOG DATA = 0.5348E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1257E+02

MVUE ESTIMATE OF THE MEAN = 0.2089E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.318E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2065E+03

MLE ESTIMATE OF THE MEAN = 0.7810E+05
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1268E+12

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3098E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3472E+03

AVERAGE OF BOOTSTRAPPED VALUES = 0.9069E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.3840E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.9001E+01
B = 0.3865E+01
R = 0.9979E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.6909E-01
B = 0.3686E+00
R = 0.9780E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.3618E-02
B = 0.2969E+00
R = 0.9996E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1575E+02

UCL95 STANDARD BOOT = 0.1539E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.2060E+02

all_soil_r_ethylbenzene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2024E+02

UCL95 T-DISTRIBUTION = 0.1615E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1555E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1719E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2672E+02

UCL95 FROM LOG JACKKNIFE = 0.9334E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.1132E+04

UCL95 FROM H-STATISTIC = 0.4976E+14

all_soil_r_heptachlor_data

0.00095
0.001
0.01
0.001
0.21
0.105
0.0009
0.0018
1.6
0.0009
0.115

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 11

UCL95(T-DIST.) = 0.44507E+00

NUMBER OF DATA POINTS = 11
MEAN= 0.1860E+00
SQUARE ROOT OF VARIANCE= 0.4520E+00
STANDARD DEVIATION= 0.4741E+00
SKEWNESS= 0.2739E+01
CRITICAL SKEWNESS = 0.9240E+00
COEFFICIENT OF VARIATION= 0.2548E+01
MINIMUM = 0.9000E-03
MAXIMUM = 0.1600E+01

MEAN OF LOG DATA = -0.4658E+01
STANDARD DEVIATION OF LOG DATA = 0.2778E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.6965E+01

MVUE ESTIMATE OF THE MEAN = 0.1663E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.699E+00
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1348E+00

MLE ESTIMATE OF THE MEAN = 0.4498E+00
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.2131E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1335E+00
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1777E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.1849E+00

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1349E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1829E+00
B = 0.1349E+00
R = 0.9720E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.6824E+00
B = 0.1246E+01
R = 0.8692E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.2346E+00
B = 0.6450E+00
R = 0.9160E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4579E+00

UCL95 STANDARD BOOT = 0.4068E+00

UCL95 BOOTSTRAP-T FROM SORT = 0.1961E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1433E+01

UCL95 T-DISTRIBUTION = 0.4451E+00

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4212E+00

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5473E+00

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.8250E+00

UCL95 FROM LOG JACKKNIFE = 0.4555E+00

UCL95 LN CHEBYCHEV INEQUALITY = 0.7686E+00

UCL95 FROM H-STATISTIC = 0.2042E+03

51
24.5
49
51
76
43
36
5.2
85

all_soil_r_MCPP_mstat

```
  0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NORMAL-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


UCL95(T-DIST.) = 0.61790E+02
```

all_soil_r_MCPP_sboot

NUMBER OF DATA POINTS = 9
MEAN= 0.4674E+02
SQUARE ROOT OF VARIANCE= 0.2288E+02
STANDARD DEVIATION= 0.2427E+02
SKEWNESS= -0.2609E-01
CRITICAL SKEWNESS = 0.9636E+00
COEFFICIENT OF VARIATION= 0.5191E+00
MINIMUM = 0.5200E+01
MAXIMUM = 0.8500E+02

MEAN OF LOG DATA = 0.3636E+01
STANDARD DEVIATION OF LOG DATA = 0.8316E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2878E+01

MVUE ESTIMATE OF THE MEAN = 0.5112E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.443E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1460E+02

MLE ESTIMATE OF THE MEAN = 0.5360E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.5351E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5301E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.7747E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.4674E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.7572E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.4673E+02
B = 0.7613E+01
R = 0.9999E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1750E-02
B = 0.3909E+00
R = 0.9990E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4018E-02
B = 0.4066E+00
R = 0.9956E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5928E+02

UCL95 STANDARD BOOT = 0.5919E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.6236E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.6246E+02

UCL95 T-DISTRIBUTION = 0.6179E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.6005E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.5998E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.8290E+02

UCL95 FROM LOG JACKKNIFE = 0.6742E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.1164E+03

UCL95 FROM H-STATISTIC = 0.1249E+03

all_soil_r_mercury_data

2
3000
0.06
0.064
0.047
0.17
0.037
1.1
0.063
0.19
2.6
0.076

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.69945E+03

all_soil_r_mercury_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2505E+03
SQUARE ROOT OF VARIANCE= 0.8290E+03
STANDARD DEVIATION= 0.8659E+03
SKEWNESS= 0.3015E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.3456E+01
MINIMUM = 0.3700E-01
MAXIMUM = 0.3000E+04

MEAN OF LOG DATA = -0.9117E+00
STANDARD DEVIATION OF LOG DATA = 0.3182E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.7604E+01

MVUE ESTIMATE OF THE MEAN = 0.1585E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.901E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1371E+02

MLE ESTIMATE OF THE MEAN = 0.6356E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1005E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = -0.6919E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1878E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.2469E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2357E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2374E+03
B = 0.2382E+03
R = 0.9286E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1106E+03
B = 0.1489E+03
R = 0.8541E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1319E+07
B = 0.2518E+07
R = 0.6274E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.7503E+03

UCL95 STANDARD BOOT = 0.6346E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.3612E+06

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2962E+06

UCL95 T-DISTRIBUTION = 0.6994E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.6617E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.8942E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1368E+04

UCL95 FROM LOG JACKKNIFE = 0.2681E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.7714E+02

UCL95 FROM H-STATISTIC = 0.9371E+05

all_soil_r_naphthalene_data

0.185
0.195
8.1
0.19
6.2
0.175
0.19
4.6
0.175
0.18
0.19
120

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.29442E+02

all_soil_r_naphthalene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1170E+02
SQUARE ROOT OF VARIANCE= 0.3277E+02
STANDARD DEVIATION= 0.3422E+02
SKEWNESS= 0.2979E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2925E+01
MINIMUM = 0.1750E+00
MAXIMUM = 0.1200E+03

MEAN OF LOG DATA = -0.2729E+00
STANDARD DEVIATION OF LOG DATA = 0.2233E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5474E+01

MVUE ESTIMATE OF THE MEAN = 0.5587E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.178E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3835E+01

MLE ESTIMATE OF THE MEAN = 0.9218E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1113E+03

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3632E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.5372E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1157E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.9379E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1122E+02
B = 0.9502E+01
R = 0.9531E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1263E+01
B = 0.1926E+01
R = 0.8823E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1077E+01
B = 0.2297E+01
R = 0.6226E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3116E+02

UCL95 STANDARD BOOT = 0.2700E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1886E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2262E+03

UCL95 T-DISTRIBUTION = 0.2944E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.2795E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3703E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.5586E+02

UCL95 FROM LOG JACKKNIFE = 0.1328E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.2273E+02

UCL95 FROM H-STATISTIC = 0.3678E+03

all_soil_r_nitrobenzene_data

27
0.195
1.1
0.18
0.19
0.19
2
0.175
0.19
0.185
0.175
48

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

1 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.14465E+02

all_soil_r_nitrobenzene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.6632E+01
SQUARE ROOT OF VARIANCE= 0.1446E+02
STANDARD DEVIATION= 0.1511E+02
SKEWNESS= 0.2116E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2278E+01
MINIMUM = 0.1750E+00
MAXIMUM = 0.4800E+02

MEAN OF LOG DATA = -0.4625E+00
STANDARD DEVIATION OF LOG DATA = 0.2058E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.5088E+01

MVUE ESTIMATE OF THE MEAN = 0.3521E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.993E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2257E+01

MLE ESTIMATE OF THE MEAN = 0.5233E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4316E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2245E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.3365E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.6565E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.4168E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.6424E+01
B = 0.4362E+01
R = 0.9905E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1100E+01
B = 0.2342E+01
R = 0.6477E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1053E+02
B = 0.2320E+02
R = 0.4727E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.1452E+02

UCL95 STANDARD BOOT = 0.1342E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1731E+03

all_soil_r_nitrobenzene_sboot

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1729E+03

UCL95 T-DISTRIBUTION = 0.1446E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1381E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1665E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.2613E+02

UCL95 FROM LOG JACKKNIFE = 0.8289E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.1361E+02

UCL95 FROM H-STATISTIC = 0.1230E+03

0.95
23
1
0.9
10.5
0.9
1
1
1
0.9

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 10

UCL95(T-DIST.) = 0.83360E+01

all_soil_r_pnitroaniline_sboot

NUMBER OF DATA POINTS = 10
MEAN= 0.4115E+01
SQUARE ROOT OF VARIANCE= 0.6908E+01
STANDARD DEVIATION= 0.7282E+01
SKEWNESS= 0.2045E+01
CRITICAL SKEWNESS = 0.9420E+00
COEFFICIENT OF VARIATION= 0.1770E+01
MINIMUM = 0.9000E+00
MAXIMUM = 0.2300E+02

MEAN OF LOG DATA = 0.5119E+00
STANDARD DEVIATION OF LOG DATA = 0.1191E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.3510E+01

MVUE ESTIMATE OF THE MEAN = 0.3058E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.401E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1216E+01

MLE ESTIMATE OF THE MEAN = 0.3393E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.6007E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2670E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1811E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.4112E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2185E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.4037E+01
B = 0.2259E+01
R = 0.9880E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7163E+01
B = 0.1430E+02
R = 0.5953E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1615E+03
B = 0.3545E+03
R = 0.4578E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8240E+01

UCL95 STANDARD BOOT = 0.7707E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.4930E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.5042E+03

UCL95 T-DISTRIBUTION = 0.8336E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.7903E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.9495E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1441E+02

UCL95 FROM LOG JACKKNIFE = 0.5989E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.8494E+01

UCL95 FROM H-STATISTIC = 0.1367E+02

all_soil_r_tetrachloroethene_data

0.012
0.01
1200
2
0.0036
0.00355
0.00245
880
0.0046
0.0026
610
2.3

0 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.44458E+03

all_soil_r_tetrachloroethene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2245E+03
SQUARE ROOT OF VARIANCE= 0.4064E+03
STANDARD DEVIATION= 0.4244E+03
SKEWNESS= 0.1448E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1890E+01
MINIMUM = 0.2450E-02
MAXIMUM = 0.1200E+04

MEAN OF LOG DATA = -0.1319E+01
STANDARD DEVIATION OF LOG DATA = 0.5414E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1273E+02

MVUE ESTIMATE OF THE MEAN = 0.1357E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.212E+05
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1343E+04

MLE ESTIMATE OF THE MEAN = 0.6197E+06
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1436E+13

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5209E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2424E+04

AVERAGE OF BOOTSTRAPPED VALUES = 0.2269E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1184E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2235E+03
B = 0.1168E+03
R = 0.9972E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.7223E-01
B = 0.3780E+00
R = 0.9567E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = 0.1816E-01
B = 0.2580E+00
R = 0.9955E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.4266E+03

UCL95 STANDARD BOOT = 0.4216E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.6425E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4434E+03

UCL95 T-DISTRIBUTION = 0.4446E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.4261E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.4808E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.7722E+03

UCL95 FROM LOG JACKKNIFE = 0.4875E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.7358E+04

UCL95 FROM H-STATISTIC = 0.6515E+15

all_soil_r_toluene_data

200
340
360
0.00245
0.00355
0.0033
0.0018
0.0029
0.046
830
410
0.00275

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.31467E+03

all_soil_r_toluene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.1783E+03
SQUARE ROOT OF VARIANCE= 0.2518E+03
STANDARD DEVIATION= 0.2629E+03
SKEWNESS= 0.1356E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1474E+01
MINIMUM = 0.1800E-02
MAXIMUM = 0.8300E+03

MEAN OF LOG DATA = -0.7295E+00
STANDARD DEVIATION OF LOG DATA = 0.5959E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1399E+02

MVUE ESTIMATE OF THE MEAN = 0.9036E+04
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.172E+06
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.8991E+04

MLE ESTIMATE OF THE MEAN = 0.2479E+08
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1274E+16

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1417E+05
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1617E+05

AVERAGE OF BOOTSTRAPPED VALUES = 0.1779E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.7227E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1765E+03
B = 0.7220E+02
R = 0.9987E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.6915E-01
B = 0.3561E+00
R = 0.9811E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1402E-01
B = 0.3002E+00
R = 0.9981E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3017E+03

UCL95 STANDARD BOOT = 0.2968E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.3859E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3314E+03

UCL95 T-DISTRIBUTION = 0.3147E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3032E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3350E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.5176E+03

UCL95 FROM LOG JACKKNIFE = 0.4322E+05

UCL95 LN CHEBYCHEV INEQUALITY = 0.4923E+05

UCL95 FROM H-STATISTIC = 0.2028E+19

0.0497
12.2
208.64
0.04505
6.302
1.9066
0.04287
0.3004
0.0468
0.04775
0.0449
264.5

all_soil_r_totalpcbs_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.88935E+02

all_soil_r_totalpcbs_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.4118E+02
SQUARE ROOT OF VARIANCE= 0.8819E+02
STANDARD DEVIATION= 0.9211E+02
SKEWNESS= 0.1849E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2237E+01
MINIMUM = 0.4287E-01
MAXIMUM = 0.2645E+03

MEAN OF LOG DATA = -0.3129E+00
STANDARD DEVIATION OF LOG DATA = 0.3395E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.8086E+01

MVUE ESTIMATE OF THE MEAN = 0.4374E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.279E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.3897E+02

MLE ESTIMATE OF THE MEAN = 0.2326E+03
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.7396E+05

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2833E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.5569E+02

AVERAGE OF BOOTSTRAPPED VALUES = 0.4096E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2528E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.3991E+02
B = 0.2567E+02
R = 0.9917E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.9678E+00
B = 0.2130E+01
R = 0.6407E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.7559E+01
B = 0.1685E+02
R = 0.4628E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8523E+02

UCL95 STANDARD BOOT = 0.8255E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1008E+04

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1014E+04

UCL95 T-DISTRIBUTION = 0.8894E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8492E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1001E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1600E+03

UCL95 FROM LOG JACKKNIFE = 0.1283E+03

UCL95 LN CHEBYCHEV INEQUALITY = 0.2179E+03

UCL95 FROM H-STATISTIC = 0.9143E+06

all_soil_r_trichloroethylene_data

0.019
2200
1.2
810
0.00355
0.016
1.55
0.0003
0.00245
0.00074
29
0.012

```
  1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

  0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS


NUMBER OF DATA POINTS=   12

COEFFICIENT OF VARIATION = 0.25858E+01
MAXIMUM DATA VALUE = 0.22000E+04

CV>=1 OR N<30, USE LOG-JACKKNIFE

UCL95(LOG-JACKKNIFE)= 0.27144E+04
```

all_soil_r_trichloroethylene_sboot

NUMBER OF DATA POINTS = 12
MEAN= 0.2535E+03
SQUARE ROOT OF VARIANCE= 0.6276E+03
STANDARD DEVIATION= 0.6555E+03
SKEWNESS= 0.2492E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.2586E+01
MINIMUM = 0.3000E-03
MAXIMUM = 0.2200E+04

MEAN OF LOG DATA = -0.1759E+01
STANDARD DEVIATION OF LOG DATA = 0.5365E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1261E+02

MVUE ESTIMATE OF THE MEAN = 0.7777E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.119E+05
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.7691E+03

MLE ESTIMATE OF THE MEAN = 0.3060E+06
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.5438E+12

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.3004E+03
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1344E+04

AVERAGE OF BOOTSTRAPPED VALUES = 0.2512E+03

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1799E+03

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2418E+03
B = 0.1828E+03
R = 0.9895E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.2962E+01
B = 0.6027E+01
R = 0.6147E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.5577E+03
B = 0.1200E+04
R = 0.4912E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.5717E+03

UCL95 STANDARD BOOT = 0.5472E+03

UCL95 BOOTSTRAP-T FROM SORT = 0.2007E+05

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2002E+05

UCL95 T-DISTRIBUTION = 0.5933E+03

UCL95 FROM CENTRAL LIMIT THEOREM = 0.5647E+03

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.7102E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1099E+04

UCL95 FROM LOG JACKKNIFE = 0.2714E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.4215E+04

UCL95 FROM H-STATISTIC = 0.2215E+15

data

0.00095
0.041
43
110
97
0.00099
0.0013
14
0.00095
0.0091
280
0.007

all_soil_r_totalxylenes_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 12

UCL95(T-DIST.) = 0.88797E+02

NUMBER OF DATA POINTS = 12
MEAN= 0.4534E+02
SQUARE ROOT OF VARIANCE= 0.8025E+02
STANDARD DEVIATION= 0.8382E+02
SKEWNESS= 0.2039E+01
CRITICAL SKEWNESS = 0.9060E+00
COEFFICIENT OF VARIATION= 0.1849E+01
MINIMUM = 0.9500E-03
MAXIMUM = 0.2800E+03

MEAN OF LOG DATA = -0.1586E+01
STANDARD DEVIATION OF LOG DATA = 0.5321E+01

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1251E+02

MVUE ESTIMATE OF THE MEAN = 0.8356E+03
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.126E+05
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.8258E+03

MLE ESTIMATE OF THE MEAN = 0.2888E+06
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.4072E+12

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1207E+04
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.1376E+04

AVERAGE OF BOOTSTRAPPED VALUES = 0.4568E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2335E+02

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.4507E+02
B = 0.2334E+02
R = 0.9942E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1339E+00
B = 0.4446E+00
R = 0.9512E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1918E-01
B = 0.3091E+00
R = 0.9933E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.8842E+02

UCL95 STANDARD BOOT = 0.8410E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.1407E+03

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.1016E+03

UCL95 T-DISTRIBUTION = 0.8880E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8514E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1004E+03

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1535E+03

UCL95 FROM LOG JACKKNIFE = 0.3677E+04

UCL95 LN CHEBYCHEV INEQUALITY = 0.4527E+04

UCL95 FROM H-STATISTIC = 0.1510E+15

sediment_river_arsenic_data

1.8
1.4
2
2.1
2
6.1
1.4
1.4
1
1.8
2.5
1.9
1.85
1.6
3.1
1.4
3
2.9
4.35
5.4
4.8
2.1
5.25
2.7
2.2
2.9
4.8
7.5
2.6
2.6
3.9
1.8
3.7
2.9

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

0 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS CONFIRMED LOGNORMAL-SEE FILES SW.OUT AND AD.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 34

COEFFICIENT OF VARIATION = 0.52929E+00
MAXIMUM DATA VALUE = 0.75000E+01

UCL95(H-STAT.)= 0.34106E+01

NUMBER OF DATA POINTS = 34
MEAN= 0.2904E+01
SQUARE ROOT OF VARIANCE= 0.1515E+01
STANDARD DEVIATION= 0.1537E+01
SKEWNESS= 0.1222E+01
CRITICAL SKEWNESS = 0.6292E+00
COEFFICIENT OF VARIATION= 0.5293E+00
MINIMUM = 0.1000E+01
MAXIMUM = 0.7500E+01

MEAN OF LOG DATA = 0.9466E+00
STANDARD DEVIATION OF LOG DATA = 0.4871E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.1907E+01

MVUE ESTIMATE OF THE MEAN = 0.2890E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.147E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.2520E+00

MLE ESTIMATE OF THE MEAN = 0.2901E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1501E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.2889E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2674E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.2904E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.2575E+00

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.2902E+01
B = 0.2589E+00
R = 0.9996E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.1677E-01
B = 0.1822E+00
R = 0.9963E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.1296E-02
B = 0.1742E+00
R = 0.9999E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.3343E+01

UCL95 STANDARD BOOT = 0.3328E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.3439E+01

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.3421E+01

UCL95 T-DISTRIBUTION = 0.3351E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.3338E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.3397E+01

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.4083E+01

UCL95 FROM LOG JACKKNIFE = 0.3342E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.4016E+01

UCL95 FROM H-STATISTIC = 0.3411E+01

5
1 5
4 1
5
5
5
5
5
5
5
5
5
5
5
3 2
5
5
5
1 7
1 7
2
1 2
1 2
5
5
5
5
2 8
5
5
5
5
69
5
5
3

6 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

6 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 36

UCL95(STANDARD BOOTSTRAP)= 0.89468E+01

NUMBER OF DATA POINTS = 36
MEAN= 0.6011E+01
SQUARE ROOT OF VARIANCE= 0.1073E+02
STANDARD DEVIATION= 0.1088E+02
SKEWNESS= 0.5606E+01
CRITICAL SKEWNESS = 0.6144E+00
COEFFICIENT OF VARIATION= 0.1810E+01
MINIMUM = 0.1200E+01
MAXIMUM = 0.6900E+02

MEAN OF LOG DATA = 0.1436E+01
STANDARD DEVIATION OF LOG DATA = 0.6619E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2041E+01

MVUE ESTIMATE OF THE MEAN = 0.5195E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.375E+01
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.6180E+00

MLE ESTIMATE OF THE MEAN = 0.5233E+01
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.3880E+01

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.5143E+01
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.9213E+00

AVERAGE OF BOOTSTRAPPED VALUES = 0.6003E+01

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.1789E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.5923E+01
B = 0.1757E+01
R = 0.9616E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.4635E+00
B = 0.6802E+00
R = 0.8599E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.7933E+00
B = 0.1174E+01
R = 0.8671E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.9603E+01

UCL95 STANDARD BOOT = 0.8947E+01

UCL95 BOOTSTRAP-T FROM SORT = 0.2157E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.2099E+02

UCL95 T-DISTRIBUTION = 0.9077E+01

UCL95 FROM CENTRAL LIMIT THEOREM = 0.8994E+01

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.1081E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.1412E+02

UCL95 FROM LOG JACKKNIFE = 0.6701E+01

UCL95 LN CHEBYCHEV INEQUALITY = 0.7958E+01

UCL95 FROM H-STATISTIC = 0.6576E+01

surfacewater_river_pchloroaniline_data

1.2
10
9.4
10
2
10
10
8.1
10
10
10
2.3
2.2
3.2
10
1.8
3.4
5.7
10
10
10
10
16
10
14
10
10
160
10
10
4
10
10
1.4
10
5.2

surfacewater_river_pchloroaniline_mstat

1 OUTLIERS FOUND (ASSUMING NORMAL DISTRIBUTION)
SEE FILE OUTLX.OUT FOR MORE DETAILS

4 OUTLIERS FOUND (ASSUMING LOGNORMAL DISTRIBUTION)
SEE FILE OUTLY.OUT FOR MORE DETAILS

DISTRIBUTION IS NON-PARAMETRIC-SEE FILE SW.OUT FOR DETAILS

RESULTS OF UCL95 ANALYSIS-SEE FILES SBOOT.OUT AND SBOOT.DIA FOR DETAILS

NUMBER OF DATA POINTS= 36

UCL95(STANDARD BOOTSTRAP)= 0.19022E+02

NUMBER OF DATA POINTS = 36
MEAN= 0.1222E+02
SQUARE ROOT OF VARIANCE= 0.2525E+02
STANDARD DEVIATION= 0.2561E+02
SKEWNESS= 0.5553E+01
CRITICAL SKEWNESS = 0.6144E+00
COEFFICIENT OF VARIATION= 0.2096E+01
MINIMUM = 0.1200E+01
MAXIMUM = 0.1600E+03

MEAN OF LOG DATA = 0.1985E+01
STANDARD DEVIATION OF LOG DATA = 0.8755E+00

H95 STATISTIC BY LAGRANGIAN INTERPOLATION = 0.2247E+01

MVUE ESTIMATE OF THE MEAN = 0.1053E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION = 0.107E+02
MVUE ESTIMATE OF THE STANDARD DEVIATION OF THE MEAN = 0.1733E+01

MLE ESTIMATE OF THE MEAN = 0.1068E+02
MLE ESTIMATE OF THE STANDARD DEVIATION = 0.1146E+02

JACKNIFE MEAN BASED UPON LOGNORMAL MVUE = 0.1043E+02
JACKNIFE STANDARD DEVIATION OF THE MEAN = 0.2165E+01

AVERAGE OF BOOTSTRAPPED VALUES = 0.1218E+02

SQUARE ROOT OF VARIANCE OF BOOTSTRAPPED VALUES = 0.4158E+01

QUANTILE ANALYSIS FOR BOOTSTRAPPED MEANS
A = 0.1202E+02
B = 0.4136E+01
R = 0.9670E+00

QUANTILE ANALYSIS FOR "W" VALUES
A = -0.3788E+00
B = 0.5922E+00
R = 0.8851E+00

QUANTILE ANALYSIS FOR "Q" VALUES
A = -0.4448E+00
B = 0.7401E+00
R = 0.8914E+00

UCL95 DIRECTLY FROM BOOT SORT = 0.2057E+02

UCL95 STANDARD BOOT = 0.1902E+02

UCL95 BOOTSTRAP-T FROM SORT = 0.4580E+02

UCL95 HALLS BOOTSTRAP-T FROM SORT = 0.4181E+02

UCL95 T-DISTRIBUTION = 0.1943E+02

UCL95 FROM CENTRAL LIMIT THEOREM = 0.1924E+02

UCL95 FROM MODIFIED CENTRAL LIMIT THEOREM = 0.2346E+02

UCL95 FROM REGULAR CHEBYCHEV INEQUALITY= 0.3130E+02

UCL95 FROM LOG JACKKNIFE = 0.1409E+02

UCL95 LN CHEBYCHEV INEQUALITY = 0.1827E+02

UCL95 FROM H-STATISTIC = 0.1489E+02

Medium	Site	analyte type	Constituent	FOD			MLE EPC (average)	Max	UCL	UCL type	RME EPC	RME EPC Reason	units
Combined Soil	O	Dioxin	2,3,7,8-TCDD-TEQ	6	6	6	0 006410843	0 03)3515			3 04E-02	Max (<8 samples)	mg/kg
Combined Soil	O	PCB	Total PCBs	6	6	6	69 74128	297 '95			2 98E+02	Max (<8 samples)	mg/kg
Combined Soil	O	Pesticide	Aldrin	2	6	6	0 14565	0 72			7 20E-01	Max (<8 samples)	mg/kg
Combined Soil	O	Pesticide	delta-BHC	4	6	6	0 917158333	2 85			2 85E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Pesticide	Dieldrin	5	6	6	1 266483333	3 8			3 80E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Pesticide	gamma-BHC (Lindane)	3	6	6	0 506158333	2 88			2 88E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Pesticide	Heptachlor	5	6	6	0 786375	2 77			2 78E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Pesticide	Heptachlor Epoxide	2	6	6	0 14615	0 47			4 70E-01	Max (<8 samples)	mg/kg
Combined Soil	O	Semivolatile	1,4-Dichlorobenzene	2	5	6	18 717	47			4 70E+01	Max (<8 samples)	mg/kg
Combined Soil	O	Semivolatile	2,4,6-Trichlorophenol	2	5	6	2 577	6 9			6 90E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Semivolatile	2-Nitroaniline	2	4	6	1 12575	2 5			2 50E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Semivolatile	Benzo(a)anthracene	4	5	6	4 6106	12			1 20E+01	Max (<8 samples)	mg/kg
Combined Soil	O	Semivolatile	Benzo(a)pyrene	3	5	6	2 883	7 1			7 10E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Semivolatile	Benzo(b)fluoranthene	5	5	6	3 1716	7 9			7 90E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Semivolatile	Dibenzo(a,h)anthracene	3	4	6	0 852	3			3 00E+00	Max (<8 samples)	mg/kg
Combined Soil	O	Volatile	Benzene	4	6	6	96 44845	500			5 00E+02	Max (<8 samples)	mg/kg
Combined Soil	O	Volatile	Chlorobenzene	4	6	6	220 0471167	760			7 60E+02	Max (<8 samples)	mg/kg
Combined Soil	O	Volatile	Ethylbenzene	5	6	6	485 02928	280(			2 80E+03	Max (<8 samples)	mg/kg
Combined Soil	O	Volatile	Toluene	4	6	6	69 51421667	390			3 90E+02	Max (<8 samples)	mg/kg
Combined Soil	O	Volatile	Xylenes, Total	5	6	6	2463 443633	140(0			1 40E+04	Max (<8 samples)	mg/kg
Combined Soil	O North	Dioxin	2,3,7,8-TCDD-TEQ	3	3	3	0 325051667	0 49375			4 97E 01	Max (<8 samples)	mg/kg
Combined Soil	O North	Metal	Arsenic	3	3	3	20	37			3 70E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Metal	Cadmium	3	3	3	39 33333333	86			8 60E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Metal	Mercury	3	3	3	165	360			3 60E+02	Max (<8 samples)	mg/kg
Combined Soil	O North	PCB	Total PCBs	3	3	3	1784 433333	302(			3 03E+03	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	4,4'-DDE	2	3	3	17 00058333	33			3 30E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	4,4'-DDT	2	3	3	20 43391667	58			5 80E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	Aldrin	2	3	3	2 2003	4 5			4 50E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	alpha BHC	1	3	3	0 598633333	1 5			1 50E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	beta BHC	2	3	3	7 256966667	21			2 10E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	Dieldrin	3	3	3	19 46713333	50			5 00E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	Heptachlor	1	3	3	3 398633333	9 9			9 90E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Pesticide	Heptachlor Epoxide	1	3	3	1 2503	2 7			2 70E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	1,2-Dichlorobenzene	3	3	3	246 678	520			5 20E+02	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	1,3-Dichlorobenzene	2	3	3	5 925	12			1 20E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	1,4-Dichlorobenzene	2	3	3	63 725	120			1 20E+02	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	2,4,6-Trichlorophenol	2	3	3	24 05833333	61			6 10E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	2-Methylnaphthalene	2	3	3	82 725	200			2 00E+02	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	2-Nitroaniline	1	3	3	22 96666667	62			6 20E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	4-Nitroaniline	2	3	3	343 3	1000			1 00E+03	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	Benzo(a)anthracene	3	3	3	15 347	36			3 60E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	Benzo(a)pyrene	3	3	3	6 515333333	11			1 10E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	Benzo(b)fluoranthene	3	3	3	6 129666667	12			1 20E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	bis(2-Chloroethyl)ether	1	3	3	1 141666667	2 1			2 10E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	Dibenzo(a,h)anthracene	2	3	3	2 125	4 6			4 60E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	Hexachlorobenzene	1	3	3	1 941666667	4 5			4 50E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	Naphthalene	2	3	3	18 39166667	41			4 10E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Semivolatile	Nitrobenzene	1	3	3	4 108333333	11			1 10E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Volatile	Benzene	3	3	3	43 53	69			6 90E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Volatile	Chlorobenzene	3	3	3	321 9333333	480			4 80E+02	Max (<8 samples)	mg/kg
Combined Soil	O North	Volatile	Dichloromethane	2	3	3	36 73666667	87			8 70E+01	Max (<8 samples)	mg/kg
Combined Soil	O North	Volatile	Ethylbenzene	3	3	3	504 8	760			7 60E+02	Max (<8 samples)	mg/kg
Combined Soil	O North	Volatile	Tetrachloroethene	2	2	3	3 545	6 8			6 80E+00	Max (<8 samples)	mg/kg
Combined Soil	O North	Volatile	Xylenes, Total	3	3	3	2593 333333	3900			3 90E+03	Max (<8 samples)	mg/kg
Combined Soil	P	Dioxin	2,3,7,8-TCDD-TEQ	11	12	12	0 000283361	0 00126212	0 00044232	LOG-JACKKNIFE	4 42E-04	LOG-JACKKNIFE	mg/kg
Combined Soil	P	Metal	Arsenic	12	12	12	12 90833333	27	16 901	T-DIST	1 69E+01	T-DIST	mg/kg
Combined Soil	P	Metal	Cadmium	12	12	12	10 66416667	93	13 337	LOG-JACKKNIFE	1 33E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	P	PCB	Total PCBs	10	12	12	4 442541667	26 78	16 904	LOG-JACKKNIFE	1 69E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	P	Pesticide	Dieldrin	8	12	12	0 125541667	0 56	0 28249	LOG-JACKKNIFE	2 83E-01	LOG-JACKKNIFE	mg/kg
Combined Soil	P	Pesticide	MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	1	12	12	21 5875	210	52 609	T-DIST	5 26E+01	T-DIST	mg/kg
Combined Soil	P	Semivolatile	1,4-Dichlorobenzene	5	12	12	24 42083333	160	66 963	LOG-JACKKNIFE	6 70E+01	LOG JACKKNIFE	mg/kg
Combined Soil	P	Semivolatile	Benzo(a)pyrene	3	4	12	0 263	0 67			0 67	Max (<8 samples)	mg/kg
Combined Soil	P	Volatile	Benzene	8	11	11	0 6615	2 3	1 1196	T-DIST	1 12E+00	T-DIST	mg/kg

Medium	Site	analyte type	Constituent	FOD	MLE EPC (average)	Max	UCL	UCL type	RME EPC	RME EPC Reason	units
Combined Soil	P	Volatile	Ethylbenzene	9 11 11	8 690400909	78	110 38	LOG-JACKKNIFE	7 80E+01	Max (UCL>Max)	mg/kg
Combined Soil	P	Volatile	Tetrachloroethene	9 11 11	13 08925	140	15 35	LOG-JACKKNIFE	1 54E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	P	Volatile	Trichloroethylene	6 11 11	0 200576364	0 99	1 0091	LOG-JACKKNIFE	9 90E-01	Max (UCL>Max)	mg/kg
Combined Soil	P	Volatile	Xylenes, Total	8 11 11	40 21443364	380	572 3	LOG-JACKKNIFE	3 80E+02	Max (UCL>Max)	mg/kg
Combined Soil	Q Central	Dioxin	2,3,7,8-TCDD-TEQ	8 9 9	0 002422787	0 0163505	0 0037854	LOG-JACKKNIFE	3 79E-03	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Metal	Arsenic	9 9 9	14 72222222	57	22 176	LOG-JACKKNIFE	2 22E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Metal	Copper	9 9 9	2291 222222	20000	6408 7	T-DIST	6 41E+03	T-DIST	mg/kg
Combined Soil	Q Central	Metal	Manganese	9 9 9	841 5555556	5450	1291	LOG-JACKKNIFE	1 29E+03	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	PCB	Total PCBs	8 9 9	2 396061111	8 73 5	4 3521	LOG-JACKKNIFE	4 35E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Pesticide	Aldrin	2 9 9	0 018922222	0 11	0 034019	LOG-JACKKNIFE	3 40E-02	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Pesticide	Dieldrin	6 9 9	0 070094444	0 39	0 14657	LOG-JACKKNIFE	1 47E-01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Semivolatile	Benzo(a)anthracene	8 9 9	0 607222222	3 15	1 0669	LOG-JACKKNIFE	1 07E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Semivolatile	Benzo(a)pyrene	7 9 9	0 641555556	2 65	1 2436	LOG-JACKKNIFE	1 24E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Semivolatile	Benzo(b)fluoranthene	6 9 9	0 782333333	2 45	1 5991	LOG-JACKKNIFE	1 60E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q Central	Semivolatile	Pentachlorophenol	8 9 9	1 6272	10 1	6 5183	LOG-JACKKNIFE	6 52E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q North	Dioxin	2,3,7,8-TCDD-TEQ	13 15 15	0 005239956	0 05513625	0 011056	STANDARD BOOTSTRAP	1 11E-02	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Metal	Antimony	13 15 15	7 774666667	84	16 58	STANDARD BOOTSTRAP	1 66E+01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Metal	Arsenic	15 15 15	11 78	40	15 378	LOG-JACKKNIFE	1 54E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q North	Metal	Barium	15 15 15	1376 933333	7200	3025 5	HALLS BOOTSTRAP-T	3 03E+03	HALLS BOOTSTRAP-T	mg/kg
Combined Soil	Q North	Metal	Cadmium	15 15 15	12 26333333	92	18 849	LOG-JACKKNIFE	1 89E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q North	Metal	Lead	14 15 15	1956 8	24000	1984 6	LOG-JACKKNIFE	1 96E+03	Mean (Lead)	mg/kg
Combined Soil	Q North	PCB	Total PCBs	13 15 15	29 28590333	189 61	53 962	STANDARD BOOTSTRAP	5 40E+01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Pesticide	Dieldrin	10 15 15	0 34536	3 2	0 58386	LOG-JACKKNIFE	5 84E 01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q North	Semivolatile	2,4,6-Trichlorophenol	2 14 15	3 897142857	47	9 7727	T-DIST	9 77E+00	T-DIST	mg/kg
Combined Soil	Q North	Semivolatile	2,4-Dichlorophenol	5 15 15	22 92666667	270	51 861	STANDARD BOOTSTRAP	5 19E+01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Semivolatile	2-Nitroaniline	1 14 15	3 807142857	20	6 179	T-DIST	6 18E+00	T-DIST	mg/kg
Combined Soil	Q North	Semivolatile	Benzo(a)anthracene	13 14 15	1 233571429	2 9	1 6064	T-DIST	1 61E+00	T-DIST	mg/kg
Combined Soil	Q North	Semivolatile	Benzo(a)pyrene	13 14 15	1 317857143	2 7	1 6694	T-DIST	1 67E+00	T-DIST	mg/kg
Combined Soil	Q North	Semivolatile	Benzo(b)fluoranthene	14 14 15	1 177857143	2 2	1 5092	T-DIST	1 51E+00	T-DIST	mg/kg
Combined Soil	Q North	Semivolatile	Dibenzo(a,h)anthracene	8 9 15	0 211222222	0 4	0 28155	T-DIST	2 82E 01	T-DIST	mg/kg
Combined Soil	Q North	Semivolatile	Pentachlorophenol	13 15 15	65 3978	510	162 94	HALLS BOOTSTRAP T	1 63E+02	HALLS BOOTSTRAP T	mg/kg
Combined Soil	Q North	Volatile	1,2-Dichloroethane	1 15 15	0 322736667	4	0 7427	STANDARD BOOTSTRAP	7 43E-01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Volatile	Benzene	8 15 15	0 676868	8 8	1 6061	STANDARD BOOTSTRAP	1 61E+00	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Volatile	Ethylbenzene	8 15 15	3 468356667	40	7 7759	STANDARD BOOTSTRAP	7 78E+00	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Volatile	Tetrachloroethene	13 15 15	1 954584667	28	4 8954	STANDARD BOOTSTRAP	4 90E+00	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Volatile	Trichloroethylene	13 15 15	0 106650667	0 73	0 206	STANDARD BOOTSTRAP	2 06E-01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q North	Volatile	Xylenes, Total	10 15 15	25 45267667	300	57 918	STANDARD BOOTSTRAP	5 79E+01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Dioxin	2,3,7,8-TCDD-TEQ	20 20 20	0 00214742	0 02367525	0 0045053	STANDARD BOOTSTRAP	4 51E-03	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Metal	Antimony	10 20 20	11 485	47	18 677	HALLS BOOTSTRAP-T	1 87E+01	HALLS BOOTSTRAP-T	mg/kg
Combined Soil	Q South	Metal	Arsenic	20 20 20	13 125	33	17 232	LOG-JACKKNIFE	1 72E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Metal	Chromium	20 20 20	88 21	660	130 18	LOG-JACKKNIFE	1 30E+02	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Metal	Lead	20 20 20	827 85	3100	1230 8	HALLS BOOTSTRAP-T	8 28E+02	Mean (Lead)	mg/kg
Combined Soil	Q South	Metal	Manganese	20 20 20	701 25	2100	853 2	LOG-JACKKNIFE	8 53E+02	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Metal	Mercury	20 20 20	2 5756	36	3 5765	LOG-JACKKNIFE	3 58E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Metal	Nickel	20 20 20	213 75	2730	430 55	STANDARD BOOTSTRAP	4 31E+02	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	PCB	Total PCBs	16 20 20	5 6563325	32 0	19 04	LOG-JACKKNIFE	1 90E+01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Pesticide	Aldrin	3 20 20	0 03920375	0 3	0 06783	STANDARD BOOTSTRAP	6 78E-02	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Pesticide	Dieldrin	16 20 20	0 132671	0 825	0 50361	LOG-JACKKNIFE	5 04E-01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Pesticide	Heptachlor Epoxide	11 20 20	0 0376155	0 23	0 10266	LOG-JACKKNIFE	1 03E-01	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Semivolatile	Benzo(a)anthracene	17 20 20	0 5923	2 51	1 0335	LOG-JACKKNIFE	1 03E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Semivolatile	Benzo(a)pyrene	14 20 20	0 6828	2 975	1 1431	LOG-JACKKNIFE	1 14E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Semivolatile	Benzo(b)fluoranthene	13 20 20	0 70895	3 3	1 1783	LOG-JACKKNIFE	1 18E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	Q South	Semivolatile	Pentachlorophenol	14 20 20	35 6826475	470	77 356	STANDARD BOOTSTRAP	7 74E+01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Volatile	Benzene	12 20 20	0 1339955	2	0 29767	STANDARD BOOTSTRAP	2 98E-01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Volatile	Ethylbenzene	16 20 20	13 558945	270	35 322	STANDARD BOOTSTRAP	3 53E+01	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Volatile	Toluene	12 20 20	65 025835	1300	169 11	STANDARD BOOTSTRAP	1 69E+02	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Volatile	Trichloroethylene	10 20 20	0 02183	0 38	0 051594	STANDARD BOOTSTRAP	5 16E-02	STANDARD BOOTSTRAP	mg/kg
Combined Soil	Q South	Volatile	Xylenes, Total	18 20 20	95 3158335	1900	251 59	STANDARD BOOTSTRAP	2 52E+02	STANDARD BOOTSTRAP	mg/kg
Combined Soil	R	Dioxin	2,3,7,8-TCDD-TEQ	5 12 12	0 001314491	0 012177	0 0017819	LOG-JACKKNIFE	1 78E-03	LOG-JACKKNIFE	mg/kg
Combined Soil	R	Metal	Arsenic	12 12 12	6 116666667	12	7 3235	T-DIST	7 32E+00	T-DIST	mg/kg
Combined Soil	R	Metal	Mercury	12 12 12	250 5339167	3000	699 45	T-DIST	6 99E+02	T-DIST	mg/kg
Combined Soil	R	PCB	Total PCBs	8 12 12	41 1771725	264 5	88 935	T-DIST	8 89E+01	T-DIST	mg/kg
Combined Soil	R	Pesticide	beta-BHC	2 11 12	0 348777273	2 2	0 75345	T-DIST	7 53E-01	T-DIST	mg/kg

Medium	Site	analyte type	Constituent	FOD	MLE EPC (average)	Max	UCL	UCL type	RME EPC	RME EPC Reason	units
Combined Soil	R	Pesticide	Dieldrin	7 : 11 : 12	0.340760909	1.8	1.2155	LOG-JACKKNIFE	1.22E+00	LOG-JACKKNIFE	mg/kg
Combined Soil	R	Pesticide	Heptachlor	1 : 11 : 12	0.18605	1.6	0.44507	T-DIST.	4.45E-01	T-DIST.	mg/kg
Combined Soil	R	Pesticide	MCPP	8 : 9 : 12	46.74444444	85	61.79	T-DIST.	6.18E+01	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	1,4-Dichlorobenzene	3 : 11 : 12	2.514545455	24	6.4147	T-DIST.	6.42E+00	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	2,4,6-Trichlorophenol	5 : 12 : 12	73.44916667	650	169.88	T-DIST.	1.70E+02	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	2,4-Dichlorophenol	6 : 12 : 12	327.4516667	3500	847.08	T-DIST	8.47E+02	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	2-Chlorophenol	4 : 12 : 12	37.315	390	95.1	T-DIST.	9.51E+01	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	2-Nitroaniline	2 : 9 : 12	1.519777778	7	2.8082	T-DIST.	2.81E+00	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	Naphthalene	4 : 12 : 12	11.69833333	120	29.442	T-DIST.	2.94E+01	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	Nitrobenzene	3 : 12 : 12	6.631666667	48	14.465	T-DIST	1.45E+01	T-DIST.	mg/kg
Combined Soil	R	Semivolatile	P-Nitroaniline	1 : 10 : 12	4.115	23	8.336	T-DIST.	8.34E+00	T-DIST.	mg/kg
Combined Soil	R	Volatile	1,1,2-Trichloroethane	1 : 12 : 12	1.689129167	9.5	3.1755	T-DIST.	3.18E+00	T-DIST.	mg/kg
Combined Soil	R	Volatile	1,2-Dichloroethane	7 : 12 : 12	16.82827083	87	32.793	T-DIST.	3.28E+01	T-DIST.	mg/kg
Combined Soil	R	Volatile	1,2-Dichloroethene (total)	5 : 12 : 12	6.177426667	51	13.722	T-DIST.	1.37E+01	T-DIST.	mg/kg
Combined Soil	R	Volatile	Benzene	12 : 12 : 12	26.186365	150	52.183	T-DIST.	5.22E+01	T-DIST.	mg/kg
Combined Soil	R	Volatile	Chlorobenzene	11 : 12 : 12	233.1776208	2400	588.69	T-DIST.	5.89E+02	T-DIST.	mg/kg
Combined Soil	R	Volatile	Chloroform	5 : 12 : 12	2.793333333	11	4.93	T-DIST.	4.93E+00	T-DIST.	mg/kg
Combined Soil	R	Volatile	Ethylbenzene	12 : 12 : 12	9.042525833	42	16.146	T-DIST	1.62E+01	T-DIST.	mg/kg
Combined Soil	R	Volatile	Tetrachloroethene	10 : 12 : 12	224.5262333	1200	444.58	T-DIST.	4.45E+02	T-DIST.	mg/kg
Combined Soil	R	Volatile	Toluene	8 : 12 : 12	178.3385625	830	314.67	T-DIST.	3.15E+02	T-DIST.	mg/kg
Combined Soil	R	Volatile	Trichloroethylene	9 : 12 : 12	253.48367	2200	2714.4	LOG-JACKKNIFE	2.20E+03	Max (UCL>Max)	mg/kg
Combined Soil	R	Volatile	Xylenes, Total	11 : 12 : 12	45.33844083	280	88.797	T-DIST	8.88E+01	T-DIST.	mg/kg
Combined Soil	S	Dioxin	2,3,7,8-TCDD-TEQ	6 : 6 : 6	0.004671223	0.0258706			0.0258706	Max (<8 samples)	mg/kg
Combined Soil	S	Metal	Chromium	6 : 6 : 6	179.1666667	480			480	Max (<8 samples)	mg/kg
Combined Soil	S	Metal	Lead	6 : 6 : 6	838	2400			8.38E+02	Mean (Lead)	mg/kg
Combined Soil	S	PCB	Total PCBs	6 : 6 : 6	175.73295	1008.5			1008.5	Max (<8 samples)	mg/kg
Combined Soil	S	Pesticide	4,4'-DDT	5 : 6 : 6	2.8275	16			16	Max (<8 samples)	mg/kg
Combined Soil	S	Pesticide	Aldrin	2 : 5 : 6	0.06049	0.19			0.19	Max (<8 samples)	mg/kg
Combined Soil	S	Pesticide	beta-BHC	4 : 6 : 6	4.376378333	26			26	Max (<8 samples)	mg/kg
Combined Soil	S	Pesticide	Dieldrin	4 : 5 : 6	0.1134	0.38			0.38	Max (<8 samples)	mg/kg
Combined Soil	S	Pesticide	gamma-BHC (Lindane)	2 : 6 : 6	1.272575	7.5			7.5	Max (<8 samples)	mg/kg
Combined Soil	S	Pesticide	Heptachlor	4 : 6 : 6	0.272508333	1.5			1.5	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	1,3-Dichlorobenzene	2 : 5 : 6	3.387	12			12	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	1,4-Dichlorobenzene	3 : 6 : 6	39.00583333	200			200	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	2,4,6-Trichlorophenol	1 : 4 : 6	3.03375	8.2			8.2	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	2-Nitroaniline	2 : 3 : 6	2.156666667	4.6			4.6	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	Benzo(a)anthracene	2 : 4 : 6	2.96125	8			8	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	Benzo(a)pyrene	2 : 4 : 6	2.32	5.4			5.4	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	Benzo(b)fluoranthene	2 : 4 : 6	2.6475	6.6			6.6	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	bis(2-Ethylhexyl)phthalate	6 : 6 : 6	50.25	130			130	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	Dibenzo(a,h)anthracene	1 : 2 : 6	0.9925	1.8			1.8	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	Naphthalene	5 : 6 : 6	21.0475	48			48	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	P-Nitroaniline	1 : 4 : 6	19.3625	57			57	Max (<8 samples)	mg/kg
Combined Soil	S	Semivolatile	Pentachlorophenol	2 : 6 : 6	114.6015	440			440	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	4-Methyl-2-pentanone (MIBK)	3 : 6 : 6	103.3384167	400			400	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Benzene	2 : 6 : 6	11.77268333	35			35	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Chlorobenzene	4 : 6 : 6	265.2655283	1200			1200	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Dichloromethane	4 : 6 : 6	16.43435	57			57	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Ethylbenzene	5 : 6 : 6	301.3339667	1100			1100	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Tetrachloroethene	5 : 6 : 6	12.967255	33			33	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Toluene	4 : 6 : 6	1346.667683	6000			6000	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Trichloroethylene	5 : 6 : 6	54.117195	240			240	Max (<8 samples)	mg/kg
Combined Soil	S	Volatile	Xylenes, Total	5 : 6 : 6	1768.33495	7300			7300	Max (<8 samples)	mg/kg
Fish (fillet)	DDA (Buffalo Fillet)	Dioxin	2,3,7,8-TCDD-TEQ	1 : 1 : 1	7.3938E-07	7.3938E-07			0.00000073938	Max	
Fish (fillet)	PDA (Buffalo Fillet)	Dioxin	2,3,7,8-TCDD-TEQ	3 : 3 : 3	5.24543E-07	6.2528E-07			0.00000062528	Max	
Fish (fillet)	Pond (Site Q) (Black Bullhead Fille	Dioxin	2,3,7,8-TCDD-TEQ	1 : 1 : 1	3.8429E-06	3.8429E-06			0.0000038429	Max	
Fish (fillet)	Pond (Site Q) (Black Bullhead Fille	Metal	Arsenic	1 : 1 : 1	0.78	0.78			0.78	Max	
Fish (fillet)	Pond (Site Q) (Black Bullhead Fille	Metal	Mercury	1 : 1 : 1	0.25	0.25			0.25	Max	
Fish (fillet)	Pond (Site Q) (Black Bullhead Fille	PCB	Total PCBs	1 : 1 : 1	3.868	3.868			3.868	Max	
Fish (fillet)	Pond (Site Q) (Black Bullhead Fille	Pesticide	4,4'-DDT	1 : 1 : 1	0.36	0.36			0.36	Max	
Fish (fillet)	Pond (Site Q) (Black Bullhead Fille	Pesticide	alpha-Chlordane	1 : 1 : 1	0.01	0.01			0.01	Max	
Fish (fillet)	Pond (Site Q) (Black Bullhead Fille	Pesticide	Dieldrin	1 : 1 : 1	0.1	0.1			0.1	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Dioxin	2,3,7,8-TCDD-TEQ	1 : 1 : 1	1.84023E-05	1.84023E-05			0.0000184023	Max	

Medium	Site	analyte type	Constituent	FOD	MLE EPC (average)	Max	UCL	UCL type	RME EPC	RME EPC Reason	units
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Metal	Arsenic	1 1 1	0 82	0 82			0 82	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Metal	Mercury	1 1 1	0 071	0 071			0 071	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	PCB	Total PCBs	1 1 1	10 021	10 021			10 021	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Pesticide	4,4'-DDT	1 1 1	0 33	0 33			0 33	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Pesticide	alpha-Chlordane	1 1 1	0 016	0 016			0 016	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Pesticide	beta-BHC	1 1 1	0 017	0 017			0 017	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Pesticide	Dieldrin	1 1 1	0 19	0 19			0 19	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Semivolatile	Benzo(a)anthracene	1 1 1	0 14	0 14			0 14	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Semivolatile	Benzo(a)pyrene	1 1 1	0 18	0 18			0 18	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Semivolatile	bis(2-Ethylhexyl)phthalate	1 1 1	0 5	0 5			0 5	Max	
Fish (fillet)	Pond (Site Q) (Carp - Fillet)	Semivolatile	Dibenzo(a,h)anthracene	1 1 1	0 14	0 14			0 14	Max	
Fish (fillet)	UDA (Buffalo Fillet)	Dioxin	2,3,7,8-TCDD-TEQ	1 1 1	4 57275E-06	4 57275E-06			0 00000457275	Max	
Fish (fillet)	UDA (Buffalo Fillet)	Pesticide	4,4'-DDE	1 1 1	0 017	0 017			0 017	Max	
Fish (fillet)	UDA (Buffalo Fillet)	Pesticide	Dieldrin	1 1 1	0 0081	0 0081			0 0081	Max	
Leachate	O	Dioxin	2,3,7,8-TCDD-TEQ	1 1 1	0 00068705	0 00068705			0 00068705	Max (<8 samples)	ug/L
Leachate	O	Metal	Manganese	1 1 1	18000	18000			18000	Max (<8 samples)	ug/L
Leachate	O	Metal	Thallium	1 1 1	3 7	3 7			3 7	Max (<8 samples)	ug/L
Leachate	O	PCB	Total PCBs	1 1 1	54 9	54 9			54 9	Max (<8 samples)	ug/L
Leachate	O	Pesticide	2,4,5-T	1 1 1	480	480			480	Max (<8 samples)	ug/L
Leachate	O	Pesticide	2,4-D	1 1 1	930	930			930	Max (<8 samples)	ug/L
Leachate	O	Pesticide	beta-BHC	1 1 1	2 5	2 5			2 5	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	2,4,6-Trichlorophenol	1 1 1	380	380			380	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	2,4-Dichlorophenol	1 1 1	320	320			320	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	2-Chlorophenol	1 1 1	330	330			330	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	2-Nitroaniline	1 1 1	260	260			260	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	3-Methylphenol/4 Methylphenol (m&p Cresol)	1 1 1	640	640			640	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	Naphthalene	1 1 1	570	570			570	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	Nitrobenzene	1 1 1	80	80			80	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	P-Chloroaniline	1 1 1	4200	4200			4200	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	P-Nitroaniline	1 1 1	700	700			700	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	Pentachlorophenol	1 1 1	780	780			780	Max (<8 samples)	ug/L
Leachate	O	Semivolatile	Phenol	1 1 1	3800	3800			3800	Max (<8 samples)	ug/L
Leachate	O	Volatile	4-Methyl-2-pentanone (MIBK)	1 1 1	210	210			210	Max (<8 samples)	ug/L
Leachate	O	Volatile	Benzene	1 1 1	920	920			920	Max (<8 samples)	ug/L
Leachate	O	Volatile	Chlorobenzene	1 1 1	1700	1700			1700	Max (<8 samples)	ug/L
Leachate	Q	Metal	Antimony	1 1 1	16	16			16	Max (<8 samples)	ug/L
Leachate	Q	Metal	Manganese	1 1 1	1800	1800			1800	Max (<8 samples)	ug/L
Leachate	Q	Metal	Nickel	1 1 1	310	310			310	Max (<8 samples)	ug/L
Leachate	Q	Metal	Zinc	1 1 1	7450	7450			7450	Max (<8 samples)	ug/L
Leachate	Q	PCB	Total PCBs	1 1 1	1 0435	1 0435			1 0435	Max (<8 samples)	ug/L
Leachate	Q	Pesticide	2,4-D	1 1 1	96500	96500			96500	Max (<8 samples)	ug/L
Leachate	Q	Pesticide	beta-BHC	1 1 1	13 5	13 5			13 5	Max (<8 samples)	ug/L
Leachate	Q	Pesticide	Endrin Ketone	1 1 1	3 2	3 2			3 2	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	2,4,6-Trichlorophenol	1 1 1	12500	12500			12500	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	2,4-Dichlorophenol	1 1 1	170000	170000			170000	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	2,4 Dimethylphenol	1 1 1	240	240			240	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	2-Chlorophenol	1 1 1	7900	7900			7900	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	2-Nitroaniline	1 1 1	15500	15500			15500	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	3-Methylphenol/4-Methylphenol (m&p Cresol)	1 1 1	1600	1600			1600	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	Naphthalene	1 1 1	1200	1200			1200	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	Nitrobenzene	1 1 1	1300	1300			1300	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	P-Chloroaniline	1 1 1	9300	9300			9300	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	P-Nitroaniline	1 1 1	1070	1070			1070	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	Pentachlorophenol	1 1 1	4600	4600			4600	Max (<8 samples)	ug/L
Leachate	Q	Semivolatile	Phenol	1 1 1	8050	8050			8050	Max (<8 samples)	ug/L
Leachate	Q	Volatile	1,2-Dichloroethane	1 1 1	2150	2150			2150	Max (<8 samples)	ug/L
Leachate	Q	Volatile	4-Methyl-2 pentanone (MIBK)	1 1 1	750	750			750	Max (<8 samples)	ug/L
Leachate	Q	Volatile	Acetone	1 1 1	1400	1400			1400	Max (<8 samples)	ug/L
Leachate	Q	Volatile	Benzene	1 1 1	425	425			425	Max (<8 samples)	ug/L
Leachate	Q	Volatile	Chlorobenzene	1 1 1	1150	1150			1150	Max (<8 samples)	ug/L
Leachate	Q	Volatile	Dichloromethane	1 1 1	47	47			47	Max (<8 samples)	ug/L
Leachate	Q	Volatile	Tetrachloroethene	1 1 1	82 5	82 5			82 5	Max (<8 samples)	ug/L
Leachate	Q	Volatile	Trichloroethylene	1 1 1	20	20			20	Max (<8 samples)	ug/L

Medium	Site	analyte type	Constituent	FOD	MLE EPC (average)	Max	UCL	UCL type	RME EPC	RME EPC Reason	units
Leachate	R	Dioxin	2,3,7,8-TCDD-TEQ	1 : 1 : 1	0 00314	0 00314			0 00314	Max (<8 samples)	ug/L
Leachate	R	Metal	Beryllium	1 : 1 : 1	31	31			31	Max (<8 samples)	ug/L
Leachate	R	Metal	Chromium	1 : 1 . 1	600	600			600	Max (<8 samples)	ug/L
Leachate	R	Metal	Cobalt	1 1 . 1	2600	2600			2600	Max (<8 samples)	ug/L
Leachate	R	Metal	Manganese	1 . 1 : 1	250000	250000			250000	Max (<8 samples)	ug/L
Leachate	R	Metal	Mercury	1 : 1 : 1	13	13			13	Max (<8 samples)	ug/L
Leachate	R	Metal	Nickel	1 : 1 : 1	1800	1800			1800	Max (<8 samples)	ug/L
Leachate	R	Metal	Thallium	1 : 1 . 1	120	120			120	Max (<8 samples)	ug/L
Leachate	R	Metal	Vanadium	1 : 1 : 1	360	360			360	Max (<8 samples)	ug/L
Leachate	R	Metal	Zinc	1 : 1 . 1	99000	99000			99000	Max (<8 samples)	ug/L
Leachate	R	PCB	Total PCBs	1 : 1 : 1	3981.6	398 6			3981.6	Max (<8 samples)	ug/L
Leachate	R	Pesticide	2,4-D	1 : 1 : 1	3800	3800			3800	Max (<8 samples)	ug/L
Leachate	R	Pesticide	4,4'-DDT	1 : 1 : 1	210	210			210	Max (<8 samples)	ug/L
Leachate	R	Pesticide	beta-BHC	1 : 1 : 1	200	200			200	Max (<8 samples)	ug/L
Leachate	R	Pesticide	Dieldrin	1 : 1 : 1	190	190			190	Max (<8 samples)	ug/L
Leachate	R	Pesticide	gamma-BHC (Lindane)	1 : 1 : 1	28	28			28	Max (<8 samples)	ug/L
Leachate	R	Pesticide	Heptachlor	1 . 1 : 1	210	210			210	Max (<8 samples)	ug/L
Leachate	R	Semivolatile	2-Chlorophenol	1 : 1 : 1	11000	11000			11000	Max (<8 samples)	ug/L
Leachate	R	Semivolatile	3-Methylphenol/4-Methylphenol (m&p-Cresol)	1 : 1 : 1	4500	4500			4500	Max (<8 samples)	ug/L
Leachate	R	Semivolatile	Benzo(g,h,i)perylene	1 : 1 . 1	1400	1400			1400	Max (<8 samples)	ug/L
Leachate	R	Semivolatile	P-Chloroaniline	1 . 1 : 1	42000	42000			42000	Max (<8 samples)	ug/l
Leachate	R	Semivolatile	P-Nitroaniline	1 1 : 1	18000	18000			18000	Max (<8 samples)	ug/L
Leachate	R	Semivolatile	Phenol	1 1 1	1100000	1100000			1100000	Max (<8 samples)	ug/L
Leachate	R	Volatile	1,2-Dichloroethane	1 1 1	50000	50000			50000	Max (<8 samples)	ug/L
Leachate	R	Volatile	1,2-Dichloroethene (total)	1 : 1 : 1	13000	13000			13000	Max (<8 samples)	ug/L
Leachate	R	Volatile	2-Butanone (MEK)	1 1 . 1	7900	7900			7900	Max (<8 samples)	ug/L
Leachate	R	Volatile	Acetone	1 1 1	32000	32000			32000	Max (<8 samples)	ug/L
Leachate	R	Volatile	Benzene	1 . 1 : 1	6800	6800			6800	Max (<8 samples)	ug/L
Leachate	R	Volatile	Chlorobenzene	1 1 . 1	1300	1300			1300	Max (<8 samples)	ug/L
Leachate	R	Volatile	Chloroform	1 . 1 : 1	2000	2000			2000	Max (<8 samples)	ug/L
Leachate	R	Volatile	Dichloromethane	1 1 : 1	1900	1900			1900	Max (<8 samples)	ug/L
Leachate	R	Volatile	Tetrachloroethene	1 : 1 . 1	33000	33000			33000	Max (<8 samples)	ug/L
Leachate	R	Volatile	Toluene	1 . 1 . 1	21000	21000			21000	Max (<8 samples)	ug/l
Leachate	R	Volatile	Trichloroethylene	1 . 1 . 1	150000	150000			150000	Max (<8 samples)	ug/L
Mid Groundwater	Q - AA-Q-6-24	Volatile	Benzene	1 1 1	475	475			475	Max (<8 samples)	ug/L
Mid Groundwater	R - AA-R-1-28	Volatile	Benzene	1 1 : 1	510	510			510	Max (<8 samples)	ug/L
Mid Groundwater	R - AA-R-1-28	Volatile	Chlorobenzene	1 1 . 1	2000	2000			2000	Max (<8 samples)	ug/L
Mid Groundwater	R - AA-R-1-28	Volatile	Chloromethane	1 : 1 : 1	3 2	3 2			3 2	Max (<8 samples)	ug/L
Sediment	River	Metal	Arsenic	34 : 34 : 34	2.904411765	7 5	3 4106	H-STAT	3.41E+00	H-STAT.	mg/kg
Shallow Groundwater	O - AA-O-1-16	Metal	Arsenic	1 . 1 . 1	70	70			70	Max (<8 samples)	ug/L
Shallow Groundwater	O - AA-O-1-16	Metal	Lead	1 : 1 . 1	19	19			19	Max (<8 samples)	ug/L
Shallow Groundwater	O - AA-O-1-16	Metal	Manganese	1 1 1	4100	4100			4100	Max (<8 samples)	ug/L
Shallow Groundwater	O - AA-O-1-16	Semivolatile	Benzo(a)pyrene	1 1 1	1 6	1 6			1.6	Max (<8 samples)	ug/L
Shallow Groundwater	O - AA-O-1-16	Semivolatile	Benzo(b)fluoranthene	1 1 . 1	1.1	1 1			1.1	Max (<8 samples)	ug/L
Shallow Groundwater	O - AA-O-1-16	Semivolatile	Benzo(k)fluoranthene	1 : 1 : 1	1.2	1 2			1.2	Max (<8 samples)	ug/L
Shallow Groundwater	O - AA-O-1-16	Semivolatile	Dibenzo(a,h)anthracene	1 1 : 1	2.7	2 7			2 7	Max (<8 samples)	ug/L
Shallow Groundwater	O - AA-O-1-16	Semivolatile	Indeno(1,2,3-cd)pyrene	1 : 1 : 1	3	3			3	Max (<8 samples)	ug/L
Surface Soil	O	Dioxin	2,3,7,8-TCDD-TEQ	2 2 : 2	0 002986615	0.005933			5.93E-03	Max (<8 samples)	mg/kg
Surface Soil	O	PCB	Total PCBs	2 : 2 : 2	5.39549	10.764			1.08E+01	Max (<8 samples)	mg/kg
Surface Soil	O	Pesticide	Dieldrin	1 : 2 . 2	0 09095	0.18			1.80E-01	Max (<8 samples)	mg/kg
Surface Soil	O North	Dioxin	2,3,7,8-TCDD-TEQ	1 : 1 1	0.050805	0 050805			5.08E-02	Max (<8 samples)	mg/kg
Surface Soil	O North	Metal	Mercury	1 . 1 1	43	43			4 30E+01	Max (<8 samples)	mg/kg
Surface Soil	O North	PCB	Total PCBs	1 . 1 . 1	709.2	709 2			7.09E+02	Max (<8 samples)	mg/kg
Surface Soil	P	Metal	Arsenic	4 . 4 . 4	14.1	26			26	Max (<8 samples)	mg/kg
Surface Soil	P	PCB	Total PCBs	3 : 4 : 4	1.784375	7 02			7.02	Max (<8 samples)	mg/kg
Surface Soil	P	Semivolatile	Benzo(a)pyrene	2 : 3 : 4	0.300666667	0.67			0.67	Max (<8 samples)	mg/kg
Surface Soil	Q Central	Dioxin	2,3,7,8-TCDD-TEQ	3 : 3 : 3	0.00113618	0.0033075			0.0033075	Max (<8 samples)	mg/kg
Surface Soil	Q Central	Metal	Arsenic	3 . 3 : 3	7.3	13			13	Max (<8 samples)	mg/kg
Surface Soil	Q Central	PCB	Total PCBs	3 : 3 3	1.078616667	2.57475			2.57475	Max (<8 samples)	mg/kg
Surface Soil	Q North	Metal	Cadmium	5 : 5 : 5	20.146	92			92	Max (<8 samples)	mg/kg
Surface Soil	Q North	PCB	Total PCBs	5 : 5 5	0 57272	1 87			1.87	Max (<8 samples)	mg/kg
Surface Soil	Q North	Semivolatile	Benzo(a)pyrene	5 : 5 5	1.242	1 8			1.8	Max (<8 samples)	mg/kg
Surface Soil	Q North	Semivolatile	Dibenzo(a,h)anthracene	4 : 5 : 5	0 2122	0.37			0.37	Max (<8 samples)	mg/kg

Medium	Site	analyte type	Constituent	FOD	MLE EPC (average)	Max	UCL	UCL type	RME EPC	RME EPC Reason	units
Surface Soil	Q South	Dioxin	2,3,7,8-TCDD-TEQ	12 : 12 : 12	0.00068948	0.00582	0.0016934	T-DIST.	1.69E-03	T-DIST.	mg/kg
Surface Soil	Q South	Metal	Antimony	3 : 12 : 12	6.954166667	47	14.25	T-DIST.	1.43E+01	T-DIST.	mg/kg
Surface Soil	Q South	Metal	Arsenic	12 : 12 : 12	9.658333333	33	13.449	LOG-JACKKNIFE	1 35E+01	LOG-JACKKNIFE	mg/kg
Surface Soil	Q South	Metal	Chromium	12 : 12 : 12	84.05833333	660	180 58	T-DIST.	1.81E+02	T-DIST	mg/kg
Surface Soil	Q South	Metal	Manganese	12 : 12 : 12	603.3333333	2100	859.95	T-DIST.	8.60E+02	T-DIST.	mg/kg
Surface Soil	Q South	PCB	Total PCBs	9 : 12 . 12	2 748483333	13 402	5 1027	T-DIST.	5.10E+00	T-DIST.	mg/kg
Surface Soil	Q South	Pesticide	Dieldrin	9 : 12 : 12	0 079614167	0.375	0.26909	LOG-JACKKNIFE	2.69E-01	LOG-JACKKNIFE	mg/kg
Surface Soil	Q South	Semivolatile	Benzo(a)anthracene	10 : 12 : 12	0.557166667	2 515	1 0339	LOG-JACKKNIFE	1.03E+00	LOG-JACKKNIFE	mg/kg
Surface Soil	Q South	Semivolatile	Benzo(a)pyrene	9 : 12 : 12	0.598416667	2.975	1.0506	LOG-JACKKNIFE	1.05E+00	LOG-JACKKNIFE	mg/kg
Surface Soil	Q South	Semivolatile	Benzo(b)fluoranthene	8 : 12 : 12	0.72575	3.3	1 3467	LOG-JACKKNIFE	1.35E+00	LOG-JACKKNIFE	mg/kg
Surface Soil	S	PCB	Total PCBs	2 : 2 : 2	504.31435	1008 5			1008 5	Max (<8 samples)	mg/kg
Surface Soil	S	Pesticide	4,4'-DDT	2 : 2 : 2	8.0055	16			16	Max (<8 samples)	mg/kg
Surface Soil	S	Pesticide	beta-BHC	2 : 2 : 2	13.000385	26			26	Max (<8 samples)	mg/kg
Surface Soil	S	Pesticide	gamma-BHC (Lindane)	1 : 2 : 2	3.750475	7 5			7.5	Max (<8 samples)	mg/kg
Surface Soil	S	Pesticide	Heptachlor	1 : 2 : 2	0.750475	1.5			1.5	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	2,4,6-Trichlorophenol	1 : 2 : 2	4 1925	8 2			8 2	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	2-Nitroaniline	1 : 2 : 2	2.775	4 6			4.6	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	Benzo(a)anthracene	2 2 : 2	4 0475	8			8	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	Benzo(a)pyrene	2 : 2 : 2	2 765	5.4			5.4	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	Benzo(b)fluoranthene	2 : 2 : 2	3 42	6 6			6.6	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	Dibenzo(a,h)anthracene	1 : 2 : 2	0 9925	1.8			1.8	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	P-Nitroaniline	1 : 2 : 2	28 975	57			57	Max (<8 samples)	mg/kg
Surface Soil	S	Semivolatile	Pentachlorophenol	2 : 2 . 2	220.0055	440			440	Max (<8 samples)	mg/kg
Surface Water	Pond (Site Q)	Metal	Lead	1 . 1 1	14	14			14	Max (<8 samples)	ug/L
Surface Water	Pond (Site Q)	Metal	Manganese	1 : 1 : 1	460	460			460	Max (<8 samples)	ug/L
Surface Water	River	Pesticide	MCPA (2-Methyl-4-Chlorophenoxyacetic Acid)	1 : 1 : 36	31	31			31	Max (<8 samples)	ug/L
Surface Water	River	Pesticide	MCPP	1 1 : 36	53	53			53	Max (<8 samples)	ug/L
Surface Water	River	Semivolatile	2,4-Dichlorophenol	11 : 36 36	6 011111111	69	8 9468	STANDARD BOOTSTRAP	8.95E+00	STANDARD BOOTSTRAP	ug/L
Surface Water	River	Semivolatile	P-Chloroaniline	17 . 36 36	12 21944444	160	19 022	STANDARD BOOTSTRAP	1.90E+01	STANDARD BOOTSTRAP	ug/L

Notes:
EPC - Exposure Point Concentration.
FOD - Frequency of Detection (number of detects number used to calculate statistics.total number of samples collected)
Max - Maximum Detected Concentration
MLE - Most Likely Exposure
RME - Reasonable Maximum Exposure.
UCL - 95% Upper Confidence Level.

J

APPENDIX J

CALCULATION OF INDOOR AIR VOC CONCENTRATIONS FROM GROUNDWATER

Appendix J

Calculation of Indoor Air Concentrations for Volatilization from Underlying Groundwater

For the groundwater-to-indoor air pathway, indoor air exposure point concentrations were predicted using the Johnson and Ettinger model (USEPA, 2003c). The Johnson and Ettinger model considers both diffusion of compounds migrating from the subsurface and convection, which is driven by the pressure difference between the subsurface and the building. Equations and parameters required for the implementation of this model are provided in *User's Guide For Evaluating Subsurface Vapor Intrusion Into Buildings* (USEPA, 2003c). The spreadsheet "GW-ADV.XLS", available from the USEPA for implementation of the Johnson and Ettinger model was used in this risk assessment.

Model Parameters

With the exceptions discussed below, parameters used in the model were the default parameters provided by USEPA (USEPA, 2003c). Major assumptions used in modeling indoor air for each of the site/locations are listed below.

An average soil/groundwater temperature of 14 degrees Celcius and a depth below grade to bottom of enclosed space floor of 15 cm, representing slab-on-grade construction, were used for all modeling locations.

Groundwater location Q-AA-Q-6-24

- Three soil strata were identified.
- Of the 12 Soil Conservation Service (SCS) soil classifications available for use in the USEPA spreadsheet, sand and silt were selected as most representative of site conditions.
- Depth below grade to water table: 579.12 cm (19 feet).

Groundwater location R-AA-R-1-28

- One soil stratum was identified.
- Of the 12 Soil Conservation Service (SCS) soil classifications available for use in the USEPA spreadsheet, silty clay was selected as most representative of site conditions. However, use of silty clay resulted in capillary zone water filled porosity greater than total porosity at the top of the water table. The model will not run under this condition. Therefore, sand was used in place of silty clay, as the most conservative SCS soil type for the model.

- Depth below grade to water table: 701.04 cm (23 feet).

Leachate location O

- Two soil strata were identified.
- Of the 12 Soil Conservation Service (SCS) soil classifications available for use in the USEPA spreadsheet, silty clay and sand were selected as most representative of site conditions. However, use of silty clay as stratum A resulted in an error (data is out of range). Therefore, sand was used for both stratum A and stratum B. Sand is the most conservative SCS soil type for the model.
- Depth below grade to water table: 442.57 cm (14.52 feet).

Leachate location Q

- One soil stratum was identified.
- Of the 12 Soil Conservation Service (SCS) soil classifications available for use in the USEPA spreadsheet, sand was selected as most representative of site conditions.
- Depth below grade to water table: 314.86 cm (10.33 feet).

Leachate location R

- Two soil strata were identified.
- Of the 12 Soil Conservation Service (SCS) soil classifications available for use in the USEPA spreadsheet, sand and silty clay were selected as most representative of site conditions.
- Depth below grade to water table: 549.55 cm (18.03 feet).

Results

Modeling assumptions, inputs, and results are presented in the attached modeling printouts.

The modeling printouts are presented in the following order (identifiers for each run of the model are presented in the upper left hand corner of each page):

Groundwater location Q-AA-Q-6-24:

- Benzene

Groundwater location R-AA-R-1-28:

- Benzene
- Chlorobenzene
- Chloromethane

Leachate location O:

- Benzene
- Chlorobenzene
- 4-Methyl-2-pentanone (MIBK)

Leachate location Q:

- 1,2-Dichloroethane
- Acetone
- Benzene
- Chlorobenzene
- Dichloromethane (Methylene chloride)
- 4-Methyl-2-pentanone (MIBK)
- Tetrachloroethene
- Trichloroethylene

Leachate location R:

- 1,2-Dichloroethane
- 1,2-Dichloroethene (total) (cis-1,2-Dichloroethene used as surrogate)
- Acetone
- Benzene
- Chlorobenzene

- Chloroform
- Dichloromethane (Methylene chloride)
- 2-Butanone (MEK)
- Tetrachloroethene
- Trichloroethylene
- Toluene

References sited in this appendix are presented in Section 8 of the main text.

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
71432	4 75E+02	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	579 12 (19 ft)	162 56 (5 33 ft)	162 56 (5 33 ft)	254 (8 33 ft)	C	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
S	1 66	0 375	0 054	SI	1 35	0 489	0 167	S	1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens TR (unitless)	ENTER Target hazard quotient for noncarcinogens THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	564 12	0 321	0 322	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,081	3 28E-03	1 39E-01	1 77E-04	1 42E-02	8 45E-03	1 42E-02	5 69E-04	7 40E-03	564 12

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	1 39E+02	0 10	8 46E+01	1 42E-02	3 40E+02	9 20E+75	1 82E-04	2 53E-02	7 8E-06	NA

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
71432	5 10E+02	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm²)
14	15	701 04 (23 ft)	701 04 (23 ft)	0	0	A	S	S		

Totals must add up to value of L_{WT} (cell G28)

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
S	1 66	0 375	0 054		1 38	0 481	0 216		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E 06	1

Used to calculate risk based groundwater concentration

END

Groundwater location
R-AA-R-1-28

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	686 04	0 321	0 265	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,081	3 28E-03	1 39E-01	1 77E-04	1 42E-02	0 00E+00	0 00E+00	5 69E-04	8 91E-03	686 04

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	1 39E+02	0 10	8 46E+01	1 42E-02	3 40E+02	9 20E+75	1 80E-04	2 51E-02	7 8E-06	NA

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X in "YES box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
108907	2 00E+03	Chlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	701 04 (23 ft)	701 04 (23 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
S	1 66	0 375	0 054		1 38	0 481	0 216		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width w (cm)	ENTER Indoor air exchange rate ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Groundwater location
R-AA-R-1-28

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone L_{cz} (cm)	Total porosity in capillary zone n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	686 04	0 321	0 265	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,763	1 96E-03	8 33E-02	1 77E-04	1 18E-02	0 00E+00	0 00E+00	4 75E-04	7 41E-03	686 04

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc RfC (mg/m^3)
15	8 33E+01	0 10	8 46E+01	1 18E-02	3 40E+02	3 74E+91	1 53E-04	1 27E-02	NA	6 0E-02

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [ ]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES box and initial groundwater conc below)

YES [X]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
74873	3 20E+00	Methyl chloride (chloromethane)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	701 04 (23 ft)	701 04 (23 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
S	1 66	0 375	0 054		1 38	0 481	0 216		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Groundwater location
R-AA-R-1-28

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor wall seam perimeter, X_{crack} (cm)
9 46E+08	686 04	0 321	0 265	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	4,700	6 49E-03	2 76E-01	1 77E-04	2 04E-02	0 00E+00	0 00E+00	8 09E-04	1 27E-02	686 04

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc , RfC (mg/m^3)
15	8 82E+02	0 10	8 46E+01	2 04E-02	3 40E+02	1 13E+53	2 46E-04	2 17E-01	1 0E-06	9 0E-02

END

GW-ADV
Version 3.0, 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
71432	9 20E+02	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	442 57 (14 52 ft)	60 96 (2 ft)	381 61 (12 52 ft)	0	B	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
O

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	427 57	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,081	3 28E-03	1 39E-01	1 77E-04	1 42E-02	0 00E+00	0 00E+00	5 69E-04	7 27E-03	427 57

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc , RfC (mg/m^3)
15	1 39E+02	0 10	8 46E+01	1 42E-02	3 40E+02	9 20E+75	2 28E-04	3 18E-02	7 8E-06	NA

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter X in "YES box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
108907	1 70E+03	Chlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor L_F (cm)	ENTER Depth below grade to water table L_{WT} (cm)	ENTER Thickness of soil stratum A h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	442 57 (14 52 ft)	60 96 (2 ft)	381 61 (12 52 ft)	0	B	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity n^C (unitless)	ENTER Stratum C soil water filled porosity θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, EF (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 8 8	

MORE ↓

ENTER Averaging time for carcinogens AT_C (yrs)	ENTER Averaging time for noncarcinogens AT_{NC} (yrs)	ENTER Exposure duration ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
O

INTERMEDIATE CALCULATIONS SHEET

Exposure duration τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	427 57	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,763	1 96E-03	8 33E-02	1 77E-04	1 18E-02	0 00E+00	0 00E+00	4 75E-04	6 05E-03	427 57

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	8 33E+01	0 10	8 46E+01	1 18E-02	3 40E+02	3 74E+91	1 94E-04	1 62E-02	NA	6 0E-02

END

GW-ADV
Version 3.0; 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
108101	2 10E+02	Methylisobutylketone (4-methyl-2-pentanone)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	442 57 (14 52 ft)	60 96 (2 ft)	381 61 (12 52 ft)	0	B	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP ($g/cm\cdot s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_R (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, EF (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
O

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	427 57	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, $\Delta H_{v\,TS}$ (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,808	7 30E-05	3 10E-03	1 77E-04	1 21E-02	0 00E+00	0 00E+00	6 65E-04	7 19E-03	427 57

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	3 10E+00	0 10	8 46E+01	1 21E-02	3 40E+02	1 33E+89	2 26E-04	7 01E-04	NA	8 0E-02

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter 'X in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_w (µg/L)	Chemical
107062	2 15E+03	1,2-Dichloroethane

MORE ↓

ENTER Average soil/ groundwater temperature, T_s (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens AT_C (yrs)	ENTER Averaging time for noncarcinogens AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency EF (days/yr)	ENTER Target risk for carcinogens TR (unitless)	ENTER Target hazard quotient for noncarcinogens THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,479	5 64E-04	2 40E-02	1 77E-04	1 68E-02	0 00E+00	0 00E+00	6 96E-04	7 26E-03	299 86

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc , RfC (mg/m^3)
15	2 40E+01	0 10	8 46E+01	1 68E-02	3 40E+02	1 89E+64	3 08E-04	7 37E-03	2 6E-05	NA

END

GW-ADV
Version 3 0; 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
67641	1 40E+03	Acetone

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 824	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_t (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, $\Delta H_{v\,TS}$ (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	7,510	2 38E-05	1 01E-03	1 77E-04	2 01E-02	0 00E+00	0 00E+00	1 62E-03	1 22E-02	299 86

Convection path length, L_p (cm)	Source vapor conc, C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg, Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc, $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc, RfC (mg/m^3)
15	1 01E+00	0 10	8 46E+01	2 01E-02	3 40E+02	7 89E+53	4 60E-04	4 65E-04	NA	3 5E-01

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
71432	4 25E+02	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 823	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,081	3 28E-03	1 39E-01	1 77E-04	1 42E-02	0 00E+00	0 00E+00	5 69E-04	6 02E-03	299 86

Convection path length, L_p (cm)	Source vapor conc, C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg, Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc, $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc, RfC (mg/m^3)
15	1 39E+02	0 10	8 46E+01	1 42E-02	3 40E+02	9 20E+75	2 63E-04	3 66E-02	7 8E-06	NA

END

GW-ADV
Version 3.0; 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
108907	1 15E+03	Chlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, $\Delta H_{v\,TS}$ (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,763	1 96E-03	8 33E-02	1 77E-04	1 18E-02	0 00E+00	0 00E+00	4 75E-04	5 01E-03	299 86

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	8 33E+01	0 10	8 46E+01	1 18E-02	3 40E+02	3 74E+91	2 25E-04	1 87E-02	NA	6 0E-02

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
75092	4 70E+01	Methylene chloride

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP ($g/cm \cdot s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, $\Delta H_{v\,TS}$ (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	6,992	1 39E-03	5 90E-02	1 77E-04	1 63E-02	0 00E+00	0 00E+00	6 61E-04	6 96E-03	299 86

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	5 90E+01	0 10	8 46E+01	1 63E-02	3 40E+02	1 54E+66	2 97E-04	1 75E-02	4 7E-07	3 0E+00

END

GW-ADV
Version 3 0; 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
108101	7 50E+02	Methylisobutylketone (4-methyl-2-pentanone)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_f (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)
S	1 66	0 375	0 054		1 66	0 37	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 823	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3 400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, $\Delta H_{v\,TS}$ (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7.74E+05	4 40E-04	15	9,808	7 30E-05	3 10E-03	1 77E-04	1 21E-02	0 00E+00	0 00E+00	6 65E-04	6 13E-03	299 86

Convection path length, L_p (cm)	Source vapor conc, C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg, Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe') (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc, $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc, RfC (mg/m^3)
15	3 10E+00	0 10	8 46E+01	1 21E-02	3 40E+02	1 33E+89	2 67E-04	8 28E-04	NA	8 0E-02

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
127184	8 25E+01	Tetrachloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP ($g/cm\ s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 82	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, $\Delta H_{v\,TS}$ (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,513	9 92E-03	4 21E-01	1 77E-04	1 16E-02	0 00E+00	0 00E+00	4 63E-04	4 90E-03	299 86

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc RfC (mg/m^3)
15	4 21E+02	0 10	8 46E+01	1 16E-02	3 40E+02	7 00E+92	2 21E-04	9 29E-02	3 0E-06	NA

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
79016	2 00E+01	Trichloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	314 86 (10 33 ft)	314 86 (10 33 ft)	0	0	A	S	S		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1 66	0 375	0 054		1 66	0 375	0 054		1 66	0 375	0 054

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 823	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
Q

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_1 (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	299 86	0 321	0 321	0 321	0 003	9 99E-08	0 998	9 98E-08	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,507	5 93E-03	2 52E-01	1 77E-04	1 28E-02	0 00E+00	0 00E+00	5 09E-04	5 39E-03	299 86

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe') (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	2 52E+02	0 10	8 46E+01	1 28E-02	3 40E+02	4 15E+84	2 39E-04	6 02E-02	1 1E-04	4 0E-02

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
107062	5 00E+04	1,2-Dichloroethane

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm-s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
B

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,479	5 64E-04	2 40E-02	1 77E-04	5 41E-03	1 68E-02	0 00E+00	6 96E-04	8 24E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	2 40E+01	0 10	1 07E+00	5 41E-03	3 40E+02	3 34E+02	1 97E-05	4 72E-04	2 6E-05	NA

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
156592	1 30E+04	cis-1,2-Dichloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone L_{cz} (cm)	Total porosity in capillary zone n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, $\Delta H_{v\,TS}$ (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	7,694	2 47E-03	1 05E 01	1 77E-04	3 82E-03	1 19E-02	0 00E+00	4 79E-04	5 77E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient α (unitless)	Infinite source bldg conc $C_{building}$ ($\mu g/m^3$)	Unit risk factor URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	1 05E+02	0 10	1 07E+00	3 82E-03	3 40E+02	3 72E+03	1 90E-05	2 00E-03	NA	3 5E-02

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter 'X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
67641	3 20E+04	Acetone

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm³/cm³)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
B

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	7,510	2 38E-05	1 01E-03	1 77E-04	6 73E-03	2 01E-02	0 00E+00	1 62E-03	1 22E-02	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	1 01E+00	0 10	1 07E+00	6 73E-03	3 40E+02	1 07E+02	2 04E-05	2 06E-05	NA	3 5E-01

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
71432	6 80E+03	Benzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration ED (yrs)	ENTER Exposure frequency EF (days/yr)	ENTER Target risk for carcinogens TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability k_v (cm^2)	Thickness of capillary zone L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air filled porosity in capillary zone $\theta_{a,cz}$ (cm^3/cm^3)	Water filled porosity in capillary zone $\theta_{w,cz}$ (cm^3/cm^3)	Floor wall seam perimeter X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E 09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,081	3 28E-03	1 39E-01	1 77E-04	4 57E-03	1 42E-02	0 00E+00	5 69E 04	6 88E-03	534 55

Convection path length, L_p (cm)	Source vapor conc C_{source} ($\mu g/m^3$)	Crack radius r_{crack} (cm)	Average vapor flow rate into bldg, Q_{soil} (cm^3/s)	Crack effective diffusion coefficient D^{crack} (cm^2/s)	Area of crack A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient α (unitless)	Infinite source bldg conc $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc, RfC (mg/m^3)
15	1 39E+02	0 10	1 07E+00	4 57E 03	3 40E+02	9 72E+02	1 94E 05	2 70E-03	7 8E-06	NA

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
108907	1 30E+03	Chlorobenzene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP (g/cm s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone, $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,763	1 96E-03	8 33E-02	1 77E-04	3 79E-03	1 18E-02	0 00E+00	4 75E-04	5 72E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	8 33E+01	0 10	1 07E+00	3 79E-03	3 40E+02	3 98E+03	1 90E-05	1 58E-03	NA	6 0E-02

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
67663	2 00E+03	Chloroform

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water tab e, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil tota porosity n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchar ge rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor wall seam perimeter X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E 09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	7,513	2 25E-03	9 56E-02	1 77E-04	5 40E-03	1 68E-02	0 00E+00	6 74E-04	8 14E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	9 56E+01	0 10	1 07E+00	5 40E-03	3 40E+02	3 37E+02	1 97E-05	1 88E-03	2 3E-05	NA

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
75092	1 90E+03	Methylene chloride

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP (g/cm s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
B

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	6,992	1 39E-03	5 90E-02	1 77E-04	5 25E-03	1 63E-02	0 00E+00	6 61E-04	7 94E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	5 90E+01	0 10	1 07E+00	5 25E-03	3 40E+02	3 99E+02	1 97E-05	1 16E-03	4 7E-07	3 0E+00

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
78933	7 90E+03	Methylethylketone (2-butanone)

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm²)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm³)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm³/cm³)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm³)	ENTER Stratum B soil total porosity n^B (unitless)	ENTER Stratum B soil water filled porosity, θ_w^B (cm³/cm³)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm³)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm³/cm³)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration ED (yrs)	ENTER Exposure frequency EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation L_T (cm)	Stratum A soil air-filled porosity θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability k_v (cm^2)	Thickness of capillary zone L_{cz} (cm)	Total porosity in capillary zone n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone θ_{wcz} (cm^3/cm^3)	Floor wall seam perimeter X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,370	3 25E-05	1 38E-03	1 77E-04	4 38E-03	1 31E-02	0 00E+00	1 04E-03	7 91E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient D^{crack} (cm^2/s)	Area of crack A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	1 38E+00	0 10	1 07E+00	4 38E-03	3 40E+02	1 31E+03	1 96E-05	2 70E-05	NA	1 0E+00

END

GW-ADV
Version 3 0, 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
127184	3 30E+04	Tetrachloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm-s²)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,513	9 92E-03	4 21E-01	1 77E-04	3 74E-03	1 16E-02	0 00E+00	4 63E-04	5 61E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	4 21E+02	0 10	1 07E+00	3 74E-03	3 40E+02	4 49E+03	1 89E-05	7 98E-03	3 0E-06	NA

END

GW-ADV
Version 3 0 02/03

Reset to Defaults

CALCULATE RISK BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
79016	1 50E+05	Trichloroethylene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Totals must add up to value of L_{WT} (cell G28) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User defined stratum A soil vapor permeability, k_v (cm^2)
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity n^B (unitless	ENTER Stratum B soil water filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water filled porosity, θ_w^C (cm^3/cm^3)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil bldg pressure differential, ΔP (g/cm s^2)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens TR (unitless)	ENTER Target hazard quotient for noncarcinogens THQ (unitless)
70	30	30	350	1 0E 06	1
				Used to calculate risk based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability, k_i (cm^2)	Stratum A soil relative air permeability, k_{rg} (cm^2)	Stratum A soil effective vapor permeability, k_v (cm^2)	Thickness of capillary zone, L_{cz} (cm)	Total porosity in capillary zone n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone θ_{acz} (cm^3/cm^3)	Water-filled porosity in capillary zone, θ_{wcz} (cm^3/cm^3)	Floor-wall seam perimeter, X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient, D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	8,507	5 93E-03	2 52E-01	1 77E-04	4 10E-03	1 28E-02	0 00E+00	5 09E-04	6 17E-03	534 55

Convection path length, L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg , Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor, URF ($\mu g/m^3$)$^{-1}$	Reference conc , RfC (mg/m^3)
15	2 52E+02	0 10	1 07E+00	4 10E-03	3 40E+02	2 13E+03	1 91E-05	4 82E-03	1 1E-04	4 0E-02

END

GW-ADV
Version 3.0; 02/03

Reset to Defaults

CALCULATE RISK-BASED GROUNDWATER CONCENTRATION (enter "X" in "YES" box)

YES [X]

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL GROUNDWATER CONCENTRATION (enter "X" in "YES" box and initial groundwater conc below)

YES [ ]

ENTER Chemical CAS No (numbers only, no dashes)	ENTER Initial groundwater conc, C_W (µg/L)	Chemical
108883	2 10E+04	Toluene

MORE ↓

ENTER Average soil/ groundwater temperature, T_S (°C)	ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Depth below grade to water table, L_{WT} (cm)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum directly above water table, (Enter A, B, or C)	ENTER SCS soil type directly above water table	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
			Totals must add up to value of L_{WT} (cell G28)							
14	15	549 55 (18 03 ft)	91 44 (3 ft)	458 11 (15 03 ft)	0	B	S	SIC		

MORE ↓

ENTER Stratum A SCS soil type (Lookup Soil Parameters)	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type (Lookup Soil Parameters)	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type (Lookup Soil Parameters)	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
SIC	1 38	0 481	0 216	S	1 66	0 375	0 054		1 5	0 43	0 3

MORE ↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg pressure differential, ΔP ($g/cm\text{-}s^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space floor width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg OR Leave blank to calculate Q_{soil} (L/m)
10	40	850	850	300	0 1	0 828	

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
70	30	30	350	1 0E-06	1
				Used to calculate risk-based groundwater concentration	

END

Leachate location
R

INTERMEDIATE CALCULATIONS SHEET

Exposure duration, τ (sec)	Source-building separation, L_T (cm)	Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3)	Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3)	Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3)	Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3)	Stratum A soil intrinsic permeability k_i (cm^2)	Stratum A soil relative air permeability k_{rg} (cm^2)	Stratum A soil effective vapor permeability k_v (cm^2)	Thickness of capillary zone L_{cz} (cm)	Total porosity in capillary zone, n_{cz} (cm^3/cm^3)	Air-filled porosity in capillary zone, $\theta_{a,cz}$ (cm^3/cm^3)	Water-filled porosity in capillary zone $\theta_{w,cz}$ (cm^3/cm^3)	Floor-wall seam perimeter X_{crack} (cm)
9 46E+08	534 55	0 265	0 321	0 130	0 284	1 49E-09	0 844	1 26E-09	17 05	0 375	0 122	0 253	3,400

Bldg ventilation rate, $Q_{building}$ (cm^3/s)	Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave groundwater temperature, ΔH_{vTS} (cal/mol)	Henry's law constant at ave groundwater temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave groundwater temperature, H'_{TS} (unitless)	Vapor viscosity at ave soil temperature, μ_{TS} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s)	Capillary zone effective diffusion coefficient D^{eff}_{cz} (cm^2/s)	Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s)	Diffusion path length, L_d (cm)
4 99E+04	7 74E+05	4 40E-04	15	9,111	3 67E-03	1 56E-01	1 77E-04	4 52E-03	1 41E-02	0 00E+00	5 61E-04	6 80E-03	534 55

Convection path length L_p (cm)	Source vapor conc , C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg Q_{soil} (cm^3/s)	Crack effective diffusion coefficient D^{crack} (cm^2/s)	Area of crack A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient α (unitless)	Infinite source bldg conc , $C_{building}$ ($\mu g/m^3$)	Unit risk factor URF ($\mu g/m^3$)$^{-1}$	Reference conc RfC (mg/m^3)
15	1 56E+02	0 10	1 07E+00	4 52E-03	3 40E+02	1 05E+03	1 93E-05	3 02E-03	NA	4 0E-01

END

K

APPENDIX K

CALCULATION OF EXCAVATION AIR VOC CONCENTRATIONS FROM STANDING WATER - EXCAVATION TRENCH

APPENDIX K
CALCULATION OF EXCAVATION AIR VOC CONCENTRATIONS FROM STANDING WATER - EXCAVATION TRENCH

Excavation trench air concentrations of a COPC resulting from volatilization from groundwater and leachate infiltrating an excavation trench can be predicted by use of the method recommended by USEPA (1987) for predicting volatilization from standing water.

Model to Predict Air Concentration

In this model, the air concentration of a COPC is estimated at the downwind boundary of the water. For the purposes of calculating this concentration, a rectangular box with the base corresponding to the water surface is considered. The height of the box, H_b, is the height to which the chemical emissions from the water surface are uniformly mixed with the air. L_b is the dimension of the box parallel to the direction of the wind. W_b is the width of the box perpendicular to the airflow. If U is the wind speed, then, by conservation of mass, the air concentration, C_a, of chemical within the box is given by:

$$C_a = \frac{Q}{H_b W_b U} \tag{1}$$

The diffusion height, H_b, above the water surface is approximately equal to 0.05 L_b (Jackson, 1976). With this substitution, the equation for the air concentration becomes:

$$C_a = \frac{Q}{0.05AU} \tag{2}$$

Where:

Q = chemical emission rate (g/s)

A = water surface area (m^2) (12 m^2; best professional judgement estimate of utility repair/installation trench)

U = wind speed (m/s) (2.25 m/s; default value USEPA, 1991)

The chemical emission rate, Q, can be expressed as follows:

$$Q = KAC_L \tag{3}$$

Where:

Q = chemical emission rate (g/s)

K = overall mass transfer coefficient (m/s)

A = water surface area (m^2) ($12m^2$; best professional judgement estimate of utility repair/installation trench)

C_L = chemical concentration in water (g/m^3)

With the substitution of equation (3) into equation (2), the equation for air concentration becomes:

$$Ca = \frac{KC_L}{0.05u} \tag{4}$$

As wind speed, u, and the chemical concentration in water, C_L, are known or can be measured, the chemical concentration in air is then a function of the overall mass transfer coefficient.

Mass Transfer Coefficient

The overall mass transfer coefficient, K, is given by:

$$\frac{1}{K} = \frac{1}{K_L} + \frac{1}{K_G K_{eq}} \tag{5}$$

Where:

K_L = Liquid phase mass transfer coefficient (m/s)

K_G = Gas phase mass transfer coefficient (m/s)

K_{eq}= Equilibrium mass transfer coefficient (unitless)

The equilibrium mass transfer coefficient is given by the following:

$$K_{eq} = \frac{H}{RT} \tag{6}$$

Where:

H = Henry's Law constant for the chemical (atm m^3/g-mol)

R = Universal Gas Constant (8.21×10^{-5} atm m^3/g-mol/°K)

T = Water Temperature (°K)

The Henry's Law constants are chemical-specific and were obtained from the USEPA Soil Screening Guidance (USEPA, 1996) and the Syracuse Research Corporation Interactive PhysProp Database (SRC, 2003).

The liquid phase mass transfer coefficient is given by:

$$K_L = 2.78 \times 10^{-6} \left(\frac{D_w}{D_{ether}} \right)^{2/3} \tag{7}$$

Where:

D_w = Diffusivity of the compound in water (cm^2/s)

D_{ether} = Diffusivity of ether in water (8.5×10^{-6} cm^2/s; USEPA, 1987).

The diffusivity of each chemical in water was obtained from the USEPA Soil Screening Guidance (USEPA, 1996) or was calculated by ENSR.

The gas phase mass transfer coefficient is given by:

$$K_G = 4.82 \times 10^{-3} U^{0.78} Sc_G^{-0.67} d_e^{-0.11} \tag{8}$$

Where:

U = wind speed (m/s)

Sc_G = Schmidt number = $\mu_G/(\rho_G D_a)$

μ_G = viscosity of air (1.81×10^{-4} g/cm-s)

ρ_G = density of air (1.2×10^{-3} g/cm^3)

D_a = diffusivity of the chemical in air (cm^2/s)

d_e = effective diameter (m) = $(4A/\pi)^{0.5}$

For each of the compounds the molecular diffusivity in air was obtained from the USEPA Soil Screening Guidance (USEPA, 1996) or was calculated by ENSR.

Attenuation Factor

For the purpose of calculating the concentration in air from a given concentration in water, it is convenient to define an attenuation factor, α, which is given as the ratio of the ambient air concentration given in equation (4) to the concentration in water:

$$\alpha = \frac{C_a}{C_L} = \frac{K}{0.05U} \tag{9}$$

If the concentration in the water is given per liter and the air concentration is given per cubic meter, then the attenuation factor becomes:

$$\alpha(L/m^3) = \frac{20000K}{U} \tag{10}$$

where the mass transfer coefficient, K, is defined as above.

Model Application and Results

Table K-1 summarizes model inputs and intermediate steps in the modeling process. Table 5-15 presents the RME and MLE groundwater source concentrations utilized in predicting trench air concentrations. Table 5-16 presents the predicted RME and MLE trench air concentrations for volatile COPCs.

Uncertainty Analysis

It should be noted that the volatilization model described above does not consider the effect of one chemical in solution upon the volatilization of another. This effect should be minor, however, considering the low concentrations of these chemicals in water. Also, the assumption of a water temperature of 25°C is conservative considering the increase of the Henry's Law parameter with temperature.

References

Jackson, N.A. 1976. The Propagation of Modified Flow Downstream of a Change in Roughness. Quarterly Journal of the Royal Meteorological Society. 102:924.

SRC, 2003. Syracuse Research Corporation. Interactive PhysProp Database. http://esc.syrres.com/interkow/physdemo.htm.

USEPA. 1996. Soil Screening Guidance: User's Guidance Manual. Office of Solid Waste and Emergency Response. EPA/540/R-96/018

USEPA. 1987. Hazardous Waste Treatment, Storage and Disposal Facilities (TDSF) – Air Emission Models. EPA-450/3-87-026. December 1987.

USEPA. 1991. Risk Assessment Guidance for Superfund: Volume I – Human Health Evaluation Manual (Part B, Development of Risk-based Preliminary Remediation Goals). Interim. Office of Emergency and Remedial Response. U.S. Environmental Protection Agency.

TABLE K-1
USE OF GROUNDWATER CONCENTRATIONS FOR ESTIMATING CONCENTRATIONS IN EXCAVATION TRENCH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

*** Input Parameters ***

Water temperature (degK)	298 15
Viscosity of water (cp)	0 8904
Wetted area (m**2)	2025
Wind speed (m/s)	2 25

*** Constants ***

Gas const (atm m**3/(mol degK))	8 21E-05
Diff of ether in H2O (cm**2/s)	8 50E-06
Viscosity of air (g/(cm s))	1 81E-04
Density of air (g/cm**3)	1 20E-03

*** Calculated Parameter ***

Effective diameter of source (m)	50 777

*** Chemical-Specific Parameters ***

Constituent	CAS Number	Molecular Weight (g/mol)		Henry's Law Coefficient (atm*m**3/g-mole)		Diffusivity In Air (cm**2/s)		Diffusivity In Water (cm**2/s)		Keq	Kl (m/s)	SCg	Kg (m/s)	K (m/s)	Q (m3/s)	Groundwater-to Air Attenuation Factor (L/m3)
1,2-Dichloroethane	107-06-2	98 96	(a)	9 79E-04	(b)	1 04E-01	(b)	9 90E-06	(b)	4 00E-02	3 08E-06	1 45E+00	4 59E-03	3 03E-06	6 13E-03	2 69E-02
1,2-Dichloroethene (total)	540-59-0	96 94	(a)	4 08E-03	(b)(e)	7 36E-02	(b)(e)	1 13E-05	(b)(e)	1 67E-01	3 36E-06	2 05E+00	3 64E-03	3 34E-06	6 77E-03	2 97E-02
2-Butanone (MEK)	78-93-3	72 11	(a)	5 69E-05	(c)	9 77E-02	(d)	1 03E-05	(d)	2 32E-03	3 16E-06	1 54E+00	4 40E-03	2 41E-06	4 88E-03	2 14E-02
4-Methyl-2-pentanone (MIBK)	108-10-1	100 16	(a)	1 38E-04	(c)	7 89E-02	(d)	8 22E-06	(d)	5 64E-03	2 72E 06	1 91E+00	3 82E-03	2 41E-06	4 89E-03	2 15E-02
Acetone	67-64-1	58 08	(a)	3 88E-05	(b)	1 24E-01	(b)	1 14E-05	(b)	1 59E-03	3 38E-06	1 22E+00	5 17E-03	2 39E-06	4 85E-03	2 13E-02
Benzene	71-43-2	78 11	(a)	5 55E-03	(b)	8 80E-02	(b)	9 80E-06	(b)	2 27E-01	3 06E-06	1 71E+00	4 11E-03	3 05E-06	6 17E-03	2 71E-02
Chlorobenzene	108-90-7	112 56	(a)	3 70E-03	(b)	7 30E-02	(b)	8 70E-06	(b)	1 51E-01	2 82E-06	2 07E+00	3 62E-03	2 81E-06	5 69E-03	2 50E-02
Chloroform	67-66 3	119 38	(a)	3 67E-03	(b)	1 04E-01	(b)	1 00E-05	(b)	1 50E-01	3 10E-06	1 45E+00	4 59E-03	3 08E-06	6 25E-03	2 74E-02
Chloromethane	74-87-3	50 49	(a)	8 82E-03	(c)	1 40E-01	(d)	1 50E-05	(d)	3 60E-01	4 06E-06	1 07E+00	5 61E-03	4 06E-06	8 21E-03	3 61E-02
Dichloromethane	75-09-2	84 93	(a)	2 19E-03	(b)	1 01E-01	(b)	1 17E-05	(b)	8 95E-02	3 44E-06	1 49E+00	4 50E-03	3 41E-06	6 91E-03	3 03E-02
Tetrachloroethene	127-18-4	165 83	(a)	1 84E-02	(b)	7 20E-02	(b)	8 20E-06	(b)	7 52E-01	2 71E-06	2 09E+00	3 59E-03	2 71E-06	5 49E-03	2 41E-02
Toluene	108-88-3	92 14	(a)	6 64E-03	(b)	8 70E-02	(b)	8 60E-06	(b)	2 71E-01	2 80E-06	1 73E+00	4 07E-03	2 79E-06	5 66E-03	2 48E-02
Trichloroethylene	79-01-6	131 39	(a)	1 03E-02	(b)	7 90E-02	(b)	9 10E-06	(b)	4 21E-01	2 91E-06	1 91E+00	3 82E-03	2 90E-06	5 88E-03	2 58E-02

Notes
CAS - Chemical Abstract Service
References for physical constants
(a) U S EPA 1992 Handbook of RCRA Ground-water Monitoring Constituents PB92 233287
(b) U S EPA 1996a Soil Screening Guidance PB96-963502
(c) Syracuse Research Corporation Interactive PhysProp Database http //esc syrres com/interkow/physdemo htm
(d) Calculated value
(e) Value for cis-1,2-Dichloroethene

L

APPENDIX L

CALCULATION OF OUTDOOR AIR VOC CONCENTRATIONS FROM SOIL AND GROUNDWATER

Appendix L

Calculation of Ambient Air Concentrations for Volatilization from Underlying Groundwater

Ambient air concentrations resulting from migration of volatile constituents of potential concern (COPC) from underlying soil and groundwater to outdoor air were predicted based on the method recommended by the American Society for Testing and Materials in ASTM E 2081 *Standard Provisional Guide for Risk-Based Corrective Action* (ASTM, 2000). Calculations were completed using the *RBCA Tool Kit for Chemical Releases* software, Version 1.3a, designed by Groundwater Services, Inc. (2000) to implement the calculations recommended in ASTM PS-104. The goal of the approach recommended in ASTM E 2081 is to estimate potential impacts of volatile constituents migrating from soil and groundwater to the outdoor air breathing zone.

The approach recommended in ASTM E 2081 for predicting migration of COPC vapors from groundwater and soil to ambient outdoor air is a simple one in which the relationships between outdoor air and dissolved groundwater concentrations and outdoor air and surficial soil concentraions are represented by a chemical-specific volatilization factor, and is dependent upon the following assumptions:

- The concentration of dissolved constituents in soil and groundwater remains constant over time (i.e., serves as an infinite source of volatile constituents).
- The soil vapor concentrations of volatile constituents reach immediate equilibrium with the dissolved concentration of these same constituents in groundwater.
- There is no loss of constituent (through biodegradation, or other loss mechanism) as the volatile constituent migrates, via diffusion, to the ground surface.
- Air dispersion of volatile constituents within the breathing zone is predicted through the use of a box model resulting in steady, well mixed atmospheric dispersion of volatile constituents as they rise into the breathing zone.

Equations for the implementation of ASTM E 2081 are available in the American Society for Testing and Materials in ASTM E 2081 *Standard Provisional Guide for Risk-Based Corrective Action* (ASTM, 2000) and the *RBCA Tool Kit Chemical Releases Guidance Manual* developed by GSI (2001). Chemical-specific parameters selected by GSI for use in their *RBCA Tool Kit for Chemical Releases* software were utilized in this risk assessment.

Default parameters provided in the model were used with the following with the exception of the following site-specific soil and groundwater parameters:

- Predominant SCS soil type;
- Depth to water bearing unit (cm);

- Depth to top and base of affected soils (cm);

All parameters, default and site-specific, are summarized in the attached modeling printouts. The modeling printouts are presented in the following order, Maximum Likely Exposure (MLE) Scenario followed by Reasonable Maximum Exposure (RME) Scenario:

Volatilization from Combined Soil

- Site O
- Site O North
- Site P
- Site Q North
- Site Q South
- Site R
- Site S

Note that the soil parameters are the same for the MLE and RME scenarios. Therefore, only the MLE input sheet is presented.

Volatilization from Groundwater/Leachate

- Groundwater location Q-AA-Q-6-24
- Groundwater location R-AA-R-1-28
- Leachate Site O
- Leachate Site Q
- Leachate Site R

REFERENCES:

ASTM, 2000. Standard Provisional Guidance for Risk Based Corrective Action. ASTM Designation: E 2081-00. American Society for Testing and Material. West Conshohocken, PA.

GSI, 2001. RBCA Tool Kit for Chemical Releases Software. Version 1.3a. Groundwater Services, Inc. Houston, Texas.

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Combined Soil - O_MLE | Date: 26-Jun-03
Compl. By: Julie Kabel

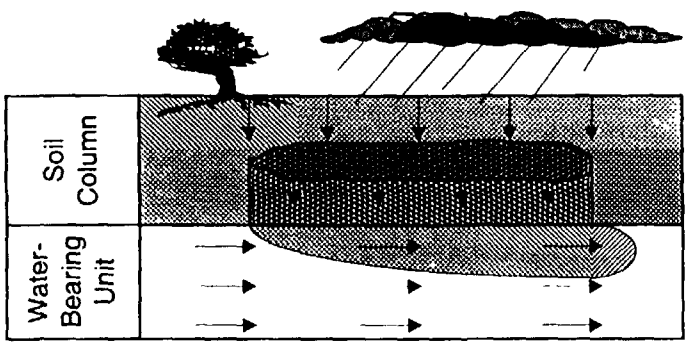
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction		
Depth to water-bearing unit	300		(cm)
Capillary zone thickness	5		(cm)
Soil column thickness	295		(cm)

Affected Soil Zone

Depth to top of affected soils	15.24		(cm)
Depth to base of affected soils	335.28		(cm)
Affected soil area	2E+07	2E+07	(cm^2)
Length of affected soil parallel to assumed wind direction	4500	4500	(cm)
Length of affected soil parallel to assumed GW flow direction			(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP: Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 335 cm):
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air. POE Conc. (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	9.6E+1	1.4E+4	5.8E+2			6.7E-3	1.7E-1		
Chlorobenzene	2.2E+2	1.4E+4	1.4E+3			1.5E-2	1.6E-1		
Ethylbenzene	4.9E+2	1.4E+4	1.2E+3			3.3E-2	3.9E-1		
Toluene	7.0E+1	1.4E+4	8.0E+2			4.8E-3	8.7E-2		
Xylene (mixed isomers)	2.5E+3	1.4E+4	1.1E+3			1.7E-1	2.3E+0		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - O_MLE
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 335 cm):

VAPOR INHALATION

	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
Constituents of Concern		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	5.0E+2	1.4E+4	5 8E+2			3.5E-2	8.6E-1		
Chlorobenzene	7.6E+2	1.4E+4	1.4E+3			5.2E-2	5.4E-1		
Ethylbenzene	2.8E+3	1.4E+4	1.2E+3			1.9E-1	2.3E+0		
Toluene	3.9E+2	1 4E+4	8.0E+2			2 7E-2	4.9E-1		
Xylene (mixed isomers)	1.4E+4	1.4E+4	1.1E+3			9 7E-1	1.3E+1		

NOTE NAF = Natural attenuation factor POE = Point of exposure

Site Name· Sauget Area 2
Site Location Combined Soil - O_RME
Completed By. Julie Kabel

Date Completed 26-Jun-03
Job ID 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Combined Soil - O North_MLE | Date: 26-Jun-03
Compl. By: Julie Kabel

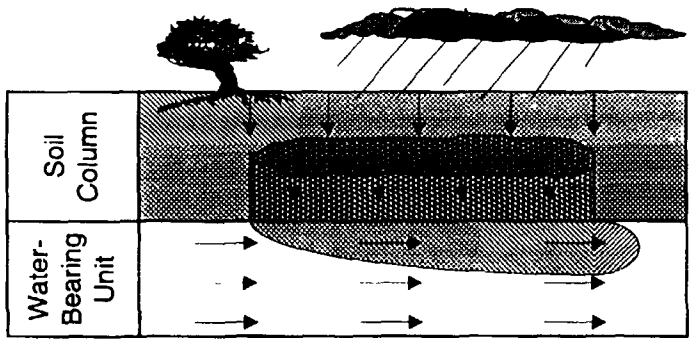
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction		
Depth to water-bearing unit	300		(cm)
Capillary zone thickness	5		(cm)
Soil column thickness	295		(cm)

Affected Soil Zone

Depth to top of affected soils	15.24		(cm)
Depth to base of affected soils	457.2		(cm)
Affected soil area	2E+07	2E+07	(cm^2)
Length of affected soil parallel to assumed wind direction	4500	4500	(cm)
Length of affected soil parallel to assumed GW flow direction			(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP: Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 457 cm)·
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	4.4E+1	1.0E+4	5.8E+2			4.1E-3	7.6E-2		
Chlorobenzene	3.2E+2	1.0E+4	1.4E+3			3.1E-2	2.3E-1		
Methylene chloride	3.7E+1	1.0E+4	4.4E+2			3.5E-3	8.3E-2		
Ethylbenzene	5.0E+2	1.0E+4	1.2E+3			4.8E-2	4.1E-1		
Tetrachloroethene	3.5E+0	1.0E+4	5.6E+2			3.4E-4	6.3E-3		
Xylene (mixed isomers)	2.6E+3	1.0E+4	1.1E+3			2.5E-1	2.4E+0		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location. Combined Soil - O North_MLE
Completed By. Julie Kabel

Date Completed. 26-Jun-03
Job ID· 06105-009-302

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 457 cm):
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	6.9E+1	1.0E+4	5.8E+2			6.6E-3	1.2E-1		
Chlorobenzene	4.8E+2	1.0E+4	1.4E+3			4.6E-2	3.4E-1		
Methylene chloride	8.7E+1	1.0E+4	4.4E+2			8.3E-3	2.0E-1		
Ethylbenzene	7.6E+2	1.0E+4	1.2E+3			7.2E-2	6.2E-1		
Tetrachloroethene	6.8E+0	1.0E+4	5.6E+2			6.5E-4	1.2E-2		
Xylene (mixed isomers)	3.9E+3	1.0E+4	1.1E+3			3.7E-1	3.6E+0		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - O North_RME
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Combined Soil - P - MLE | Date: 26-Jun-03
Compl. By: Julie Kabel

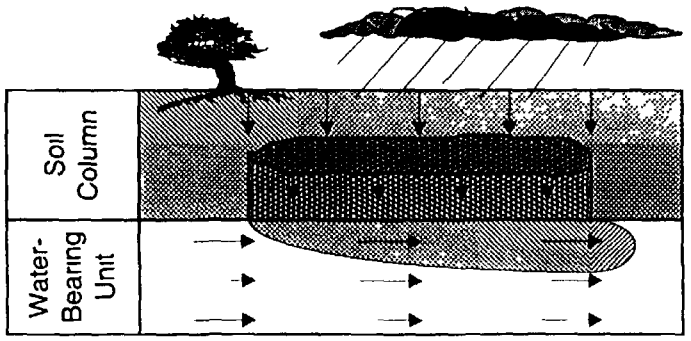
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction	
Depth to water-bearing unit	300	(cm)
Capillary zone thickness	5	(cm)
Soil column thickness	295	(cm)

Affected Soil Zone

Depth to top of affected soils	15.24		(cm)
Depth to base of affected soils	914.4		(cm)
Affected soil area	2E+07	2E+07	(cm^2)
Length of affected soil parallel to assumed wind direction	4500	4500	(cm)
Length of affected soil parallel to assumed GW flow direction			(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP: Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 914 cm):

VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc (mg/kg)	On site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	6.6E-1	5.2E+3	5 8E+2			1.3E-4	1.1E-3		
Ethylbenzene	8.7E+0	6.1E+3	1 2E+3			1.4E-3	7.1E-3		
Tetrachloroethene	1.3E+1	5.2E+3	5 6E+2			2.5E-3	2.3E-2		
Trichloroethene	2.0E-1	5 2E+3	6 3E+2			3 9E-5	3 2E-4		
Xylene (mixed isomers)	4.0E+1	5.4E+3	1 1E+3			7 4E-3	3 7E-2		

NOTE. NAF = Natural attenuation factor POE = Point of exposure

Site Name Sauget Area 2
Site Location Combined Soil - P - MLE
Completed By Julie Kabel

Date Completed 26-Jun-03
Job ID 06105-009-302

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 914 cm):

VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	1.1E+0	5.2E+3	5.8E+2			2.2E-4	1.9E-3		
Ethylbenzene	7.8E+1	6.1E+3	1.2E+3			1.3E-2	6.4E-2		
Tetrachloroethene	1.5E+1	5.2E+3	5.6E+2			3.0E-3	2.8E-2		
Trichloroethene	9.9E-1	5.2E+3	6.3E+2			1.9E-4	1.6E-3		
Xylene (mixed isomers)	3.8E+2	5.4E+3	1.1E+3			7.0E-2	3.5E-1		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - P - RME
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Combined Soil - Q North_MLE | Date: 26-Jun-03
Compl. By: Julie Kabel

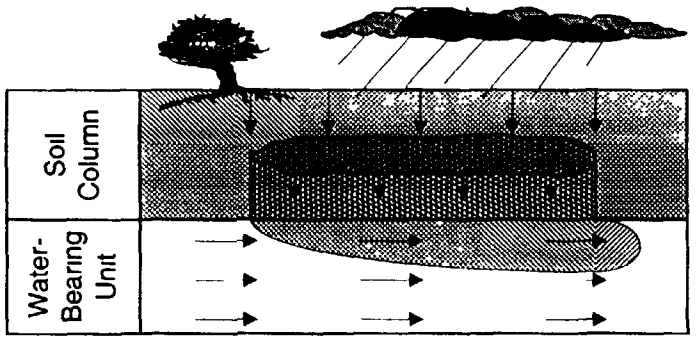
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction		
Depth to water-bearing unit	300		(cm)
Capillary zone thickness	5		(cm)
Soil column thickness	295		(cm)

Affected Soil Zone

Depth to top of affected soils	15.24		(cm)
Depth to base of affected soils	548.64		(cm)
Affected soil area	2E+07	2E+07	(cm^2)
Length of affected soil parallel to assumed wind direction	4500	4500	(cm)
Length of affected soil parallel to assumed GW flow direction			(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP. Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 549 cm):
VAPOR INHALATION

	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
Constituents of Concern		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Dichloroethane, 1,2-	3.2E-1	8.7E+3	1.1E+3			3.7E-5	2.9E-4		
Benzene	6.8E-1	8.7E+3	5.8E+2			7.8E-5	1.2E-3		
Ethylbenzene	3.5E+0	8.7E+3	1.2E+3			4.0E-4	2.8E-3		
Tetrachloroethene	2.0E+0	8.7E+3	5.6E+2			2.2E-4	3.5E-3		
Trichloroethene	1.1E-1	8.7E+3	6.3E+2			1.2E-5	1.7E-4		
Xylene (mixed isomers)	2.5E+1	8.7E+3	1.1E+3			2.9E-3	2.3E-2		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - Q North_MLE
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 549 cm):

VAPOR INHALATION

	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
Constituents of Concern		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Dichloroethane, 1,2-	7.4E-1	8.7E+3	1.1E+3			8.5E-5	6.8E-4		
Benzene	1.6E+0	8.7E+3	5.8E+2			1.9E-4	2.8E-3		
Ethylbenzene	7.8E+0	8.7E+3	1.2E+3			8.9E-4	6.3E-3		
Tetrachloroethene	4.9E+0	8.7E+3	5.6E+2			5.6E-4	8.8E-3		
Trichloroethene	2.1E-1	8.7E+3	6.3E+2			2.4E-5	3.2E-4		
Xylene (mixed isomers)	5.8E+1	8.7E+3	1.1E+3			6.7E-3	5.3E-2		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - Q North_RME
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Combined Soil - Q South_MLE | Date: 26-Jun-03
Compl. By: Julie Kabel

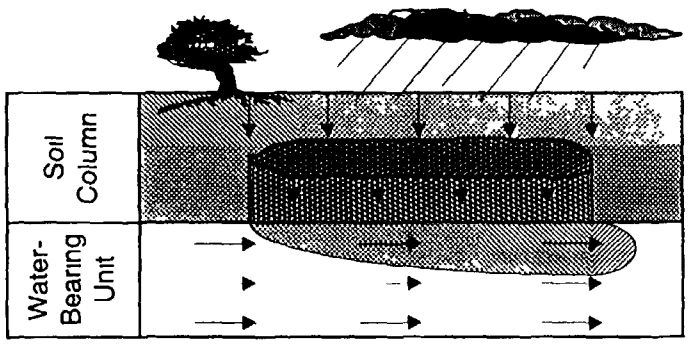
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction		
Depth to water-bearing unit	300		(cm)
Capillary zone thickness	5		(cm)
Soil column thickness	295		(cm)

Affected Soil Zone

Depth to top of affected soils	15.24		(cm)
Depth to base of affected soils	548 64		(cm)
Affected soil area	2E+07	2E+07	(cm^2)
Length of affected soil parallel to assumed wind direction	4500	4500	(cm)
Length of affected soil parallel to assumed GW flow direction			(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 549 cm):

VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	1.3E-1	8.7E+3	5.8E+2			1.5E-5	2.3E-4		
Ethylbenzene	1.4E+1	8.7E+3	1.2E+3			1.6E-3	1.1E-2		
Toluene	6.5E+1	8.7E+3	8.0E+2			7.5E-3	8.1E-2		
Trichloroethene	2.2E-2	8.7E+3	6.3E+2			2.5E-6	3.4E-5		
Xylene (mixed isomers)	9.5E+1	8.7E+3	1.1E+3			1.1E-2	8.8E-2		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - Q South_MLE
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 549 cm):
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc. (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Benzene	3.0E-1	8.7E+3	5.8E+2			3.4E-5	5.2E-4		
Ethylbenzene	3.5E+1	8.7E+3	1.2E+3			4.1E-3	2.9E-2		
Toluene	1.7E+2	8.7E+3	8.0E+2			1.9E-2	2.1E-1		
Trichloroethene	5.2E-2	8.7E+3	6.3E+2			5.9E-6	8.1E-5		
Xylene (mixed isomers)	2.5E+2	8.7E+3	1.1E+3			2.9E-2	2.3E-1		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - Q South_RME
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Combined Soil - R_MLE | Date: 26-Jun-03
Compl. By: Julie Kabel

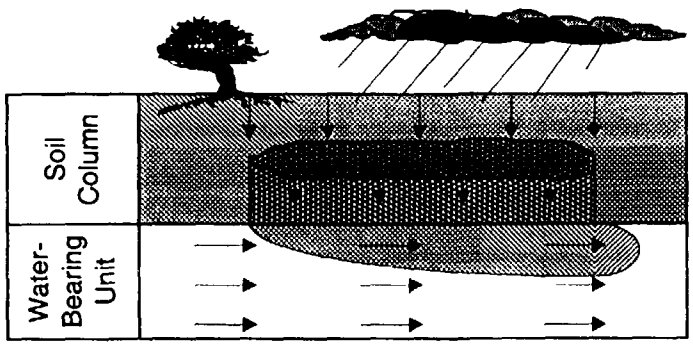
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction		
Depth to water-bearing unit	300		(cm)
Capillary zone thickness	29		(cm)
Soil column thickness	271		(cm)

Affected Soil Zone

Depth to top of affected soils	15.24		(cm)
Depth to base of affected soils	792.48		(cm)
Affected soil area	2E+07	2E+07	(cm^2)
Length of affected soil parallel to assumed wind direction	4500	4500	(cm)
Length of affected soil parallel to assumed GW flow direction			(cm)



2. Surface Soil Column

	Vadose Zone	Capillary Fringe	
Predominant USCS Soil Type	CL: Silty Clay		
or — Enter Directly	or		
Total porosity	0.36		(-)
Volumetric water content	0.34	0.35	(-)
Volumetric air content	0.02	0.010	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E-3		(cm/d)
Vapor permeability	1.0E-13		(cm^2)
Capillary zone thickness	2.9E+1		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or — NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ (CHECKED IF PATHWAY IS ACTIVE)

SOILS (15 - 792 cm).
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Trichloroethane, 1,1,2-	1.7E+0	6.3E+4	1.3E+4			2.7E-5	1.3E-4		
Dichloroethane, 1,2-	1.7E+1	1.1E+5	2 3E+4			1.5E-4	7 4E-4		
Dichloroethene, cis-1,2-	6 2E+0	1 2E+5	2 3E+4			5 4E-5	2 7E-4		
Benzene	2.6E+1	1.1E+5	2 2E+4			2.4E-4	1.2E-3		
Chlorobenzene	2.3E+2	2.1E+5	4.1E+4			1.1E-3	5.6E-3		
Chloroform	2.8E+0	1 3E+5	2.5E+4			2 2E-5	1 1E-4		
Ethylbenzene	9.0E+0	2.6E+5	5 2E+4			3.5E-5	1 7E-4		
Tetrachloroethene	2.2E+2	1.5E+5	3.1E+4			1.4E-3	7 2E-3		
Toluene	1.8E+2	1.5E+5	3.1E+4			1.2E-3	5.8E-3		
Trichloroethene	2.5E+2	4 8E+4	9.7E+3			5.2E-3	2.6E-2		
Xylene (mixed isomers)	4.5E+1	2 1E+5	4 2E+4			2 2E-4	1 1E-3		

NOTE NAF = Natural attenuation factor POE = Point of exposure

Site Name Sauget Area 2
Site Location Combined Soil - R_MLE
Completed By Julie Kabel

Date Completed 26-Jun-03
Job ID 06105-009-302

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 792 cm):
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Trichloroethane, 1,1,2-	3.2E+0	6.3E+4	1.3E+4			5.0E-5	2.5E-4		
Dichloroethane, 1,2-	3.3E+1	1.1E+5	2.3E+4			2.9E-4	1.4E-3		
Dichloroethene, cis-1,2-	1.4E+1	1.2E+5	2.3E+4			1.2E-4	5.9E-4		
Benzene	5.2E+1	1.1E+5	2.2E+4			4.8E-4	2.4E-3		
Chlorobenzene	5.9E+2	2.1E+5	4.1E+4			2.8E-3	1.4E-2		
Chloroform	4.9E+0	1.3E+5	2.5E+4			3.9E-5	1.9E-4		
Ethylbenzene	1.6E+1	2.6E+5	5.2E+4			6.2E-5	3.1E-4		
Tetrachloroethene	4.5E+2	1.5E+5	3.1E+4			2.9E-3	1.4E-2		
Toluene	3.2E+2	1.5E+5	3.1E+4			2.0E-3	1.0E-2		
Trichloroethene	2.2E+3	4.8E+4	9.7E+3			4.5E-2	2.3E-1		
Xylene (mixed isomers)	8.9E+1	2.1E+5	4.2E+4			4.2E-4	2.1E-3		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - R_RME
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Combined Soil - S_MLE | Date: 26-Jun-03
Compl. By: Julie Kabel

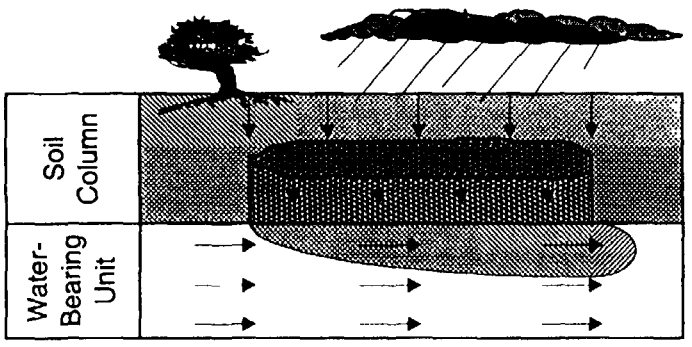
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction		
Depth to water-bearing unit	300		(cm)
Capillary zone thickness	29		(cm)
Soil column thickness	271		(cm)

Affected Soil Zone

Depth to top of affected soils	15.24		(cm)
Depth to base of affected soils	304.8		(cm)
Affected soil area	2E+07	2E+07	(cm^2)
Length of affected soil parallel to assumed wind direction	4500	4500	(cm)
Length of affected soil parallel to assumed GW flow direction			(cm)



2. Surface Soil Column

Predominant USCS Soil Type

CL: Silty Clay

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.36		(-)
Volumetric water content	0.34	0.35	(-)
Volumetric air content	0.02	0.010	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E-3		(cm/d)
Vapor permeability	1.0E-13		(cm^2)
Capillary zone thickness	2.9E+1		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 305 cm):
VAPOR INHALATION

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Methyl-2-pentanone, 4-	1.0E+2	2.0E+4	4.1E+3			5.1E-3	2.5E-2		
Benzene	1.2E+1	1.1E+5	2 2E+4			1.1E-4	5.4E-4		
Chlorobenzene	2.7E+2	2.1E+5	4.1E+4			1.3E-3	6.4E-3		
Methylene chloride	1.6E+1	6 6E+4	1.3E+4			2.5E-4	1.2E-3		
Ethylbenzene	3.0E+2	2.6E+5	5 2E+4			1.2E-3	5.8E-3		
Tetrachloroethene	1.3E+1	1.5E+5	3.1E+4			8.4E-5	4.2E-4		
Toluene	1.3E+3	1.5E+5	3 1E+4			8 7E-3	4.4E-2		
Trichloroethene	5.4E+1	4.8E+4	9.7E+3			1.1E-3	5 6E-3		
Xylene (mixed isomers)	1.8E+3	2.1E+5	4.2E+4			8.4E-3	4.2E-2		

NOTE NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - S_MLE
Completed By: Julie Kabel

Date Completed 26-Jun-03
Job ID 06105-009-302

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

SOILS (15 - 305 cm):

VAPOR INHALATION

	1) Source Medium	2) NAF Value (m^3/kg) Receptor				3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)			
	Soil Conc. (mg/kg)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)	On-site (0 cm)		Off-site 1 (0 cm)	Off-site 2 (0 cm)
Constituents of Concern		Commercial	Construction Worker	None	None	Commercial	Construction Worker	None	None
Methyl-2-pentanone, 4-	4.0E+2	2.0E+4	4.1E+3			2.0E-2	9.9E-2		
Benzene	3.5E+1	1.1E+5	2.2E+4			3.2E-4	1.6E-3		
Chlorobenzene	1.2E+3	2.1E+5	4.1E+4			5.8E-3	2.9E-2		
Methylene chloride	5.7E+1	6.6E+4	1.3E+4			8.6E-4	4.3E-3		
Ethylbenzene	1.1E+3	2.6E+5	5.2E+4			4.2E-3	2.1E-2		
Tetrachloroethene	3.3E+1	1.5E+5	3.1E+4			2.1E-4	1.1E-3		
Toluene	6.0E+3	1.5E+5	3.1E+4			3.9E-2	1.9E-1		
Trichloroethene	2.4E+2	4.8E+4	9.7E+3			5.0E-3	2.5E-2		
Xylene (mixed isomers)	7.3E+3	2.1E+5	4.2E+4			3.5E-2	1.7E-1		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Combined Soil - S_RME
Completed By: Julie Kabel

Date Completed: 26-Jun-03
Job ID. 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Q - AA-Q-6-24 | Date: 1-Jun-03
Compl. By: Julie Kabel

1. Soil Source Zone Characteristics

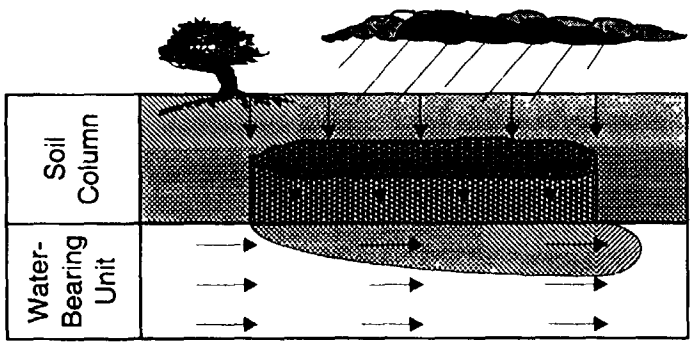
(?)

Hydrogeology

	General Case Construction	
Depth to water-bearing unit	579.12	(cm)
Capillary zone thickness	5	(cm)
Soil column thickness	574.12	(cm)

Affected Soil Zone

Depth to top of affected soils		(cm)
Depth to base of affected soils		(cm)
Affected soil area		(cm^2)
Length of affected soil parallel to assumed wind direction		(cm)
Length of affected soil parallel to assumed GW flow direction		(cm)



2. Surface Soil Column

(?)

Predominant USCS Soil Type

SW/SP: Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

GROUNDWATER: VAPOR INHALATION

Exposure Concentration

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/L) Receptor			3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)		
	Groundwater Conc (mg/L)	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None
Benzene	4.8E-1	1.2E+4			4.0E-5		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Q - AA-Q-6-24
Completed By: Julie Kabel

Date Completed: 1-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: R - AA-R-1-28 | Date: 1-Jun-03
Compl. By: Julie Kabel

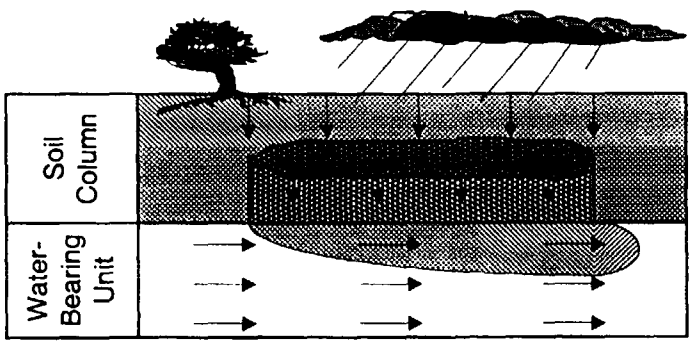
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction	
Depth to water-bearing unit	701.04	(cm)
Capillary zone thickness	29	(cm)
Soil column thickness	672.04	(cm)

Affected Soil Zone

Depth to top of affected soils		(cm)
Depth to base of affected soils		(cm)
Affected soil area		(cm^2)
Length of affected soil parallel to assumed wind direction		(cm)
Length of affected soil parallel to assumed GW flow direction		(cm)



2. Surface Soil Column

Predominant USCS Soil Type

CL: Silty Clay

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.36		(-)
Volumetric water content	0.34	0.35	(-)
Volumetric air content	0.02	0.010	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E-3		(cm/d)
Vapor permeability	1.0E-13		(cm^2)
Capillary zone thickness	2.9E+1		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

GROUNDWATER: VAPOR INHALATION

Exposure Concentration

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/L) Receptor			3) Exposure Medium Outdoor Air: POE Conc. (mg/m^3) (1) / (2)		
	Groundwater Conc. (mg/L)	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None
Benzene	5.1E-1	2.9E+6			1.8E-7		
Chloromethane	3.2E-3	1.9E+5			1.7E-8		
Chlorobenzene	2.0E+0	3.4E+6			5.8E-7		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: R - AA-R-1-28
Completed By: Julie Kabel

Date Completed: 1-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Leachate O | Date: 1-Jun-03
Compl. By: Julie Kabel

1. Soil Source Zone Characteristics

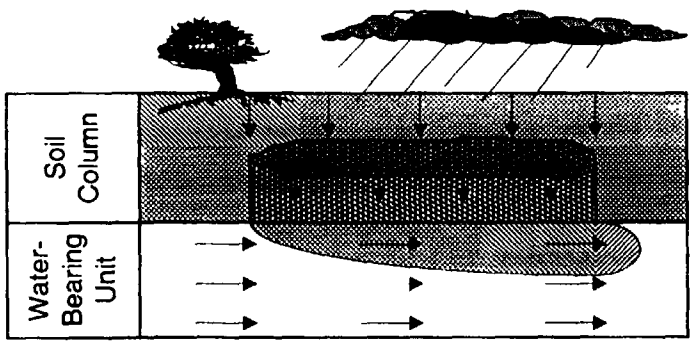
(?)

Hydrogeology

	General Case Construction	
Depth to water-bearing unit	60.96	(cm)
Capillary zone thickness	5	(cm)
Soil column thickness	55.96	(cm)

Affected Soil Zone

Depth to top of affected soils		(cm)
Depth to base of affected soils		(cm)
Affected soil area		(cm^2)
Length of affected soil parallel to assumed wind direction		(cm)
Length of affected soil parallel to assumed GW flow direction		(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP: Sand (?)

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
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RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

GROUNDWATER: VAPOR INHALATION

Exposure Concentration

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/L) Receptor			3) Exposure Medium Outdoor Air: POE Conc (mg/m^3) (1) / (2)		
	Groundwater Conc. (mg/L)	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None
Benzene	9.2E-1	1.0E+4			9.0E-5		
Methyl-2-pentanone, 4-	2.1E-1	5.6E+3			3.7E-5		
Chlorobenzene	1.7E+0	1.5E+4			1.2E-4		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Leachate O
Completed By: Julie Kabel

Date Completed: 1-Jun-03
Job ID: 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Leachate Q | Date: 1-Jun-03
Compl. By: Julie Kabel

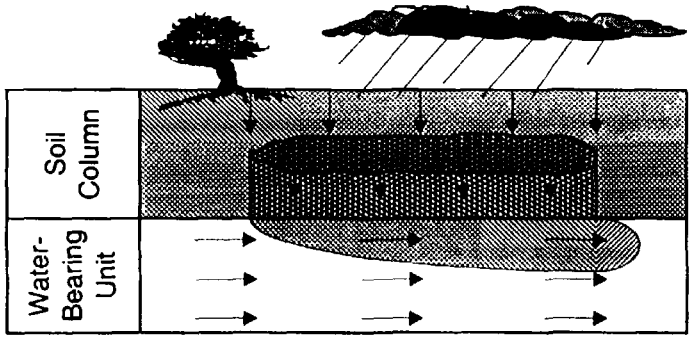
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction	
Depth to water-bearing unit	243.84	(cm)
Capillary zone thickness	5	(cm)
Soil column thickness	238.84	(cm)

Affected Soil Zone

Depth to top of affected soils		(cm)
Depth to base of affected soils		(cm)
Affected soil area		(cm^2)
Length of affected soil parallel to assumed wind direction		(cm)
Length of affected soil parallel to assumed GW flow direction		(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP: Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

GROUNDWATER: VAPOR INHALATION

Exposure Concentration

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/L) Receptor			3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)		
	Groundwater Conc. (mg/L)	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None
Dichloroethane, 1,2-	2.2E+0	2.1E+4			1.0E-4		
Methyl-2-pentanone, 4-	7.5E-1	1.5E+4			4.9E-5		
Acetone	1.4E+0	1.5E+5			9.6E-6		
Benzene	4.3E-1	1.1E+4			3.9E-5		
Chlorobenzene	1.2E+0	1.6E+4			7.2E-5		
Methylene chloride	4.7E-2	1.5E+4			3.2E-6		
Tetrachloroethene	8.3E-2	5.5E+3			1.5E-5		
Trichloroethene	2.0E-2	2.3E+3			8.7E-6		

NOTE: NAF = Natural attenuation factor POE = Poir t of exposure

Site Name. Sauget Area 2
Site Location: Leachate Q
Completed By: Julie Kabel

Date Completed: 1-Jun-03
Job ID· 06105-009-302

Site-Specific Soil Parameters

Site Name: Sauget Area 2 | Job ID: 06105-009-302
Location: Leachate H | Date: 1-Jun-03
Compl. By: Julie Kabel

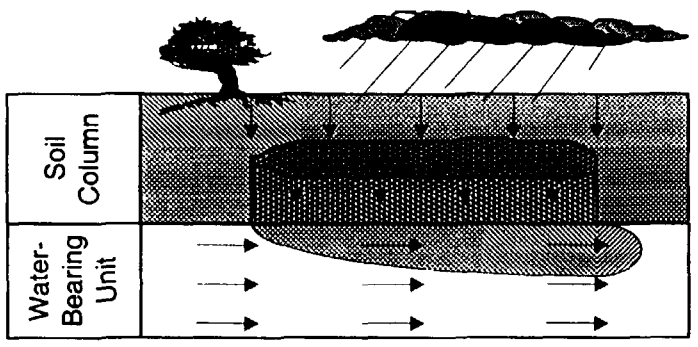
1. Soil Source Zone Characteristics

Hydrogeology

	General Case Construction	
Depth to water-bearing unit	548.64	(cm)
Capillary zone thickness	5	(cm)
Soil column thickness	543.64	(cm)

Affected Soil Zone

Depth to top of affected soils		(cm)
Depth to base of affected soils		(cm)
Affected soil area		(cm^2)
Length of affected soil parallel to assumed wind direction		(cm)
Length of affected soil parallel to assumed GW flow direction		(cm)



2. Surface Soil Column

Predominant USCS Soil Type

SW/SP: Sand

or Enter Directly

	Vadose Zone	Capillary Fringe	
Total porosity	0.41		(-)
Volumetric water content	0.08	0.369	(-)
Volumetric air content	0.33	0.041	(-)
Dry bulk density	1.7		(kg/L)
Vertical hydraulic conductivity	8.6E+2		(cm/d)
Vapor permeability	1.0E-8		(cm^2)
Capillary zone thickness	5.0E+0		(cm)

Net Rainfall Infiltration

Net infiltration estimate		(cm/yr)
or NA	or	
Average annual precipitation		(cm/yr)

Partitioning Parameters

Fraction organic carbon	0.01	(-)
Soil/water pH	6.8	(-)

3. Commands and Options

Main Screen | Use Default Values | Print Sheet
Set Units | Help

RBCA SITE ASSESSMENT

TIER 2 EXPOSURE CONCENTRATION AND INTAKE CALCULATION

OUTDOOR AIR EXPOSURE PATHWAYS ■ **(CHECKED IF PATHWAY IS ACTIVE)**

GROUNDWATER: VAPOR INHALATION

Exposure Concentration

Constituents of Concern	1) Source Medium	2) NAF Value (m^3/L) Receptor			3) Exposure Medium Outdoor Air POE Conc (mg/m^3) (1) / (2)		
	Groundwater Conc (mg/L)	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None	On-site (0 cm) Commercial	Off-site 1 (0 cm) None	Off-site 2 (0 cm) None
Dichloroethane, 1,2-	5.0E+1	2.5E+4			2.0E-3		
Dichloroethene, cis-1,2-	1.3E+1	3.5E+3			3.8E-3		
Methyl ethyl ketone	7 9E+0	1.1E+5			7.3E-5		
Acetone	3.2E+1	3.1E+5			1.0E-4		
Benzene	6.8E+0	1.2E+4			5.7E-4		
Chlorobenzene	1.3E+0	1.8E+4			7.3E-5		
Chloroform	2.0E+0	1.4E+4			1.4E-4		
Methylene chloride	1.9E+0	1.7E+4			1.1E-4		
Tetrachloroethene	3.3E+1	5.9E+3			5.6E-3		
Toluene	2.1E+1	1.1E+4			1.9E-3		
Trichloroethene	1.5E+2	2.9E+3			5.1E-2		

NOTE: NAF = Natural attenuation factor POE = Point of exposure

Site Name: Sauget Area 2
Site Location: Leachate R
Completed By. Julie Kabel

Date Completed. 1-Jun-03
Job ID 06105-009-302

M

APPENDIX M

RISK CALCULATION SPREADSHEETS

Indoor Industrial Worker
Outdoor Industrial Worker
Trespassing Teenager
Construction Worker
Recreational Fisher

Indoor Industrial Worker

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Indoor Industrial Worker

ASSUMPTIONS FOR INDOOR WORKER -RME INHALATION OF INDOOR AIR		Assumed Value	Units	Calculated Value
Inhalation Rate	RME Indoor Industrial Worker	1 6	(m^3 air/hou)	
Body Weight	RME Indoor Industrial Worker	70	(kg)	
Exposure Time	RME Indoor Industrial Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	RME Indoor Industrial Worker	250	(days)/365 (days) =	6 85E 01
Exposure Duration (cancer)	RME Indoor Industrial Worker	25	(yrs)/70(yrs) =	3 57E 01
Exposure Duration (noncancer)	RME Indoor Industrial Worker	25	(yrs)/25(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR WORKER -RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day) [1]	ADDinh RME Indoor Industrial Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E-02	4 47E-02	4 47E-02	4 07E-03
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	4 47E 02	4 47E-02	3 44E-04
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E 02	2 95E-02	2 95E-02	2 38E-03
Chloromethane	1 00E+00	1	6 30E-03	4 47E-02	4 47E-02	2 82E-04
Dichloromethane	1 00E+00	1	1 65E-03	4 47E-02	4 47E-02	7 36E-05
Tetrachloroethene	1 00E+00	1	2 10E-02	4 47E-02	4 47E-02	9 39E-04
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	4 47E-02	4 47E-02	1 79E-02

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR WORKER -RME

	Reference	Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Risk (per mg/m^3)	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk
VOCs													
1,2-Dichloroethane	4 07E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 37E-06	3 00E-08	4 72E-07	1 92E-09
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 00E-06	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 70E-08	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	7 01E-07	NC	8 28E-07	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 65E-07	NC	2 06E-08	NC
Benzene	3 44E-04	2 53E-05	8 72E-09	2 51E-05	8 64E-09	--	NCOPC	3 18E-05	1 10E-08	3 66E-05	1 26E-08	2 70E-06	9 30E-10
Chlorobenzene	NC	--	NCOPC	1 27E-05	NC	--	NCOPC	1 62E-05	NC	1 87E-05	NC	1 58E-06	NC
Chloroform	2 38E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 88E-06	4 48E-09
Chloromethane	2 82E-04	--	NCOPC	2 17E-04	6 11E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	7 36E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 75E-05	1 29E-09	1 16E-06	8 53E-11
Tetrachloroethene	9 39E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 29E-05	8 73E-08	7 98E-06	7 49E-09
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 02E-06	NC
Trichloroethylene	1 79E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 02E-05	1 08E-06	4 82E-06	8 62E-08
	Total:		**8.72E-09**		**6.98E-08**		**NCOPC**		**1.10E-08**		**1.21E-06**		**1.01E-07**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR WORKER -RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh RME Indoor Industrial Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	1 40E-03	1 25E-01	1 25E-01	8 95E+01
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	2 86E-01	1 25E-01	1 25E-01	4 38E-01
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	1 25E-01	1 25E-01	1 46E-01
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	8 57E-03	1 25E-01	1 25E-01	1 46E+01
Chlorobenzene	1 00E+00	1	1 70E-02	1 25E-01	1 25E-01	7 37E+00
Chloroform	1 00E+00	1	1 43E-02	1 25E-01	1 25E-01	8 76E+00
Chloromethane	1 00E+00	1	2 57E-02	1 25E-01	1 25E-01	4 87E+00
Dichloromethane	1 00E+00	1	8 60E-01	1 25E-01	1 25E-01	1 46E-01
Tetrachloroethene	1 00E+00	1	1 70E-01	1 25E-01	1 25E-01	7 37E-01
Toluene	1 00E+00	1	1 14E-01	1 25E-01	1 25E-01	1 10E+00
Trichloroethylene	1 00E+00	1	1 00E-02	1 25E-01	1 25E-01	1 25E+01

TABLE
POTENTIAL HAZARD INDEX
NONCARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR WORKER -RME

	Reference	Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	HQ (per mg/m^3)	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs													
1,2-Dichloroethane	8 95E+01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 37E-06	6 59E-04	4 72E-07	4 23E-05
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 00E-06	NC
2-Butanone (MEK)	4 38E-01	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 70E-08	1 18E-08
4-Methyl-2-pentanone (MIBK)	1 46E-01	--	NCOPC	--	NCOPC	--	NCOPC	7 01E-07	1 02E-07	8 28E-07	1 21E-07	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 65E-07	NC	2 06E-08	NC
Benzene	1 46E+01	2 53E-05	3 70E-04	2 51E-05	3 67E-04	--	NCOPC	3 18E-05	4 65E-04	3 66E-05	5 35E-04	2 70E-06	3 94E-05
Chlorobenzene	7 37E+00	--	NCOPC	1 27E-05	9 36E-05	--	NCOPC	1 62E-05	1 19E-04	1 87E-05	1 38E-04	1 58E-06	1 17E-05
Chloroform	8 76E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 88E-06	1 65E-05
Chloromethane	4 87E+00	--	NCOPC	2 17E-04	1 06E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	1 46E-01	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	1 75E-05	2 55E-06	1 16E-06	1 69E-07
Tetrachloroethene	7 37E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 29E-05	6 85E-05	7 98E-06	5 88E-06
Toluene	1 10E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 02E-06	3 32E-06
Trichloroethylene	1 25E+01	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	6 02E-05	7 54E-04	4 82E-06	6 03E-05
	Total HI:		3.70E-04		1.52E-03		NCOPC		5.84E-04		2.16E-03		1.80E-04

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor	MLE Indoor Industrial Worker

ASSUMPTIONS FOR INDOOR INDUSTRIAL WORKER -MLE INHALATION OF INDOOR AIR		Assumed Value	Units	Calculated Value
Inhalation Rate	MLE Indoor Industrial Worker	1 0	(m^3 air/hour)	
Body Weight	MLE Indoor Industrial Worker	70	(kg)	
Exposure Time	MLE Indoor Industrial Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	MLE Indoor Industrial Worker	250	(days)/365 (days) =	6 85E 01
Exposure Duration (cancer)	MLE Indoor Industrial Worker	7	(yrs)/70 (yrs) =	1 00E 01
Exposure Duration (noncancer)	MLE Indoor Industrial Worker	7	(yrs)/70 (yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR INDUSTRIAL WORKER -MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)[1]	ADDinh MLE Indoor Industrial Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E-02	7 83E-03	7 83E-03	7 12E-04
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	7 83E-03	7 83E-03	6 03E-05
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	5 17E-03	5 17E-03	4 16E-04
Chloromethane	1 00E+00	1	6 30E-03	7 83E 03	7 83E-03	4 93E-05
Dichloromethane	1 00E+00	1	1 65E-03	7 83E-03	7 83E-03	1 29E-05
Tetrachloroethene	1 00E+00	1	2 10E-02	7 83E-03	7 83E-03	1 64E-04
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	7 83E-03	7 83E-03	3 13E-03

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR INDUSTRIAL WORKER -MLE

	Reference	Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Risk (per mg/m^3)	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk
VOCs													
1,2-Dichloroethane	7 12E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 37E-06	5 25E-09	4 72E-07	3 37E-10
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 00E-06	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 70E-08	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	7 01E-07	NC	8 28E-07	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 65E-07	NC	2 06E-08	NC
Benzene	6 03E-05	2 53E-05	1 53E-09	2 51E-05	1 51E-09	--	NCOPC	3 18E-05	1 92E-09	3 66E-05	2 21E-09	2 70E-06	1 63E-10
Chlorobenzene	NC	--	NCOPC	1 27E 05	NC	--	NCOPC	1 62E-05	NC	1 87E-05	NC	1 58E-06	NC
Chloroform	4 16E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 88E-06	7 83E-10
Chloromethane	4 93E-05	--	NCOPC	2 17E 04	1 07E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	1 29E-05	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	1 75E-05	2 26E-10	1 16E-06	1 49E-11
Tetrachloroethene	1 64E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 29E-05	1 53E-08	7 98E-06	1 31E-09
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 02E-06	NC
Trichloroethylene	3 13E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 02E-05	1 89E-07	4 82E-06	1 51E-08
	Total:		1.53E-09		1.22E-08		NCOPC		1.92E-09		2.12E-07		1.77E-08

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR INDUSTRIAL WORKER -MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh MLE Indoor Industrial Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	1 40E-03	7 83E-02	7 33E-02	5 59E+01
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	2 86E-01	7 83E-02	7 33E-02	2 74E-01
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	7 83E-02	7 33E-02	9 13E-02
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	8 57E-03	7 83E-02	7 33E-02	9 13E+00
Chlorobenzene	1 00E+00	1	1 70E-02	7 83E-02	7 33E-02	4 60E+00
Chloroform	1 00E+00	1	1 43E-02	7 83E-02	7 33E-02	5 47E+00
Chloromethane	1 00E+00	1	2 57E-02	7 83E-02	7 33E-02	3 04E+00
Dichloromethane	1 00E+00	1	8 60E-01	7 83E-02	7 33E-02	9 10E-02
Tetrachloroethene	1 00E+00	1	1 70E-01	7 83E-02	7 33E-02	4 60E-01
Toluene	1 00E+00	1	1 14E-01	7 83E-02	7 33E-02	6 87E-01
Trichloroethylene	1 00E+00	1	1 00E-02	7 83E-02	7 33E-02	7 83E+00

TABLE
POTENTIAL HAZARD INDEX
NONCARCINOGENIC ASSESSMENT
INHALATION OF
INDOOR AIR
INDOOR INDUSTRIAL WORKER -MLE

	Reference	Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	HQ (per mg/m^3)	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs													
1,2-Dichloroethane	5 59E+01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 37E-06	4 12E-04	4 72E-07	2 64E-05
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 00E-06	NC
2-Butanone (MEK)	2 74E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 70E-08	7 40E-09
4-Methyl-2-pentanone (MIBK)	9 13E-02	--	NCOPC	--	NCOPC	--	NCOPC	7 01E-07	6 40E-08	8 28E-07	7 56E-08	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 65E-07	NC	2 06E-08	NC
Benzene	9 13E+00	2 53E-05	2 31E-04	2 51E-05	2 29E-04	--	NCOPC	3 18E-05	2 90E-04	3 66E-05	3 35E-04	2 70E-06	2 47E-05
Chlorobenzene	4 60E+00	--	NCOPC	1 27E-05	5 85E-05	--	NCOPC	1 62E-05	7 46E-05	1 87E-05	8 63E-05	1 58E-06	7 28E-06
Chloroform	5 47E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 88E-06	1 03E-05
Chloromethane	3 04E+00	--	NCOPC	2 17E-04	6 60E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	9 10E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 75E-05	1 59E-06	1 16E-06	1 06E-07
Tetrachloroethene	4 60E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 29E-05	4 28E-05	7 98E-06	3 67E-06
Toluene	6 87E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 02E-06	2 07E-06
Trichloroethylene	7 83E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 02E-05	4 71E-04	4 82E-06	3 77E-05
	Total HI:		2.31E-04		9.48E-04		NCOPC		3.65E-04		1.35E-03		1.12E-04

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

Outdoor Industrial Worker

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Outdoor Industrial Worker

ASSUMPTIONS FOR OUTDOOR INDUSTRIAL WORKER - RME INCIDENTIAL INGESTION AND DERMAL CONTACT SURFACE SOIL		Assumed Value	Units	Calculated Value
Soil Ingestion Rate	RME Outdoor Industrial Worker	50	(mg soil/day)	
Soil on Skin	RME Outdoor Industrial Worker	0 02	(mg/cm^2)	
Skin Exposed	RME Outdoor Industrial Worker	3339	(cm^2)	
Body Weight	RME Outdoor Industrial Worker	70	(kg)	
Exposure Frequency	RME Outdoor Industrial Worker	190	(days)/365(days) =	5 21E 01
Exposure Duration (cancer)	RME Outdoor Industrial Worker	25	(years)/70(years) =	3 57E-01
Exposure Duration (noncancer)	RME Outdoor Industrial Worker	25	(yrs)/25(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1 00E 06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER - RME

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)$^{-1}$	ADDing RME Outdoor Industrial Worker (mg/kg-day)	Lifetime Average Daily Dose Ing RME Outdoor Industrial Worker (mg/kg-day)	ADDder (mg/kg day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 10E-02	1 33E 07	1 33E-07	1 77E-09	1 77E-09	1 46E-09	1 95E-11	1 48E-09
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	2 10E-02	NA	NA	NA	NA	NC	NC	NC
Benzo(a)anthracene	1 00E+00	0 29	0 02	7 30E-01	3 85E-08	3 85E 08	3 55E-09	3 55E-09	2 81E-08	2 59E-09	3 07E-08
Benzo(a)pyrene	1 00E+00	0 29	0 02	7 30E+00	3 85E-08	3 85E-08	3 55E-09	3 55E-09	2 81E-07	2 59E-08	3 07E-07
Benzo(b)fluoranthene	1 00E+00	0 29	0 02	7 30E-01	3 85E-08	3 85E-08	3 55E-09	3 55E-09	2 81E-08	2 59E-09	3 07E-08
Dibenzo(a,h)anthracene	1 00E+00	0 29	0 02	7 30E+00	3 85E-08	3 85E-08	3 55E-09	3 55E-09	2 81E-07	2 59E-08	3 07E-07
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	3 40E-01	1 33E-07	1 33E-07	1 77E-09	1 77E-09	4 51E-08	6 03E-10	4 58E-08
beta-BHC	1 00E+00	1	0 01	1 80E+00	1 33E-07	1 33E-07	1 77E-09	1 77E-09	2 39E-07	3 19E-09	2 42E-07
Dieldrin	1 00E+00	1	0 01	1 60E+01	1 33E-07	1 33E-07	1 77E-09	1 77E-09	2 12E-06	2 84E-08	2 15E-06
gamma-BHC (Lindane)	1 00E+00	1	0 01	1 30E+00	1 33E-07	1 33E-07	1 77E-09	1 77E-09	1 73E-07	2 31E-09	1 75E 07
Heptachlor	1 00E+00	1	0 01	4 50E+00	1 33E-07	1 33E-07	1 77E-09	1 77E-09	5 98E-07	7 98E-09	6 06E-07
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	1 20E-01	1 33E-07	1 33E-07	1 77E-09	1 77E-09	1 59E-08	2 13E-10	1 61E-08
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E+00	1 10E-07	1 10E 07	7 09E-09	7 09E-09	2 20E 07	1 42E-08	2 35E-07
Dioxin											
2,3,7,8 TCDD-TEQ	1 00E+00	0 4	0 04	1 50E+05	5 31E-08	5 31E 08	7 09E-09	7 09E-09	7 97E-03	1 06E-03	9 03E-03
Metals											
Antimony	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1 00E+00	0 3	0 001	1 50E+00	3 98E-08	3 98E 08	1 77E 10	1 77E-10	5 98E 08	2 66E-10	6 00E 08
Cadmium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER RME
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/kg)	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
SVOCs																	
2 4 6 Trichlorophenol	1 48E 09		NCOPC		NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 20E+00	1 21E 08
2-Nitroaniline	NC		NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 60E+00	NC
4-Nitroaniline	NC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 70E+01	NC
Benzo(a)anthracene	3 07E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 03E+00	3 16E-08	--	NCOPC	8 00E+00	2 46E-07
Benzo(a)pyrene	3 07E-07	-	NCOPC		NCOPC	6 70E 01	2 06E 07	1 80E+00	5 53E-07	-	NCOPC	1 05E+00	3 22E 07	--	NCOPC	5 40E+00	1 66E-06
Benzo(b)fluoranthene	3 07E 08	-	NCOPC	--	NCOPC		NCOPC	--	NCOPC	-	NCOPC	1 35E+00	4 14E-08	--	NCOPC	6 60E+00	2 03E 07
Dibenzo(a h)anthracene	3 07E-07	-	NCOPC		NCOPC		NCOPC	3 70E-01	1 14E-07	-	NCOPC	--	NCOPC	-	NCOPC	1 80E+00	5 53E-07
Pesticides																	
4 4'-DDT	4 58E-08	--	NCOPC		NCOPC		NCOPC	-	NCOPC		NCOPC	--	NCOPC	--	NCOPC	1 60E+01	7 32E-07
beta-BHC	2 42E-07	--	NCOPC		NCOPC		NCOPC	--	NCOPC		NCOPC	--	NCOPC		NCOPC	2 60E+01	6 30E 06
Dieldrin	2 15E-06	1 80E 01	3 88E 07		NCOPC		NCOPC	--	NCOPC	-	NCOPC	2 69E 01	5 79E-07		NCOPC	--	NCOPC
gamma BHC (Lindane)	1 75E-07	-	NCOPC		NCOPC		NCOPC		NCOPC	-	NCOPC	--	NCOPC		NCOPC	7 50E+00	1 31E 06
Heptachlor	6 06E 07		NCOPC		NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC		NCOPC	1 50E+00	9 08E 07
Herbicides																	
Pentachlorophenol	1 61E 08		NCOPC		NCOPC	--	NCOPC		NCOPC		NCOPC	--	NCOPC	--	NCOPC	4 40E+02	7 11E 06
PCBs																	
Total PCBs	2 35E-07	1 08E+01	2 53E-06	7 09E+02	1 66E 04	7 02E+00	1 65E-06	1 87E+00	4 39E-07	2 57E+00	6 04E-07	5 10E+00	1 20E-06	--	NCOPC	1 01E+03	2 37E-04
Dioxin																	
2 3 7 8-TCDD TEQ	9 03E 03	5 93E 03	5 36E 05	5 08E 02	4 59E 04		NCOPC	--	NCOPC	3 31E 03	2 99E 05	1 69E-03	1 53E 05		NCOPC	--	NCOPC
Metals																	
Antimony	NC	-	NCOPC		NCOPC		NCOPC	--	NCOPC		NCOPC	1 43E+01	NC	--	NCOPC	--	NCOPC
Arsenic	6 00E-08	--	NCOPC	-	NCOPC	2 60E+01	1 56E 06	-	NCOPC	1 30E+01	7 80E-07	1 35E+01	8 10E-07	--	NCOPC	-	NCOPC
Cadmium	NC	--	NCOPC		NCOPC	--	NCOPC	9 20E+01	NC	-	NCOPC	--	NCOPC	--	NCOPC		NCOPC
Chromium	NC	-	NCOPC	--	NCOPC		NCOPC	-	NCOPC	-	NCOPC	1 81E+02	NC	--	NCOPC	--	NCOPC
Manganese	NC	--	NCOPC	-	NCOPC		NCOPC	-	NCOPC	-	NCOPC	8 60E+02	NC	--	NCOPC		NCOPC
Mercury	NC	--	NCOPC	4 30E+01	NC		NCOPC		NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
	Total		**5 65E-05**		**6 25E-04**		**3 41E-06**		**1 10E-06**		**3 13E-05**		**1 82E-05**		**NCOPC**		**2 56E-04**

Notes
- Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER - RME

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	RME Outdoor Industrial Worker ADDing (mg/kg-day)	Chronic Average Daily Dose-ing (mg/kg-day)	RME Outdoor Industrial Worker ADDder (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 00E-04	3 72E 07	3 72E 07	4 97E-09	4 97E-09	3 72E 03	4 97E-05	3 77E-03
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	1	0 01	3 00E-03	3 72E-07	3 72E-07	4 97E-09	4 97E-09	1 24E-04	1 66E-06	1 26E-04
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	5 00E-04	3 72E 07	3 72E-07	4 97E-09	4 97E-09	7 44E 04	9 93E-06	7 54E-04
beta-BHC	1 00E+00	1	0 01	3 00E-04	3 72E-07	3 72E-07	4 97E-09	4 97E-09	1 24E-03	1 66E-05	1 26E-03
Dieldrin	1 00E+00	1	0 01	5 00E-05	3 72E-07	3 72E-07	4 97E-09	4 97E-09	7 44E-03	9 93E-05	7 54E-03
gamma-BHC (Lindane)	1 00E+00	1	0 01	3 00E-04	3 72E-07	3 72E-07	4 97E-09	4 97E-09	1 24E-03	1 66E-05	1 26E-03
Heptachlor	1 00E+00	1	0 01	5 00E 04	3 72E-07	3 72E-07	4 97E-09	4 97E-09	7 44E-04	9 93E-06	7 54E-04
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	3 00E-02	3 72E-07	3 72E-07	4 97E-09	4 97E-09	1 24E-05	1 66E-07	1 26E-05
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E-05	3 09E-07	3 09E-07	1 99E-08	1 99E-08	1 54E-02	9 93E-04	1 64E-02
Dioxin											
2,3,7,8 TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Metals											
Antimony	1 00E+00	1	0 007	4 00E 04	3 72E-07	3 72E 07	3 48E-09	3 48E-09	9 30E 04	8 69E-06	9 38E-04
Arsenic	1 00E+00	0 3	0 001	3 00E-04	1 12E-07	1 12E-07	4 97E-10	4 97E-10	3 72E-04	1 66E-06	3 73E-04
Cadmium	1 00E+00	1	0 04	1 00E-03	3 72E-07	3 72E-07	1 99E-08	1 99E-08	3 72E-04	1 99E-05	3 92E-04
Chromium	1 00E+00	0 3	0	3 00E-03	1 12E-07	1 12E-07	0 00E+00	NA	3 72E-05	NC	3 72E-05
Manganese	1 00E+00	1	0 01	2 40E-02	3 72E-07	3 72E-07	4 97E-09	4 97E-09	1 55E-05	2 07E-07	1 57E-05
Mercury	1 00E+00	2	0 007	3 00E-04	7 44E 07	7 44E-07	3 48E 09	3 48E-09	2 48E-03	1 16E-05	2 49E-03

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER - RME
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
SVOCs																	
2 4 6-Trichlorophenol	3 77E-03	-	NCOPC	-	NCOPC		NCOPC	–	NCOPC	–	NCOPC	–	NCOPC	–	NCOPC	8 20E+00	3 09E 02
2-Nitroaniline	NC	-	NCOPC		NCOPC		NCOPC	-	NCOPC	–	NCOPC	–	NCOPC	–	NCOPC	4 60E+00	NC
4 Nitroaniline	1 26E-04	--	NCOPC	-	NCOPC		NCOPC	-	NCOPC	–	NCOPC	–	NCOPC	–	NCOPC	5 70E+01	7 16E-03
Benzo(a)anthracene	NC	--	NCOPC	--	NCOPC	–	NCOPC	–	NCOPC	-	NCOPC	1 03E+00	NC	–	NCOPC	8 00E+00	NC
Benzo(a)pyrene	NC	--	NCOPC	--	NCOPC	6 70E-01	NC	1 80E+00	NC	–	NCOPC	1 05E+00	NC	–	NCOPC	5 40E+00	NC
Benzo(b)fluoranthene	NC		NCOPC	--	NCOPC	-	NCOPC	–	NCOPC	-	NCOPC	1 35E+00	NC	–	NCOPC	6 60E+00	NC
Dibenzo(a h)anthracene	NC		NCOPC		NCOPC	-	NCOPC	3 70E-01	NC	–	NCOPC	–	NCOPC	–	NCOPC	1 80E+00	NC
Pesticides																	
4 4 -DDT	7 54E 04		NCOPC		NCOPC		NCOPC	-	NCOPC	–	NCOPC	–	NCOPC	–	NCOPC	1 60E+01	1 21E-02
beta-BHC	1 26E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	–	NCOPC	–	NCOPC	–	NCOPC	2 60E+01	3 27E 02
Dieldrin	7 54E-03	1 80E-01	1 36E-03	--	NCOPC	--	NCOPC		NCOPC	–	NCOPC	2 69E 01	2 03E-03	–	NCOPC	–	NCOPC
gamma-BHC (Lindane)	1 26E 03	--	NCOPC		NCOPC		NCOPC	--	NCOPC	–	NCOPC	–	NCOPC	–	NCOPC	7 50E+00	9 42E 03
Heptachlor	7 54E 04		NCOPC		NCOPC		NCOPC		NCOPC	–	NCOPC	–	NCOPC		NCOPC	1 50E+00	1 13E 03
Herbicides																	
Pentachlorophenol	1 26E 05		NCOPC		NCOPC		NCOPC		NCOPC	-	NCOPC	–	NCOPC	–	NCOPC	4 40E+02	5 53E-03
PCBs																	
Total PCBs	1 64E 02	1 08E+01	1 77E 01	7 09E+02	1 16E+01	7 02E+00	1 15E 01	1 87E+00	3 07E 02	2 57E+00	4 23E 02	5 10E+00	8 38E 02		NCOPC	1 01E+03	1 66E+01
Dioxin																	
2 3 7 8-TCDD-TEQ	NC	5 93E-03	NC	5 08E 02	NC		NCOPC	-	NCOPC	3 31E 03	NC	1 69E-03	NC	–	NCOPC	–	NCOPC
Metals																	
Antimony	9 38E 04	-	NCOPC	-	NCOPC	-	NCOPC	–	NCOPC	–	NCOPC	1 43E+01	1 34E-02		NCOPC	-	NCOPC
Arsenic	3 73E 04		NCOPC		NCOPC	2 60E+01	9 71E-03	–	NCOPC	1 30E+01	4 86E-03	1 35E+01	5 04E-03	–	NCOPC		NCOPC
Cadmium	3 92E 04		NCOPC		NCOPC		NCOPC	9 20E+01	3 60E-02	–	NCOPC	–	NCOPC	–	NCOPC		NCOPC
Chromium	3 72E-05	--	NCOPC	-	NCOPC		NCOPC	–	NCOPC	–	NCOPC	1 81E+02	6 73E 03	–	NCOPC		NCOPC
Manganese	1 57E 05	-	NCOPC		NCOPC		NCOPC	–	NCOPC	-	NCOPC	8 60E+02	1 35E-02	–	NCOPC	–	NCOPC
Mercury	2 49E-03	--	NCOPC	4 30E+01	1 07E 01		NCOPC		NCOPC	–	NCOPC	–	NCOPC		NCOPC	–	NCOPC
	Total HI:		**1.79E-01**		**1.18E+01**		**1.25E-01**		**6 67E-02**		**4.71E-02**		**1.24E-01**		**NCOPC**		**1.67E+01**

Notes
- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Outdoor Industrial Worker

ASSUMPTIONS FOR OUTDOOR INDUSTRIAL WORKER - RME INHALATION OF OUTDOOR AIR FROM SOIL		Assumed Value	Units	Calculated Value
Inhalation Rate	RME Outdoor Industrial Worker	1 6	(m^3 air/hour)	
Body Weight	RME Outdoor Industrial Worker	70	(kg)	
Exposure Time	RME Outdoor Industrial Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	RME Outdoor Industrial Worker	190	(days)/365 (days) =	5 21E 01
Exposure Duration (cancer)	RME Outdoor Industrial Worker	25	(yrs)/70(yrs) =	3 57E 01
Exposure Duration (noncancer)	RME Outdoor Industrial Worker	25	(yrs)/25(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER - RME

Constituent	Unit Concentration In Air (mg/m³ air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)[1]	ADDinh RME Outdoor Industrial Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	1	5 60E-02	3 40E-02	3 40E-02	1 90E-03
1,2-Dichloroethane	1 00E+00	1	9 10E-02	3 40E-02	3 40E-02	3 09E-03
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E 03	3 40E-02	3 40E-02	2 62E-04
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	2 24E-02	2 24E-02	1 81E-03
Dichloromethane	1 00E+00	1	1 65E 03	3 40E-02	3 40E-02	5 59E-05
Ethylbenzene	1 00E+00	1	NA	3 40E 02	3 40E 02	NC
Tetrachloroethene	1 00E+00	1	2 10E 02	3 40E 02	3 40E 02	7 14E 04
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	3 40E 02	3 40E 02	1 36E-02
Xylenes, Total	1 00E+00	NA	NA	NA	NA	NC
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	1	1 09E 02	3 40E 02	3 40E-02	3 69E 04
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)anthracene	1 00E+00	1	3 10E-01	3 40E 02	3 40E 02	1 05E 02
Benzo(a)pyrene	1 00E+00	1	3 10E+00	3 40E 02	3 40E-02	1 05E-01
Benzo(b)fluoranthene	1 00E+00	1	3 10E 01	3 40E 02	3 40E 02	1 05E 02
Dibenzo(a,h)anthracene	1 00E+00	1	3 10E+00	3 40E 02	3 40E 02	1 05E 01
Pesticides (b)						
4,4'-DDT	1 00E+00	1	3 40E-01	3 40E 02	3 40E 02	1 15E-02
beta-BHC	1 00E+00	1	1 86E+00	3 40E 02	3 40E-02	6 31E-02
Dieldrin	1 00E+00	1	1 61E+01	3 40E-02	3 40E-02	5 47E-01
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	1	4 55E+00	3 40E 02	3 40E 02	1 55E 01
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	1	2 00E+00	3 40E-02	3 40E-02	6 80E-02
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	0 55	1 50E+05	1 87E-02	1 87E-02	2 80E+03
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	1	1 51E+01	3 40E-02	3 40E-02	5 13E-01
Cadmium	1 00E+00	1	6 30E+00	3 40E 02	3 40E-02	2 14E-01
Chromium	1 00E+00	1	4 20E+01	3 40E 02	3 40E-02	1 43E+00
Manganese	1 00E+00	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER RME

	Reference	O		O North		P		Q North		Q C ntral		Q South		R		S	
Constituent	Risk (per mg/m³)	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk
VOCs (a)																	
1 1 2 Trichloroethane	1 90E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	5 00E 05	9 52E 08		NCOPC
1 2 Dichloroethane	3 09E 03		NCOPC		NCOPC		NCOPC	8 50E 05	2 63E 07		NCOPC		NCOPC	2 90E 04	8 97E 07		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 20E 04	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 00E 02	NC
Benzene	2 62E 04	3 50E 02	9 16E 06	6 60E 03	1 73E 06	2 20E 04	5 76E 08	1 90E 04	4 97E 08		NCOPC	3 40E 05	8 90E 09	4 80E 04	1 26E 07	3 20E 04	8 38E 08
Chlorobenzene	NC	5 20E 02	NC	4 60E 02	NC		NCOPC		NCOPC		NCOPC	--	NCOPC	2 60E 03	NC	5 80E 03	NC
Chloroform	1 81E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 90E 05	7 04E 08		NCOPC
Dichloromethane	5 59E 05		NCOPC	8 30E 03	4 64E 07		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	8 60E 04	4 81E 08
Ethylbenzene	NC	1 90E 01	NC	7 20E 02	NC	1 30E 02	NC	8 90E 04	NC		NCOPC	4 10E 03	NC	6 20E 05	NC	4 20E 03	NC
Tetrachloroethene	7 14E 04		NCOPC	6 50E 04	4 64E 07	3 00E 03	2 14E 06	5 60E 04	4 00E 07		NCOPC		NCOPC	2 90E 03	2 07E 06	2 10E 04	1 50E 07
Toluene	NC	2 70E 02	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 90E 02	NC	2 00E 03	NC	3 90E 02	NC
Trichloroethylene	1 36E 02		NCOPC		NCOPC	1 90E 04	2 58E 06	2 40E 05	3 26E 07		NCOPC	5 90E 06	8 02E 08	4 50E 02	6 12E 04	5 00E 03	6 80E 05
Xylenes Total	NC	9 70E 01	NC	3 70E 01	NC	7 00E 02	NC	6 70E 03	NC		NCOPC	2 90E 02	NC	4 20E 05	NC	3 50E 02	NC
SVOCs (b)																	
2 4 6 Trichlorophenol	3 69E 04		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC		NCOPC	1 12E 08	4 12E 12
2 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	6 27E 09	NC
4 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 77E 08	NC
Benzo(a)anthracene	1 05E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 40E 09	1 48E 11		NCOPC	1 09E 08	1 15E 10
Benzo(a)pyrene	1 05E 01		NCOPC		NCOPC	9 13E 10	9 63E 11	2 45E 09	2 59E 10		NCOPC	1 43E 09	1 51E 10		NCOPC	7 36E 09	7 76E 10
Benzo(b)fluoranthene	1 05E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 84E 09	1 94E 11		NCOPC	9 00E 09	9 48E 11
Dibenzo(a h)anthracene	1 05E 01		NCOPC		NCOPC		NCOPC	5 04E 10	5 32E 11		NCOPC		NCOPC		NCOPC	2 45E 09	2 59E 10
Pesticides (b)																	
4 4 DDT	1 15E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 18E 08	2 52E 10
beta BHC	6 31E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 54E 08	2 24E 09
Dieldrin	5 47E 01	2 45E 10	1 34E 10		NCOPC		NCOPC		NCOPC		NCOPC	3 67E 10	2 01E 10		NCOPC		NCOPC
gamma BHC (Lindane)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 02E 08	NC
Heptachlor	1 55E 01		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 04E 09	3 16E 10
Herbicides (b)																	
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	6 00E 07	NC
PCBs (b)																	
Total PCBs	6 80E 02	1 47E 08	1 00E 09	6 43E 07	4 37E 08	9 57E 09	6 51E 10	2 55E 09	1 73E 10	3 51E 09	2 39E 10	6 95E 09	4 73E 10		NCOPC	1 37E 06	9 35E 08
Dioxin (b)																	
2 3 7 8 TCDD TEQ	2 80E+03	8 08E 12	2 27E 08	4 61E 11	1 29E 07		NCOPC		NCOPC	4 51E 12	1 26E 08	2 30E 12	6 46E 09		NCOPC		NCOPC
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 95E 08	NC		NCOPC		NCOPC
Arsenic	5 13E 01		NCOPC		NCOPC	3 54E 08	1 82E 08		NCOPC	1 77E 08	9 10E 09	1 84E 08	9 45E 09		NCOPC		NCOPC
Cadmium	2 14E 01		NCOPC		NCOPC		NCOPC	1 25E 07	2 69E 06		NCOPC	--	NCOPC		NCOPC		NCOPC
Chromium	1 43E+00		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 47E 07	3 52E 07		NCOPC		NCOPC
Manganese	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 17E 06	NC		NCOPC		NCOPC
Mercury	NC		NCOPC	3 90E 08	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
	Total		9 19E 06		2 83E 06		4 80E-06		1 07E 06		2 20E 06		4 88E 07		6 15E 04		6 84E 05

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
NC No dose-response value
NCOPC Not calculated because not a constituent of potential concern in this area/medium
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semi Volat le Organic Compounds
TCDD TEQ Tetrachlorodibenzo p dioxin Toxic Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh RME Outdoor Industrial Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	NA	NA	NA	NA	NC
1,2-Dichloroethane	1 00E+00	1	1 40E-03	9 52E-02	9 52E-02	6 80E+01
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	9 52E-02	9 52E-02	1 11E-01
Benzene	1 00E+00	1	8 57E-03	9 52E-02	9 52E-02	1 11E+01
Chlorobenzene	1 00E+00	1	1 70E-02	9 52E-02	9 52E-02	5 60E+00
Chloroform	1 00E+00	1	1 43E-02	9 52E-02	9 52E-02	6 66E+00
Dichloromethane	1 00E+00	1	8 60E-01	9 52E-02	9 52E 02	1 11E 01
Ethylbenzene	1 00E+00	1	2 86E 01	9 52E-02	9 52E-02	3 33E-01
Tetrachloroethene	1 00E+00	1	1 70E-01	9 52E-02	9 52E-02	5 60E-01
Toluene	1 00E+00	1	1 14E-01	9 52E-02	9 52E-02	8 35E-01
Trichloroethylene	1 00E+00	1	1 00F-02	9 52E-02	9 52E-02	9 52E+00
Xylenes, Total	1 00E+00	1	2 86E-02	9 52E-02	9 52E 02	3 33E+00
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	1	5 71E 05	9 52E-02	9 52E-02	1 67E+03
4-Nitroaniline	1 00E+00	1	1 14E-03	9 52E-02	9 52E 02	8 35E+01
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NC
Pesticides (b)						
4,4'-DDT	1 00E+00	NA	NA	NA	NA	NC
beta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	NA	NA	NA	NA	NC
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	NA	NA	NA	NA	NC
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	NA	NA	NA	NA	NC
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NC
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	NA	NA	NA	NA	NC
Cadmium	1 00E+00	NA	NA	NA	NA	NC
Chromium	1 00E+00	1	2 86E-05	9 52E-02	9 52E-02	3 33E+03
Manganese	1 00E+00	1	1 43E-05	9 52E 02	9 52E-02	6 66E+03
Mercury	1 00E+00	1	8 57E-05	9 52E-02	9 52E-02	1 11E+03

TABLE
POTENTIAL NONCARCINOGENIC RISK
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER RME

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/m³)	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ
VOCs (a)																	
1 1 2-Trichloroethane	NC	-	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 00E 05	NC		NCOPC
1 2 Dichloroethane	6 80E+01	-	NCOPC		NCOPC		NCOPC	6 50E 05	5 78E 03		NCOPC	--	NCOPC	2 90E 04	1 97E-02	--	NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 20E 04	NC	--	NCOPC
4 Methyl-2-pentanone (MIBK)	1 11E-01	--	NCOPC	--	NCOPC		NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 00E-02	2 22E-03
Benzene	1 11E+01	3 50E 02	3 89E 01	6 60E 03	7 33E 02	2 20E 04	2 44E 03	1 90E 04	2 11E 03		NCOPC	3 40E 05	3 78E-04	4 80E-04	5 33E-03	3 20E 04	3 55E 03
Chlorobenzene	5 60E+00	5 20E 02	2 91E 01	4 60E-02	2 58E-01		NCOPC		NCOPC	--	NCOPC	--	NCOPC	2 80E-03	1 57E-02	5 80E-03	3 25E 02
Chloroform	6 66E+00	-	NCOPC	-	NCOPC		NCOPC	--	NCOPC		NCOPC	-	NCOPC	3 90E-05	2 60E-04	-	NCOPC
Dichloromethane	1 11E-01	--	NCOPC	8 30E-03	9 19E 04	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	8 60E-04	9 52E-05
Ethylbenzene	3 33E-01	1 90E 01	8 32E 02	7 20E-02	2 40E-02	1 30E 02	4 33E 03	8 90E 04	2 96E 04	--	NCOPC	4 10E 03	1 36E-03	6 20E 05	2 06E 05	4 20E-03	1 40E 03
Tetrachloroethene	5 60E-01	--	NCOPC	6 50E-04	3 64E-04	3 00E 03	1 68E 03	5 60E-04	3 14E-04	--	NCOPC	--	NCOPC	2 90E-03	1 62E-03	2 10E-04	1 18E-04
Toluene	8 35E 01	2 70E-02	2 25E-02	-	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	1 90E-02	1 59E-02	2 00E-03	1 67E-03	3 90E-02	3 26E-02
Trichloroethylene	9 52E+00	--	NCOPC	--	NCOPC	1 90E 04	1 81E 03	2 40E 05	2 28E-04	--	NCOPC	5 90E-06	5 62E-05	4 50E-02	4 28E-01	5 00E-03	4 76E-02
Xylenes, Total	3 33E+00	9 70E-01	3 23E+00	3 70E 01	1 23E+00	7 00E 02	2 33E 01	6 70E 03	2 23E-02	--	NCOPC	2 90E-02	9 66E-02	4 20E-05	1 40E 04	3 50E 02	1 17E 01
SVOCs (b)																	
2 4 6-Trichlorophenol	NC	--	NCOPC		NCOPC		NCOPC	-	NCOPC		NCOPC	-	NCOPC	--	NCOPC	1 12E 08	NC
2-Nitroaniline	1 67E+03	-	NCOPC		NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	6 27E 09	1 04E-05
4 Nitroaniline	8 35E+01	-	NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	--	NCOPC		NCOPC	7 77E 08	6 49E-06
Benzo(a)anthracene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 40E 09	NC	--	NCOPC	1 09E 08	NC
Benzo(a)pyrene	NC	--	NCOPC		NCOPC	9 13E-10	NC	2 45E 09	NC	--	NCOPC	1 43E-09	NC	-	NCOPC	7 36E-09	NC
Benzo(b)fluoranthene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 84E 09	NC	-	NCOPC	9 00E 09	NC
Dibenzo(a h)anthracene	NC		NCOPC		NCOPC	-	NCOPC	5 04E 10	NC		NCOPC	-	NCOPC	-	NCOPC	2 45E-09	NC
Pesticides (b)																	
4 4' DDT	NC		NCOPC	-	NCOPC		NCOPC	-	NCOPC		NCOPC		NCOPC		NCOPC	2 18E 08	NC
beta BHC	NC		NCOPC		NCOPC		NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	3 54E 08	NC
Dieldrin	NC	2 45E-10	NC		NCOPC		NCOPC		NCOPC		NCOPC	3 67E 10	NC		NCOPC	-	NCOPC
gamma BHC (Lindane)	NC		NCOPC	--	NCOPC		NCOPC	-	NCOPC		NCOPC	-	NCOPC	--	NCOPC	1 02E 08	NC
Heptachlor	NC	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC		NCOPC	2 04E 09	NC
Herbicides (b)																	
Pentachlorophenol	NC		NCOPC	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	6 00E 07	NC
PCBs (b)																	
Total PCBs	NC	1 47E 08	NC	6 43E 07	NC	9 57E 09	NC	2 55E 09	NC	3 51E 09	NC	6 95E 09	NC		NCOPC	1 37E 06	NC
Dioxin (b)																	
2 3 7,8-TCDD TEQ	NC	8 08E-12	NC	4 61E-11	NC		NCOPC		NCOPC	4 51E 12	NC	2 30E 12	NC		NCOPC		NCOPC
Metals (b)																	
Antimony	NC	-	NCOPC		NCOPC		NCOPC		NCOPC	-	NCOPC	1 95E 08	NC		NCOPC		NCOPC
Arsenic	NC	--	NCOPC		NCOPC	3 54E 08	NC	--	NCOPC	1 77E 08	NC	1 84E-08	NC		NCOPC		NCOPC
Cadmium	NC		NCOPC	-	NCOPC	-	NCOPC	1 25E 07	NC		NCOPC	--	NCOPC		NCOPC		NCOPC
Chromium	3 33E+03		NCOPC	--	NCOPC		NCOPC		NCOPC	-	NCOPC	2 47E 07	8 21E 04		NCOPC		NCOPC
Manganese	6 66E+03		NCOPC	-	NCOPC	-	NCOPC		NCOPC		NCOPC	1 17E 06	7 81E-03		NCOPC		NCOPC
Mercury	1 11E+03		NCOPC	3 90E 08	4 33E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	-	NCOPC
	Total		4 00E+00		1 59E+00		2 43E-01		3 10E-02		NC		1 23E-01		4 73E-01		2 37E-01

Notes
- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo p dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated:	
Receptor	RME Outdoor Industrial Worker

ASSUMPTIONS FOR OUTDOOR INDUSTRIAL WORKER - RME INHALATION OF OUTDOOR AIR VOCs		Assumed Value	Units	Calculated Value
Inhalation Rate	RME Outdoor Industrial Worker	1 6	(m^3 air/hour)	
Body Weight	RME Outdoor Industrial Worker	70	(kg)	
Exposure Time	RME Outdoor Industrial Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	RME Outdoor Industrial Worker	190	(days)/365 (days) =	5 21E-01
Exposure Duration (cancer)	RME Outdoor Industrial Worker	25	(yrs)/70(yrs) =	3 57E-01
Exposure Duration (noncancer)	RME Outdoor Industrial Worker	25	(yrs)/25(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
OUTDOOR INDUSTRIAL WORKER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day) [1]	ADDinh RME Outdoor Industrial Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E-02	3 40E-02	3 40E-02	3 09E-03
1,2 Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	3 40E-02	3 40E-02	2 62E-04
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	2 24E-02	2 24E-02	1 81E-03
Chloromethane	1 00E+00	1	6 30E-03	3 40E-02	3 40E-02	2 14E-04
Dichloromethane	1 00E+00	1	1 65E-03	3 40E-02	3 40E-02	5 59E-05
Tetrachloroethene	1 00E+00	1	2 10E-02	3 40E-02	3 40E-02	7 14E-04
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	3 40E-02	3 40E-02	1 36E-02

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
OUTDOOR INDUSTRIAL WORKER - RME

Constituent	Reference Risk (per mg/m³)	Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-6		O		Q		R	
		EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk
VOCs													
1,2-Dichloroethane	3 09E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	3 09E-07	2 00E-03	6 19E-06
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	NC	4 90E-05	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	2 62E-04	4 00E-05	1 05E-08	1 80E-07	4 71E-11	--	NCOPC	9 00E-05	2 36E-08	3 90E-05	1 02E-08	5 70E-04	1 49E-07
Chlorobenzene	NC	--	NCOPC	5 80E-07	NC	--	NCOPC	1 20E-04	NC	7 20E-05	NC	7 30E-05	NC
Chloroform	1 81E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	2 53E-07
Chloromethane	2 14E-04	--	NCOPC	1 70E-08	3 64E-12	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	5 59E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	1 79E-10	1 10E-04	6 15E-09
Tetrachloroethene	7 14E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	1 07E-08	5 60E-03	4 00E-06
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	NC
Trichloroethylene	1 36E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	1 18E-07	5 10E-02	6 93E-04
	Total:		**1.05E-08**		**5.08E-11**		**NCOPC**		**2.36E-08**		**4.49E-07**		**7.04E-04**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
OUTDOOR INDUSTRIAL WORKER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh RME Outdoor Industrial Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	1 40E-03	9 52E-02	9 52E-02	6 80E+01
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	2 86E-01	9 52E-02	9 52E-02	3 33E-01
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	9 52E-02	9 52E-02	1 11E-01
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	8 57E-03	9 52E-02	9 52E-02	1 11E+01
Chlorobenzene	1 00E+00	1	1 70E-02	9 52E-02	9 52E-02	5 60E+00
Chloroform	1 00E+00	1	1 43E-02	9 52E-02	9 52E-02	6 66E+00
Chloromethane	1 00E+00	1	2 57E-02	9 52E-02	9 52E-02	3 70E+00
Dichloromethane	1 00E+00	1	8 60E-01	9 52E-02	9 52E-02	1 11E-01
Tetrachloroethene	1 00E+00	1	1 70E-01	9 52E-02	9 52E-02	5 60E-01
Toluene	1 00E+00	1	1 14E-01	9 52E-02	9 52E-02	8 35E-01
Trichloroethylene	1 00E+00	1	1 00E 02	9 52E-02	9 52E-02	9 52E+00

TABLE
POTENTIAL HAZARD INDEX
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
OUTDOOR INDUSTRIAL WORKER - RME

	Reference	Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	HQ (per mg/m^3)	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs													
1,2-Dichloroethane	6 80E+01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	6 80E-03	2 00E-03	1 36E-01
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	3 33E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	2 43E-05
4-Methyl-2-pentanone (MIBK)	1 11E-01	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	4 11E-06	4 90E-05	5 44E-06	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	1 11E+01	4 00E-05	4 44E-04	1 80E-07	2 00E-06	--	NCOPC	9 00E-05	9 99E-04	3 90E-05	4 33E-04	5 70E-04	6 33E-03
Chlorobenzene	5 60E+00	--	NCOPC	5 80E-07	3 25E-06	--	NCOPC	1 20E-04	6 72E-04	7 20E-05	4 03E-04	7 30E-05	4 09E-04
Chloroform	6 66E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	9 32E-04
Chloromethane	3 70E+00	--	NCOPC	1 70E-08	6 29E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	1 11E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	3 54E-07	1 10E-04	1 22E-05
Tetrachloroethene	5 60E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	8 40E-06	5 60E-03	3 14E-03
Toluene	8 35E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	1 59E-03
Trichloroethylene	9 52E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	8 28E-05	5 10E-02	4 85E-01
	Total HI:		4.44E-04		5.31E-06		NCOPC		1.68E-03		7.73E-03		6.34E-01

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor:	MLE Outdoor Industrial Worker

ASSUMPTIONS FOR OUTDOOR INDUSTRIAL WORKER - MLE INCIDENTIAL INGESTION AND DERMAL CONTACT SURFACE SOIL		Assumed Value	Units	Calculated Value
Soil Ingestion Rate	MLE Outdoor Industrial Worker	30	(mg soil/day)	
Soil on Skin	MLE Outdoor Industrial Worker	0.02	(mg/cm^2)	
Skin Exposed	MLE Outdoor Industrial Worker	3339	(cm^2)	
Body Weight	MLE Outdoor Industrial Worker	70	(kg)	
Exposure Frequency	MLE Outdoor Industrial Worker	190	(days)/365(days) =	5.21E-01
Exposure Duration (cancer)	MLE Outdoor Industrial Worker	7	(years)/70(years) =	1.00E-01
Exposure Duration (noncancer)	MLE Outdoor Industrial Worker	7	(yrs)/7(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1.00E-06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER - MLE

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	MLE Outdoor Industrial Worker ADDing (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	MLE Outdoor Industrial Worker ADDder (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 10E-02	2 23E-08	2 23E-08	4 97E-10	4 97E-10	2 45E-10	5 46E-12	2 51E-10
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	2 10E-02	NA	NA	NA	NA	NC	NC	NC
Benzo(a)anthracene	1 00E+00	0 29	0 02	7 30E-01	6 47E-09	6 47E-09	9 93E-10	9 93E-10	4 72E-09	7 25E-10	5 45E-09
Benzo(a)pyrene	1 00E+00	0 29	0 02	7 30E+00	6 47E-09	6 47E 09	9 93E-10	9 93E-10	4 72E-08	7 25E-09	5 45E-08
Benzo(b)fluoranthene	1 00E+00	0 29	0 02	7 30E-01	6 47E-09	6 47E-09	9 93E-10	9 93E-10	4 72E-09	7 25E-10	5 45E-09
Dibenzo(a,h)anthracene	1 00E+00	0 29	0 02	7 30E+00	6 47E-09	6 47E-09	9 93E-10	9 93E-10	4 72E 08	7 25E 09	5 45E-08
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	3 40E-01	2 23E-08	2 23E-08	4 97E-10	4 97E-10	7 59E-09	1 69E-10	7 75E-09
beta-BHC	1 00E+00	1	0 01	1 80E+00	2 23E-08	2 23E-08	4 97E-10	4 97E-10	4 02E-08	8 94E-10	4 11E-08
Dieldrin	1 00E+00	1	0 01	1 60E+01	2 23E-08	2 23E-08	4 97E-10	4 97E-10	3 57E-07	7 95E-09	3 65E-07
gamma-BHC (Lindane)	1 00E+00	1	0 01	1 30E+00	2 23E 08	2 23E-08	4 97E-10	4 97E-10	2 90E-08	6 46E-10	2 96E-08
Heptachlor	1 00E+00	1	0 01	4 50E+00	2 23E-08	2 23E-08	4 97E-10	4 97E-10	1 00E-07	2 23E-09	1 03E-07
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	1 20E-01	2 23E-08	2 23E-08	4 97E-10	4 97E-10	2 68E-09	5 96E-11	2 74E-09
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E+00	1 85E-08	1 85E-08	1 99E-09	1 99E-09	3 70E-08	3 97E-09	4 10E-08
Dioxin											
2,3,7,8-TCDD-TEQ	1 00E+00	0 4	0 04	1 50E+05	8 92E 09	8 92E 09	1 99E-09	1 99E-09	1 34E-03	2 98E-04	1 64E-03
Metals											
Antimony	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1 00E+00	0 3	0 001	1 50E+00	6 69E-09	6 69E-09	4 97E-11	4 97E-11	1 00E-08	7 45E-11	1 01E-08
Cadmium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER - MLE
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/kg)	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
SVOCs																	
2,4 6-Trichlorophenol	2 51E-10	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 19E+00	1 05E-09
2-Nitroaniline	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 78E+00	NC
4-Nitroaniline	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 90E+01	NC
Benzo(a)anthracene	5 45E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 57E-01	3 04E-09	--	NCOPC	4 05E+00	2 21E-08
Benzo(a)pyrene	5 45E-08	--	NCOPC	--	NCOPC	3 01E-01	1 64E-08	1 24E+00	6 77E-08	--	NCOPC	5 98E-01	3 26E-08	--	NCOPC	2 77E+00	1 51E-07
Benzo(b)fluoranthene	5 45E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 26E-01	3 95E-09	--	NCOPC	3 42E+00	1 86E-08
Dibenzo(a h)anthracene	5 45E-08	--	NCOPC	--	NCOPC	--	NCOPC	2 12E-01	1 16E-08	--	NCOPC	--	NCOPC	--	NCOPC	9 93E-01	5 41E-08
Pesticides																	
4 4'-DDT	7 75E-09	--	NCOPC	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 01E+00	6 21E-08
beta-BHC	4 11E-08	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+01	5 34E-07
Dieldrin	3 65E-07	9 10E-02	3 32E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 96E-02	2 91E-08	--	NCOPC	--	NCOPC
gamma-BHC (Lindane)	2 96E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 75E+00	1 11E-07
Heptachlor	1 03E-07	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 50E-01	7 70E-08
Herbicides																	
Pentachlorophenol	2 74E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 20E+02	6 02E-07
PCBs																	
Total PCBs	4 10E-08	5 40E+00	2 21E-07	7 09E+02	2 91E-05	1 78E+00	7 32E-08	5 73E-01	2 35E-08	1 08E+00	4 42E-08	2 75E+00	1 13E-07	--	NCOPC	5 04E+02	2 07E-05
Dioxin																	
2,3,7,8-TCDD-TEQ	1 64E-03	2 99E-03	4 89E-06	5 08E-02	8 31E-05	--	NCOPC	--	NCOPC	1 14E-03	1 86E-06	6 89E-04	1 13E-06	--	NCOPC	--	NCOPC
Metals																	
Antimony	NC	--	NCOPC	--	NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	6 95E+00	NC	--	NCOPC	--	NCOPC
Arsenic	1 01E-08	--	NCOPC	--	NCOPC	1 41E+01	1 43E-07	--	NCOPC	7 30E+00	7 38E-08	9 66E+00	9 77E-08	--	NCOPC	--	NCOPC
Cadmium	NC	--	NCOPC	-	NCOPC	--	NCOPC	2 01E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 41E+01	NC	--	NCOPC	--	NCOPC
Manganese	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 03E+02	NC	--	NCOPC	-	NCOPC
Mercury	NC	--	NCOPC	4 30E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
	Total:		5.14E-06		1.12E-04		2.32E-07		1.03E-07		1.98E-06		1.41E-06		NCOPC		2.23E-05

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER - MLE

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	MLE Outdoor Industrial Worker ADDing (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg day)	MLE Outdoor Industrial Worker ADDder (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 00E-04	2 23E 07	2 23E-07	4 97E-09	4 97E-09	2 23E-03	4 97E 05	2 28E-03
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	1	0 01	3 00E-03	2 23E-07	2 23E-07	4 97E-09	4 97E-09	7 44E-05	1 66E-06	7 60E-05
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	5 00E-04	2 23E-07	2 23E-07	4 97E-09	4 97E-09	4 46E-04	9 93E-06	4 56E-04
beta-BHC	1 00E+00	1	0 01	3 00E-04	2 23E-07	2 23E-07	4 97E-09	4 97E-09	7 44E-04	1 66E-05	7 60E-04
Dieldrin	1 00E+00	1	0 01	5 00E-05	2 23E-07	2 23E-07	4 97E-09	4 97E-09	4 46E-03	9 93E-05	4 56E-03
gamma-BHC (Lindane)	1 00E+00	1	0 01	3 00E-04	2 23E-07	2 23E-07	4 97E-09	4 97E-09	7 44E-04	1 66E-05	7 60E-04
Heptachlor	1 00E+00	1	0 01	5 00E-04	2 23E 07	2 23E 07	4 97E 09	4 97E-09	4 46E-04	9 93E-06	4 56E-04
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	3 00E-02	2 23E-07	2 23E 07	4 97E-09	4 97E-09	7 44E-06	1 66E-07	7 60E-06
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E-05	1 85E-07	1 85E 07	1 99E 08	1 99E-08	9 26E-03	9 93E-04	1 03E 02
Dioxin											
2,3,7 8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Metals											
Antimony	1 00E+00	1	0 007	4 00E-04	2 23E 07	2 23E-07	3 48E 09	3 48E-09	5 58E-04	8 69E-06	5 66E-04
Arsenic	1 00E+00	0 3	0 001	3 00E-04	6 69E 08	6 69E 08	4 97E-10	4 97E-10	2 23E-04	1 66E-06	2 25E-04
Cadmium	1 00E+00	1	0 04	1 00E-03	2 23E-07	2 23E-07	1 99E-08	1 99E-08	2 23E-04	1 99E-05	2 43E-04
Chromium	1 00E+00	0 3	0	3 00E-03	6 69E-08	6 69E-08	0 00E+00	NA	2 23E-05	NC	2 23E-05
Manganese	1 00E+00	1	0 01	2 40E-02	2 23E-07	2 23E-07	4 97E-09	4 97E-09	9 30E-06	2 07E-07	9 50E-06
Mercury	1 00E+00	2	0 007	3 00E-04	4 46E-07	4 46E-07	3 48E-09	3 48E-09	1 49E-03	1 16E 05	1 50E-03

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
OUTDOOR INDUSTRIAL WORKER - MLE
SAUGET AREA 2 RI/FS

	Reference	Q		Q North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
SVOCs																	
2,4,6-Trichlorophenol	2 28E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 19E+00	9 56E-03
2-Nitroaniline	NC	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 78E+00	NC
4-Nitroaniline	7 60E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 90E+01	2 20E-03
Benzo(a)anthracene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 57E-01	NC	--	NCOPC	4 05E+00	NC
Benzo(a)pyrene	NC	--	NCOPC	--	NCOPC	3 01E-01	NC	1 24E+00	NC	--	NCOPC	5 98E-01	NC	--	NCOPC	2 77E+00	NC
Benzo(b)fluoranthene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 26E-01	NC	--	NCOPC	3 42E+00	NC
Dibenzo(a h)anthracene	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 12E-01	NC	--	NCOPC	--	NCOPC	--	NCOPC	9 93E-01	NC
Pesticides																	
4,4'-DDT	4 56E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 01E+00	3 65E-03
beta-BHC	7 60E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+01	9 88E-03
Dieldrin	4 56E-03	9 10E-02	4 15E-04	--	NCOPC		NCOPC	-	NCOPC	--	NCOPC	7 96E-02	3 63E-04	--	NCOPC	--	NCOPC
gamma-BHC (Lindane)	7 60E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 75E+00	2 85E-03
Heptachlor	4 56E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 50E-01	3 42E-04
Herbicides																	
Pentachlorophenol	7 60E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 20E+02	1 67E-03
PCBs																	
Total PCBs	1 03E-02	5 40E+00	5 53E-02	7 09E+02	7 27E+00	1 78E+00	1 83E-02	5 73E-01	5 87E-03	1 08E+00	1 11E-02	2 75E+00	2 82E-02	--	NCOPC	5 04E+02	5 17E+00
Dioxin																	
2 3,7,8-TCDD-TEQ	NC	2 99E-03	NC	5 08E-02	NC	--	NCOPC	-	NCOPC	14E-03	NC	6 89E-04	NC	--	NCOPC	--	NCOPC
Metals																	
Antimony	5 66E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 95E+00	3 94E-03	--	NCOPC	--	NCOPC
Arsenic	2 25E-04	--	NCOPC	--	NCOPC	1 41E+01	3 17E-03	--	NCOPC	, 30E+00	1 64E-03	9 66E+00	2 17E-03	--	NCOPC	--	NCOPC
Cadmium	2 43E-04	--	NCOPC	--	NCOPC	--	NCOPC	2 01E+01	4 89E-03	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC
Chromium	2 23E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 41E+01	1 88E-03	--	NCOPC	-	NCOPC
Manganese	9 50E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 03E+02	5 73E-03	--	NCOPC	--	NCOPC
Mercury	1 50E-03	--	NCOPC	4 30E+01	6 45E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
	Total HI:		5.57E-02		7.33E+00		2.15E-02		1.08E-02		1.27E-02		4.23E-02		NCOPC		5.20E+00

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo p-dioxin Toxic Equivalents Concentration

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated:	
Receptor	MLE Outdoor Industrial Worker

ASSUMPTIONS FOR OUTDOOR INDUSTRIAL WORKER - MLE INHALATION OF OUTDOOR AIR FROM SOIL		Assumed Value	Units	Calculated Value
Inhalation Rate	MLE Outdoor Industrial Worker	1	(m^3 air/hour)	
Body Weight	MLE Outdoor Industrial Worker	70	(kg)	
Exposure Time	MLE Outdoor Industrial Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	MLE Outdoor Industrial Worker	190	(days)/365 (days) =	5 21E-01
Exposure Duration (cancer)	MLE Outdoor Industrial Worker	7	(yrs)/70(yrs) =	1 00E-01
Exposure Duration (noncancer)	MLE Outdoor Industrial Worker	7	(yrs)/7(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	ADDinh MLE Outdoor Industrial Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg day)	Excess Lifetime Cancer Risk - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	1	5 60E-02	5 95E-03	5 95E-03	3 33E-04
1,2-Dichloroethane	1 00E+00	1	9 10E-02	5 95E-03	5 95E-03	5 41E-04
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	5 95E-03	5 95E-03	4 58E-05
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	3 93E-03	3 93E-03	3 16E-04
Dichloromethane	1 00E+00	1	1 65E-03	5 95E-03	5 95E-03	9 79E-06
Ethylbenzene	1 00E+00	1	NA	5 95E-03	5 95E-03	NC
Tetrachloroethene	1 00E+00	1	2 10E-02	5 95E-03	5 95E-03	1 25E 04
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	5 95E 03	5 95E-03	2 38E-03
Xylenes, Total	1 00E+00	NA	NA	NA	NA	NC
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	1	1 09E-02	5 95E 03	5 95E-03	6 45E 05
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)anthracene	1 00E+00	1	3 10E-01	5 95E-03	5 95E-03	1 84E-03
Benzo(a)pyrene	1 00E+00	1	3 10E+00	5 95E-03	5 95E-03	1 84E-02
Benzo(b)fluoranthene	1 00E+00	1	3 10E-01	5 95E-03	5 95E-03	1 84E-03
Dibenzo(a,h)anthracene	1 00E+00	1	3 10E+00	5 95E-03	5 95E-03	1 84E-02
Pesticides (b)						
4,4'-DDT	1 00E+00	1	3 40E-01	5 95E-03	5 95E-03	2 02E-03
beta-BHC	1 00E+00	1	1 86E+00	5 95E-03	5 95E-03	1 10E-02
Dieldrin	1 00E+00	1	1 61E+01	5 95E-03	5 95E-03	9 58E-02
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	1	4 55E+00	5 95E-03	5 95E-03	2 71E-02
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	1	2 00E+00	5 95E-03	5 95E-03	1 19E-02
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	0 55	1 50E+05	3 27E 03	3 27E-03	4 91E+02
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	1	1 51E+01	5 95E-03	5 95E 03	8 98E 02
Cadmium	1 00E+00	1	6 30E+00	5 95E-03	5 95E-03	3 75E-02
Chromium	1 00E+00	1	4 20E+01	5 95E-03	5 95E 03	2 50E-01
Manganese	1 00E+00	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER MLE

Constituent	Reference Risk (per mg/m³)	O EPC (mg/m³)	O Risk	O North EPC (mg/m³)	O North Risk	P EPC (mg/m³)	P Risk	Q North EPC (mg/m³)	Q North Risk	Q Central EPC (mg/m³)	Q Central Risk	Q South EPC (mg/m³)	Q South Risk	R EPC (mg/m³)	R Risk	S EPC (mg/m³)	S Risk
VOCs (a)																	
1 1 2 Trichloroethane	3 33E 04		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 70E 05	9 00E 09		NCOPC
1 2 Dichloroethane	5 41E 04		NCOPC	--	NCOPC		NCOPC	3 70E 05	2 00E 08		NCOPC		NCOPC	1 50E 04	8 12E 08		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 40E 05	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 10E 03	NC
Benzene	4 58E 05	6 70E 03	3 07E 07	4 10E 03	1 88E 07	1 30E 04	5 96E 09	7 80E 05	3 57E 09		NCOPC	1 50E 05	6 87E 10	2 40E 04	1 10E 08	1 10E 04	5 04E 09
Chlorobenzene	NC	1 50E 02	NC	3 10E 02	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 10E 03	NC	1 30E 03	NC
Chloroform	3 16E 04		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 20E 05	6 95E 09		NCOPC
Dichloromethane	9 79E 06		NCOPC	3 50E 03	3 43E 08		NCOPC	--	NCOPC		NCOPC		NCOPC		NCOPC	2 50E 04	2 45E 09
Ethylbenzene	NC	3 30E 02	NC	4 80E 02	NC	1 40E 03	NC	4 00E 04	NC		NCOPC	1 60E 03	NC	3 50E 05	NC	1 20E 03	NC
Tetrachloroethene	1 25E 04	--	NCOPC	3 40E 04	4 25E 08	2 50E 03	3 12E 07	2 20E 04	2 75E 08		NCOPC	--	NCOPC	1 40E 03	1 75E 07	8 40E 05	1 05E 08
Toluene	NC	4 80E 03	NC		NCOPC		NCOPC		NCOPC	--	NCOPC	7 50E 03	NC	1 20E 03	NC	8 70E 03	NC
Trichloroethylene	2 38E 03		NCOPC		NCOPC	3 90E 05	9 28E 08	1 20E 05	2 86E 08		NCOPC	2 50E 06	5 95E 09	5 20E 03	1 24E 05	1 10E 03	2 62E 06
Xylenes Total	NC	1 70E 01	NC	2 50E 01	NC	7 40E 03	NC	2 90E 03	NC		NCOPC	1 10E 02	NC	2 20E 04	NC	8 40E 03	NC
SVOCs (b)																	
2 4 6 Trichlorophenol	6 45E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 72E 09	3 69E 13
2 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 78E 09	NC
4 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 95E 08	NC
Benzo(a)anthracene	1 84E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 60E 10	1 40E 12		NCOPC	5 52E 09	1 02E 11
Benzo(a)pyrene	1 84E 02		NCOPC		NCOPC	4 10E 10	7 56E 12	1 69E 09	3 12E 11		NCOPC	8 16E 10	1 50E 11		NCOPC	3 77E 09	6 95E 11
Benzo(b)fluoranthene	1 84E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 89E 10	1 82E 12		NCOPC	4 66E 09	8 60E 12
Dibenzo(a h)anthracene	1 84E 02		NCOPC		NCOPC		NCOPC	2 89E 10	5 34E 12		NCOPC		NCOPC		NCOPC	1 35E 09	2 50E 11
Pesticides (b)																	
4 4 DDT	2 02E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 09E 08	2 20E 11
beta BHC	1 10E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 77E 08	1 96E 10
Dieldrin	9 58E 02	1 24E 10	1 19E 11		NCOPC		NCOPC		NCOPC		NCOPC	1 09E 10	1 04E 11		NCOPC		NCOPC
gamma BHC (Lindane)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 11E 09	NC
Heptachlor	2 71E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 02E 09	2 77E 11
Herbicides (b)																	
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 00E 07	NC
PCBs (b)																	
Total PCBs	1 19E 02	7 36E 09	8 75E 11	6 43E 07	7 65E 09	2 43E 09	2 89E 11	7 81E 10	9 29E 12	1 47E 09	1 75E 11	3 75E 09	4 46E 11		NCOPC	6 88E 07	8 18E 09
Dioxin (b)																	
2 3 7 8 TCDD TEQ	4 91E+02	4 07E 12	2 00E 09	4 61E 11	2 26E 08		NCOPC		NCOPC	1 55E 12	7 60E 10	9 40E 13	4 61E 10		NCOPC		NCOPC
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 48E 09	NC		NCOPC		NCOPC
Arsenic	8 98E 02		NCOPC		NCOPC	1 92E 08	1 73E 09		NCOPC	9 95E 09	8 94E 10	1 32E 08	1 18E 09		NCOPC		NCOPC
Cadmium	3 75E 02		NCOPC		NCOPC		NCOPC	2 75E 08	1 03E 09		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	2 50E 01		NCOPC		NCOPC		NCOPC	--	NCOPC		NCOPC	1 15E 07	2 86E 08	--	NCOPC		NCOPC
Manganese	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	8 23E 07	NC		NCOPC		NCOPC
Mercury	NC		NCOPC	3 90E 08	NC		NCOPC	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
Total			3 09E 07		2 95E 07		4 13E 07		8 07E 08		1 87E 09		3 70E-08		1 27E-06		2 64E-06

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
MLE Most Likely Exposure
NC No dose-response value
NCOPC Not calculated because not a constituent of potential concern in this area/medium
PCBs Polychlorinated Biphenyls
SVOCs Semi Volatile Organic Compounds
TCDD TEQ Tetrachlorodibenzo p dioxin Toxic Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh MLE Outdoor Industrial Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg day)	Hazard Index - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	NA	NA	NA	NA	NC
1,2-Dichloroethane	1 00E+00	1	1 40E-03	5 95E-02	5 95E 02	4 25E+01
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4 Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	5 95E-02	5 95E-02	6 94E-02
Benzene	1 00E+00	1	8 57E-03	5 95E 02	5 95E-02	6 94E+00
Chlorobenzene	1 00E+00	1	1 70E-02	5 95E-02	5 95E-02	3 50E+00
Chloroform	1 00E+00	1	1 43E-02	5 95E-02	5 95E-02	4 16E+00
Dichloromethane	1 00E+00	1	8 60E-01	5 95E-02	5 95E-02	6 92E-02
Ethylbenzene	1 00E+00	1	2 86E-01	5 95E-02	5 95E-02	2 08E-01
Tetrachloroethene	1 00E+00	1	1 70E-01	5 95E-02	5 95E-02	3 50E-01
Toluene	1 00E+00	1	1 14E-01	5 95E-02	5 95E-02	5 22E-01
Trichloroethylene	1 00E+00	1	1 00E-02	5 95E-02	5 95E-02	5 95E+00
Xylenes, Total	1 00E+00	1	2 86E-02	5 95E-02	5 95E-02	2 08E+00
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	1	5 71E-05	5 95E-02	5 95E-02	1 04E+03
4-Nitroaniline	1 00E+00	1	1 14E-03	5 95E-02	5 95E-02	5 22E+01
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NC
Pesticides (b)						
4,4'-DDT	1 00E+00	NA	NA	NA	NA	NC
beta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	NA	NA	NA	NA	NC
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	NA	NA	NA	NA	NC
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	NA	NA	NA	NA	NC
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NC
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	NA	NA	NA	NA	NC
Cadmium	1 00E+00	NA	NA	NA	NA	NC
Chromium	1 00E+00	1	2 86E 05	5 95E 02	5 95E-02	2 08E+03
Manganese	1 00E+00	1	1 43E-05	5 95E 02	5 95E 02	4 16E+03
Mercury	1 00E+00	1	8 57E-05	5 95E-02	5 95E 02	6 94E+02

TABLE
POTENTIAL NONCARCINOGENIC RISK
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
OUTDOOR INDUSTRIAL WORKER MLE

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/m³)	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ
VOCs (a)																	
1 1 2 Trichloroethane	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 70E 05	NC		NCOPC
1 2 Dichloroethane	4 25E+01		NCOPC		NCOPC		NCOPC	3 70E 05	1 57E 03		NCOPC		NCOPC	1 50E 04	6 37E 03		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 40E 05	NC		NCOPC
4 Methyl-2 pentanone (MIBK)	6 94E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 10E 03	3 54E 04
Benzene	6 94E+00	6 70E 03	4 65E 02	4 10E 03	2 85E 02	1 30E 04	9 02E 04	7 80E 05	5 41E 04		NCOPC	1 50E 05	1 04E 04	2 40E 04	1 67E 03	1 10E 04	7 63E 04
Chlorobenzene	3 50E+00	1 50E 02	5 25E 02	3 10E 02	1 08E 01		NCOPC		NCOPC		NCOPC		NCOPC	1 10E 03	3 85E 03	1 30E 03	4 55E 03
Chloroform	4 16E+00		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 20E 05	9 15E 05		NCOPC
Dichloromethane	6 92E 02		NCOPC	3 50E 03	2 42E 04		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 50E 04	1 73E 05
Ethylbenzene	2 08E 01	3 30E 02	6 86E 03	4 80E 02	9 98E 03	1 40E 03	2 91E 04	4 00E 04	8 32E 05		NCOPC	1 60E 03	3 33E 04	3 50E 05	7 28E 06	1 20E 03	2 50E 04
Tetrachloroethene	3 50E 01		NCOPC	3 40E 04	1 19E 04	2 50E 03	8 75E 04	2 20E 04	7 70E 05		NCOPC		NCOPC	1 40E 03	4 90E 04	8 40E 05	2 94E 05
Toluene	5 22E 01	4 80E 03	2 50E 03		NCOPC		NCOPC		NCOPC		NCOPC	7 50E 03	3 91E 03	1 20E 03	6 26E 04	8 70E 03	4 54E 03
Trichloroethylene	5 95E+00		NCOPC		NCOPC	3 90E 05	2 32E 04	1 20E 05	7 14E 05		NCOPC	2 50E 06	1 49E 05	5 20E 03	3 09E 02	1 10E 03	6 54E 03
Xylenes Total	2 08E+00	1 70E 01	3 54E 01	2 50E 01	5 21E 01	7 40E 03	1 54E 02	2 90E 03	6 04E 03		NCOPC	1 10E 02	2 29E 02	2 20E 04	4 58E 04	8 40E 03	1 75E 02
SVOCs (b)																	
2 4 6 Trichlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 72E 09	NC
2 Nitroaniline	1 04E+03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 78E 09	3 94E 06
4 Nitroaniline	5 22E+01		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 95E 08	2 06E 06
Benzo(a)anthracene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 60E 10	NC	--	NCOPC	5 52E 09	NC
Benzo(a)pyrene	NC		NCOPC		NCOPC	4 10E 10	NC	1 69E 09	NC	--	NCOPC	8 16E 10	NC		NCOPC	3 77E 09	NC
Benzo(b)fluoranthene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 89E 10	NC		NCOPC	4 66E 09	NC
Dibenzo(a h)anthracene	NC		NCOPC		NCOPC		NCOPC	2 89E 10	NC		NCOPC		NCOPC		NCOPC	1 35E 09	NC
Pesticides (b)																	
4 4 DDT	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	1 09E 08	NC
beta BHC	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 77E 08	NC
Dieldrin	NC	1 24E 10	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 09E 10	NC		NCOPC		NCOPC
gamma BHC (Lindane)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 11E 09	NC
Heptachlor	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 02E 09	NC
Herbicides (b)																	
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 00E 07	NC
PCBs (b)																	
Total PCBs	NC	7 36E 09	NC	6 43E 07	NC	2 43E 09	NC	7 81E 10	NC	1 47E 09	NC	3 75E 09	NC		NCOPC	6 88E 07	NC
Dioxin (b)																	
2 3 7 8-TCDD TEQ	NC	4 07E 12	NC	4 61E 11	NC		NCOPC		NCOPC	1 55E 12	NC	9 40E 13	NC		NCOPC		NCOPC
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 48E 09	NC		NCOPC		NCOPC
Arsenic	NC		NCOPC		NCOPC	1 92E 08	NC		NCOPC	9 95E 09	NC	1 32E 08	NC		NCOPC		NCOPC
Cadmium	NC		NCOPC		NCOPC		NCOPC	2 75E 08	NC		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	2 08E+03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 15E 07	2 38E 04		NCOPC		NCOPC
Manganese	4 16E+03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	8 23E 07	3 43E 03		NCOPC		NCOPC
Mercury	6 94E+02		NCOPC	3 90E 08	2 71E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
	Total		4 62E 01		6 68E 01		1 77E 02		8 38E 03		NC		3 09E-02		4 45E 02		3 45E 02

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
HI Hazard Index
HQ Hazard Quotient
MLE Most Likely Exposure
NC No dose response value
NCOPC Not calculated because not a constituent of potential concern in this area/medium
PCBs Polychlorinated Biphenyls
SVOCs Semi Volatile Organic Compounds
TCDD TEQ Tetrachlorodibenzo p-dioxin Toxic Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor	MLE Outdoor Industrial Worker

ASSUMPTIONS FOR ON-SITE OUTDOOR INDUSTRIAL WORKER - MLE INHALATION OF OUTDOOR AIR VOCs		Assumed Value	Units	Calculated Value
Inhalation Rate	MLE Outdoor Industrial Worker	1 0	(m^3 air/hour)	
Body Weight	MLE Outdoor Industrial Worker	70	(kg)	
Exposure Time	MLE Outdoor Industrial Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	MLE Outdoor Industrial Worker	190	(days)/365 (days) =	5 21E 01
Exposure Duration (cancer)	MLE Outdoor Industrial Worker	7	(yrs)/70(yrs) =	1 00E-01
Exposure Duration (noncancer)	MLE Outdoor Industrial Worker	7	(yrs)/7(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
ON-SITE OUTDOOR INDUSTRIAL WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day) [1]	ADDinh MLE Outdoor Industrial Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E 02	5 95E-03	5 95E-03	5 41E-04
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E 03	5 95E 03	5 95E-03	4 58E-05
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	3 93E-03	3 93E-03	3 16E-04
Chloromethane	1 00E+00	1	6 30E-03	5 95E-03	5 95E-03	3 75E-05
Dichloromethane	1 00E+00	1	1 65E-03	5 95E-03	5 95E-03	9 79E-06
Tetrachloroethene	1 00E+00	1	2 10E-02	5 95E-03	5 95E-03	1 25E-04
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E 01	5 95E-03	5 95E 03	2 38E-03

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
ON-SITE OUTDOOR INDUSTRIAL WORKER - MLE

		Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Reference Risk (per mg/m³)	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk
VOCs													
1,2-Dichloroethane	5 41E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	5 41E-08	2 00E-03	1 08E-06
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	NC	4 90E-05	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	4 58E-05	4 00E-05	1 83E-09	1 80E-07	8 25E-12	--	NCOPC	9 00E-05	4 12E-09	3 90E-05	1 79E-09	5 70E-04	2 61E-08
Chlorobenzene	NC	--	NCOPC	5 80E-07	NC	--	NCOPC	1 20E-04	NC	7 20E-05	NC	7 30E-05	NC
Chloroform	3 16E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	4 43E-08
Chloromethane	3 75E-05	--	NCOPC	1 70E-08	6 37E-13	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	9 79E-06	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	3 13E-11	1 10E-04	1 08E-09
Tetrachloroethene	1 25E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	1 87E-09	5 60E-03	7 00E-07
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	NC
Trichloroethylene	2 38E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	2 07E-08	5 10E-02	1 21E-04
	Total:		1.83E-09		8.88E-12		NCOPC		4.12E-09		7.85E-08		1.23E-04

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
ON-SITE OUTDOOR INDUSTRIAL WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh MLE Outdoor Industrial Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	1 40E-03	5 95E-02	5 95E-02	4 25E+01
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	2 86E-01	5 95E-02	5 95E-02	2 08E-01
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	5 95E-02	5 95E-02	6 94E-02
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	8 57E-03	5 95E-02	5 95E-02	6 94E+00
Chlorobenzene	1 00E+00	1	1 70E 02	5 95E-02	5 95E-02	3 50E+00
Chloroform	1 00E+00	1	1 43E-02	5 95E-02	5 95E-02	4 16E+00
Chloromethane	1 00E+00	1	2 57E-02	5 95E-02	5 95E-02	2 31E+00
Dichloromethane	1 00E+00	1	8 60E-01	5 95E-02	5 95E-02	6 92E-02
Tetrachloroethene	1 00E+00	1	1 70E-01	5 95E-02	5 95E-02	3 50E-01
Toluene	1 00E+00	1	1 14E 01	5 95E-02	5 95E-02	5 22E-01
Trichloroethylene	1 00E+00	1	1 00E-02	5 95E-02	5 95E-02	5 95E+00

TABLE
POTENTIAL HAZARD INDEX
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR VOCs
ON-SITE OUTDOOR INDUSTRIAL WORKER - MLE

		Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Reference HQ (per mg/m^3)	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs													
1,2-Dichloroethane	4 25E+01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	4 25E-03	2 00E-03	8 50E-02
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	2 08E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	1 52E-05
4-Methyl-2-pentanone (MIBK)	6 94E-02	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	2 57E-06	4 90E-05	3 40E-06	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	6 94E+00	4 00E-05	2 78E-04	1 80E-07	1 25E-06	--	NCOPC	9 00E-05	6 25E-04	3 90E-05	2 71E-04	5 70E-04	3 96E-03
Chlorobenzene	3 50E+00	--	NCOPC	5 80E-07	2 03E-06	--	NCOPC	1 20E-04	4 20E-04	7 20E-05	2 52E-04	7 30E-05	2 55E-04
Chloroform	4 16E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	5 82E-04
Chloromethane	2 31E+00	--	NCOPC	1 70E-08	3 93E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	6 92E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	2 21E-07	1 10E-04	7 61E-06
Tetrachloroethene	3 50E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	5 25E-06	5 60E-03	1 96E-03
Toluene	5 22E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	9 92E-04
Trichloroethylene	5 95E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	5 18E-05	5 10E-02	3 03E-01
	Total HI:		2.78E-04		3.32E-06		NCOPC		1.05E-03		4.83E-03		3.96E-01

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

Trespassing Teenager

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - RME INCIDENTIAL INGESTION AND DERMAL CONTACT SURFACE SOIL		Assumed Value	Units	Calculated Value
Soil Ingestion Rate	RME Trespassing Teenager	100	(mg soil/day)	
Soil on Skin	RME Trespassing Teenager	0 04	(mg/cm^2)	
Skin Exposed	RME Trespassing Teenager	4672	(cm^2)	
Body Weight	RME Trespassing Teenager	47	(kg)	
Exposure Frequency	RME Trespassing Teenager	26	(days)/365(days) =	7 12E 02
Exposure Duration (cancer)	RME Trespassing Teenager	11	(years)/70(years) =	1 57E 01
Exposure Duration (noncancer)	RME Trespassing Teenager	11	(yrs)/11(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1 00E 06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing RME Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose Ing (mg/kg-day)	ADDder RME Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 10E 02	2 38E-08	2 38E 08	4 45E- 0	4 45E-10	2 62E-10	4 90E-12	2 67E-10
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	2 10E-02	NA	NA	NA	NA	NC	NC	NC
Benzo(a)anthracene	1 00E+00	0 29	0 02	7 30E 01	6 91E 09	6 91E-09	8 90E-10	8 90E-10	5 04E-09	6 50E-10	5 69E-09
Benzo(a)pyrene	1 00E+00	0 29	0 02	7 30E+00	6 91E-09	6 91E-09	8 90E-10	8 90E-10	5 04E-08	6 50E-09	5 69E-08
Benzo(b)fluoranthene	1 00E+00	0 29	0 02	7 30E-01	6 91E-09	6 91E-09	8 90E-10	8 90E-10	5 04E-09	6 50E-10	5 69E-09
Dibenzo(a,h)anthracene	1 00E+00	0 29	0 02	7 30E+00	6 91E-09	6 91E-09	8 90E-10	8 90E-10	5 04E-08	6 50E-09	5 69E-08
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	3 40E-01	2 38E-08	2 38E-08	4 45E- 0	4 45E-10	8 10E-09	1 51E-10	8 25E-09
beta-BHC	1 00E+00	1	0 01	1 80E+00	2 38E-08	2 38E-08	4 45E- 0	4 45E-10	4 29E-08	8 01E-10	4 37E-08
Dieldrin	1 00E+00	1	0 01	1 60E+01	2 38E-08	2 38E-08	4 45E-10	4 45E-10	3 81E-07	7 12E-09	3 88E-07
gamma-BHC (Lindane)	1 00E+00	1	0 01	1 30E+00	2 38E-08	2 38E-08	4 45E- 0	4 45E-10	3 10E-08	5 79E-10	3 15E-08
Heptachlor	1 00E+00	1	0 01	4 50E+00	2 38E 08	2 38E 08	4 45E- 0	4 45E-10	1 07E-07	2 00E-09	1 09E-07
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	1 20E-01	2 38E-08	2 38E-08	4 45E- 0	4 45E-10	2 86E-09	5 34E-11	2 91E-09
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E+00	1 98E 08	1 98E-08	1 78E-09	1 78E-09	3 95E-08	3 56E-09	4 31E-08
Dioxin											
2,3,7,8-TCDD-TEQ	1 00E+00	0 4	0 04	1 50E+05	9 53E-09	9 53E-09	1 78E-09	1 78E-09	1 43E-03	2 67E-04	1 70E-03
Metals											
Antimony	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1 00E+00	0 3	0 001	1 50E+00	7 14E 09	7 14E-09	4 45E- 1	4 45E-11	1 07E-08	6 68E-11	1 08E-08
Cadmium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - RME
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/kg)	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
SVOCs																	
2,4,6-Trichlorophenol	2 67E-10	--	NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 20E+00	2 19E-09
2-Nitroaniline	NC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC		NCOPC	--	NCOPC	--	NCOPC	4 60E+00	NC
4-Nitroaniline	NC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 70E+01	NC
Benzo(a)anthracene	5 69E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 03E+00	5 86E-09	--	NCOPC	8 00E+00	4 55E-08
Benzo(a)pyrene	5 69E-08	--	NCOPC	--	NCOPC	6 70E-01	3 81E-08	1 80E+00	1 02E-07	--	NCOPC	1 05E+00	5 98E-08	--	NCOPC	5 40E+00	3 07E-07
Benzo(b)fluoranthene	5 69E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 35E+00	7 68E-09	--	NCOPC	6 60E+00	3 76E-08
Dibenzo(a,h)anthracene	5 69E-08	--	NCOPC	--	NCOPC		NCOPC	3 70E-01	2 11E-08	--	NCOPC	--	NCOPC	--	NCOPC	1 80E+00	1 02E-07
Pesticides																	
4,4'-DDT	8 25E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 60E+01	1 32E-07
beta-BHC	4 37E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 60E+01	1 14E 06
Dieldrin	3 88E-07	1 80E-01	6 99E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 69E-01	1 04E-07	--	NCOPC	--	NCOPC
gamma-BHC (Lindane)	3 15E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	7 50E+00	2 37E 07
Heptachlor	1 09E-07	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E+00	1 64E-07
Herbicides																	
Pentachlorophenol	2 91E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 40E+02	1 28E-06
PCBs																	
Total PCBs	4 31E-08	1 08E+01	4 65E-07	7 09E+02	3 06E-05	7 02E+00	3 03E-07	1 87E+00	8 06E 08	2 5 7E+00	1 11E 07	5 10E+00	2 20E 07	--	NCOPC	1 01E+03	4 35E 05
Dioxin																	
2,3,7,8-TCDD-TEQ	1 70E-03	5 93E-03	1 01E-05	5 08E-02	8 62E 05	-	NCOPC	--	NCOPC	3 31E-03	5 61E-06	1 69E-03	2 87E-06	--	NCOPC	--	NCOPC
Metals																	
Antimony	NC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 43E+01	NC	--	NCOPC	--	NCOPC
Arsenic	1 08E-08	--	NCOPC	--	NCOPC	2 60E+01	2 80E-07	-	NCOPC	1 30E+01	1 40E-07	1 35E+01	1 46E-07	--	NCOPC		NCOPC
Cadmium	NC	--	NCOPC	--	NCOPC	--	NCOPC	9 20E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 81E+02	NC	--	NCOPC	--	NCOPC
Manganese	NC	-	NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	-	NCOPC	8 60E+02	NC	--	NCOPC	--	NCOPC
Mercury	NC	--	NCOPC	4 30E+01	NC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC
	Total:		**1.06E-05**		**1.17E-04**		**6.21E-07**		**2.04E-07**		**5.86E-06**		**3.41E-06**		**NCOPC**		**4.69E-05**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing RME Trespassing Teenager (mg/kg day)	Chronic Average Daily Dose Ing (mg/kg-day)	ADDder RME Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 00E-04	1 52E-07	1 52E-07	2 83E-09	2 83E-09	1 52E-03	2 83E-05	1 54E-03
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	1	0 01	3 00E-03	1 52E-07	1 52E-07	2 83E-09	2 83E-09	5 05E-05	9 44E-07	5 15E-05
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	5 00E-04	1 52E-07	1 52E 07	2 83E-09	2 83E-09	3 03E-04	5 66E-06	3 09E-04
beta-BHC	1 00E+00	1	0 01	3 00E-04	1 52E-07	1 52E 07	2 83E-09	2 83E-09	5 05E-04	9 44E-06	5 15E-04
Dieldrin	1 00E+00	1	0 01	5 00E-05	1 52E 07	1 52E-07	2 83E-09	2 83E-09	3 03E-03	5 66E-05	3 09E-03
gamma-BHC (Lindane)	1 00E+00	1	0 01	3 00E-04	1 52E-07	1 52E-07	2 83E-09	2 83E-09	5 05E-04	9 44E-06	5 15E-04
Heptachlor	1 00E+00	1	0 01	5 00E-04	1 52F-07	1 52E-07	2 83E-09	2 83E-09	3 03E-04	5 66E-06	3 09E-04
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	3 00E-02	1 52E-07	1 52E-07	2 83E-09	2 83E-09	5 05E-06	9 44E-08	5 15E-06
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E-05	1 26E-07	1 26E 07	1 13E-08	1 13E-08	6 29E-03	5 66E-04	6 86E-03
Dioxin											
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Metals											
Antimony	1 00E+00	1	0 007	4 00E-04	1 52E-07	1 52E-07	1 98E-09	1 98E-09	3 79E-04	4 96E-06	3 84E-04
Arsenic	1 00E+00	0 3	0 001	3 00E-04	4 55E-08	4 55E-08	2 83E-10	2 83E-10	1 52E-04	9 44E-07	1 53E-04
Cadmium	1 00E+00	1	0 04	1 00E-03	1 52E-07	1 52E-07	1 13E-08	1 13E-08	1 52E-04	1 13E-05	1 63E-04
Chromium	1 00E+00	0 3	0	3 00E-03	4 55E-08	4 55E-08	0 00E+00	NA	1 52E-05	NC	1 52E-05
Manganese	1 00E+00	1	0 01	2 40E-02	1 52E-07	1 52E 07	2 83E-09	2 83E-09	6 31E-06	1 18E-07	6 43E-06
Mercury	1 00E+00	2	0 007	3 00E-04	3 03E-07	3 03E-07	1 98E-09	1 98E-09	1 01E 03	6 61E-06	1 02E-03

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - RME
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
SVOCs																	
2,4,6-Trichlorophenol	1 54E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 20E+00	1 27E-02
2-Nitroaniline	NC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 60E+00	NC
4-Nitroaniline	5 15E 05	-	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 70E+01	2 93E-03
Benzo(a)anthracene	NC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC		NCOPC	1 03E+00	NC	--	NCOPC	8 00E+00	NC
Benzo(a)pyrene	NC	--	NCOPC	-	NCOPC	6 70E 01	NC	1 80E+00	NC	--	NCOPC	1 05E+00	NC	--	NCOPC	5 40E+00	NC
Benzo(b)fluoranthene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	1 35E+00	NC	--	NCOPC	6 60E+00	NC
Dibenzo(a,h)anthracene	NC	--	NCOPC		NCOPC		NCOPC	3 70E 01	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 80E+00	NC
Pesticides																	
4,4'-DDT	3 09E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 60E+01	4 94E-03
beta-BHC	5 15E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 60E+01	1 34E-02
Dieldrin	3 09E-03	1 80E-01	5 56E-04	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	2 69E-01	8 31E-04	--	NCOPC	--	NCOPC
gamma-BHC (Lindane)	5 15E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 50E+00	3 86E-03
Heptachlor	3 09E-04	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E+00	4 63E-04
Herbicides																	
Pentachlorophenol	5 15E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 40E+02	2 26E-03
PCBs																	
Total PCBs	6 86E-03	1 08E+01	7 40E-02	7 09E+02	4 86E+00	7 02E+00	4 81E-02	1 87E+00	1 28E-02	2 5 E+00	1 77E-02	5 10E+00	3 50E 02		NCOPC	1 01E+03	6 91E+00
Dioxin																	
2,3,7,8-TCDD-TEQ	NC	5 93E-03	NC	5 08E-02	NC	-	NCOPC	-	NCOPC	3 31E 03	NC	1 69E-03	NC	--	NCOPC	--	NCOPC
Metals																	
Antimony	3 84E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 43E+01	5 49E-03	--	NCOPC	--	NCOPC
Arsenic	1 53E-04	--	NCOPC	--	NCOPC	2 60E+01	3 97E-03	--	NCOPC	1 30E+01	1 98E-03	1 35E+01	2 06E-03	--	NCOPC	--	NCOPC
Cadmium	1 63E 04	-	NCOPC	--	NCOPC	--	NCOPC	9 20E+01	1 50E-02	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC
Chromium	1 52E-05	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 81E+02	2 74E-03	--	NCOPC	--	NCOPC
Manganese	6 43E-06	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	8 60E+02	5 53E-03	--	NCOPC	--	NCOPC
Mercury	1 02E-03	--	NCOPC	4 30E+01	4 37E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
	Total HI:		**7.46E-02**		**4.90E+00**		**5.21E-02**		**2.78E-02**		**1 96E-02**		**5.16E-02**		**NCOPC**		**6.95E+00**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated:	
Receptor:	RME Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - RME INHALATION OF OUTDOOR AIR FROM SOIL		Assumed Value	Units	Calculated Value
Inhalation Rate	RME Trespassing Teenager	1.2	(m^3 air/hour)	
Body Weight	RME Trespassing Teenager	47	(kg)	
Exposure Time	RME Trespassing Teenager	2	(hrs/day) =	2.00E+00
Exposure Frequency	RME Trespassing Teenager	26	(days)/365 (days) =	7.12E-02
Exposure Duration (cancer)	RME Trespassing Teenager	11	(yrs)/70(yrs) =	1.57E-01
Exposure Duration (noncancer)	RME Trespassing Teenager	11	(yrs)/11(yrs) =	1.00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Air (mg/m³ air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)⁻¹	ADDinh RME Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	1	5 60E-02	5 72E-04	5 72E-04	3 20E-05
1,2-Dichloroethane	1 00E+00	1	9 10E-02	5 72E-04	5 72E-04	5 20E-05
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	5 72E-04	5 72E-04	4 40E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	3 77E-04	3 77E 04	3 04E-05
Dichloromethane	1 00E+00	1	1 65E 03	5 72E-04	5 72E-04	9 40E-07
Ethylbenzene	1 00E+00	1	NA	5 72E 04	5 72E-04	NC
Tetrachloroethene	1 00E+00	1	2 10E 02	5 72E 04	5 72E 04	1 20E-05
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	5 72E-04	5 72E 04	2 29E-04
Xylenes, Total	1 00E+00	NA	NA	NA	NA	NC
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	1	1 09E 02	5 72E 04	5 72E 04	6 20E 06
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)anthracene	1 00E+00	1	3 10E 01	5 72E 04	5 72E 04	1 77E-04
Benzo(a)pyrene	1 00E+00	1	3 10E+00	5 72E-04	5 72E 04	1 77E-03
Benzo(b)fluoranthene	1 00E+00	1	3 10E-01	5 72E 04	5 72E-04	1 77E-04
Dibenzo(a,h)anthracene	1 00E+00	1	3 10E+00	5 72E-04	5 72E-04	1 77E-03
Pesticides (b)						
4,4'-DDT	1 00E+00	1	3 40E-01	5 72E-04	5 72E-04	1 94E-04
beta-BHC	1 00E+00	1	1 86E+00	5 72E 04	5 72E-04	1 06E-03
Dieldrin	1 00E+00	1	1 61E+01	5 72E-04	5 72E-04	9 20E-03
gamma BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	1	4 55E+00	5 72E 04	5 72E 04	2 60E-03
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	1	2 00E+00	5 72F 04	5 72E 04	1 14E 03
Dioxin (b)						
2 3,7,8-TCDD TEQ	1 00E+00	0 55	1 50E+05	3 14E-04	3 14E 04	4 72E+01
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	1	1 51E+01	5 72E 04	5 72F 04	8 63F 03
Cadmium	1 00E+00	1	6 30E+00	5 72E 04	5 72E 04	3 60E-03
Chromium	1 00E+00	1	4 20E+01	5 72E 04	5 72E 04	2 40E 02
Manganese	1 00E+00	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER RME

Constituent	Reference Risk (per mg/m³)	O EPC (mg/m³)	O Risk	O North EPC (mg/m³)	O North Risk	P EPC (mg/m³)	P Risk	Q North EPC (mg/m³)	Q North Risk	Q Central EPC (mg/m³)	Q Central Risk	Q South EPC (mg/m³)	Q South Risk	R EPC (mg/m³)	R Risk	S EPC (mg/m³)	S Risk
VOCs (a)																	
1 1 2 Trichloroethane	3 20E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 00E 05	1 60E 09		NCOPC
1 2 Dichloroethane	5 20E 05		NCOPC		NCOPC		NCOPC	8 50E 05	4 42E 09		NCOPC		NCOPC	2 90E 04	1 51E 08		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 20E 04	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 00E 02	NC
Benzene	4 40E 06	3 50E 02	1 54E 07	6 60E 03	2 90E 08	2 20E 04	9 68E 10	1 90E 04	8 36E 10		NCOPC	3 40E 05	1 50E 10	4 80E 04	2 11E 09	3 20E 04	1 41E 09
Chlorobenzene	NC	5 20E 02	NC	4 60E 02	NC		NCOPC		NCOPC		NCOPC		NCOPC	2 80E 03	NC	5 80E 03	NC
Chloroform	3 04E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 90E 05	1 18E 09		NCOPC
Dichloromethane	9 40E 07		NCOPC	8 30E 03	7 80E 09		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	8 60E 04	8 09E 10
Ethylbenzene	NC	1 90E 01	NC	7 20E 02	NC	1 30E 02	NC	8 90E 04	NC		NCOPC	4 10E 03	NC	6 20E 05	NC	4 20E 03	NC
Tetrachloroethene	1 20E 05		NCOPC	6 50E 04	7 80E 09	3 00E 03	3 60E 08	5 60E 04	6 72E 09		NCOPC		NCOPC	2 90E 03	3 48E 08	2 10E 04	2 52E 09
Toluene	NC	2 70E 02	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 90E 02	NC	2 00E 03	NC	3 90E 02	NC
Trichloroethylene	2 29E 04		NCOPC		NCOPC	1 90E 04	4 34E 08	2 40E 05	5 49E 09		NCOPC	5 90E 06	1 35E 09	4 50E 02	1 03E 05	5 00E 03	1 14E 06
Xylenes Total	NC	9 70E 01	NC	3 70E 01	NC	7 00E 02	NC	6 70E 03	NC		NCOPC	2 90E 02	NC	4 20E 05	NC	3 50E 02	NC
SVOCs (b)																	
2 4 6 Trichlorophenol	6 20E 06		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 12E 08	6 93E 14
2 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	6 27E 09	NC
4 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 77E 08	NC
Benzo(a)anthracene	1 77E 04		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 40E 09	2 49E 13		NCOPC	1 09E 08	1 93E 12
Benzo(a)pyrene	1 77E 03		NCOPC		NCOPC	9 13E 10	1 62E 12	2 45E 09	4 35E 12		NCOPC	1 43E 09	2 54E 12		NCOPC	7 36E 09	1 30E 11
Benzo(b)fluoranthene	1 77E 04	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 84E 09	3 26E 13		NCOPC	9 00E 09	1 59E 12
Dibenzo(a h)anthracene	1 77E 03		NCOPC		NCOPC		NCOPC	5 04E 10	8 94E 13		NCOPC		NCOPC		NCOPC	2 45E 09	4 35E 12
Pesticides (b)																	
4 4 DDT	1 94E 04		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 18E 08	4 23E 12
beta BHC	1 06E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 54E 08	3 76E 11
Dieldrin	9 20E 03	2 45E 10	2 26E 12		NCOPC		NCOPC		NCOPC		NCOPC	3 67E 10	3 37E 12		NCOPC		NCOPC
gamma BHC (Lindane)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 02E 08	NC
Heptachlor	2 60E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 04E 09	5 32E 12
Herbicides (b)																	
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	6 00E 07	NC
PCBs (b)																	
Total PCBs	1 14E 03	1 47E 08	1 68E 11	6 43E 07	7 35E 10	9 57E 09	1 09E 11	2 55E 09	2 91E 12	3 51E 09	4 01E 12	8 95E 09	7 95E 12		NCOPC	1 37E 06	1 57E 09
Dioxin (b)																	
2 3 7 8-TCDD TEQ	4 72E+01	8 08E 12	3 81E 10	4 61E 11	2 17E 09		NCOPC		NCOPC	4 51E 12	2 13E 10	2 30E 12	1 09E 10		NCOPC		NCOPC
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 95E 08	NC		NCOPC		NCOPC
Arsenic	8 63E 03		NCOPC		NCOPC	3 54F 08	3 06E 10		NCOPC	1 77E 08	1 53E 10	1 84E 08	1 59E 10		NCOPC		NCOPC
Cadmium	3 60E 03		NCOPC		NCOPC		NCOPC	1 25E 07	4 52E 10		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	2 40E 02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 47E 07	5 92E 09		NCOPC		NCOPC
Manganese	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 17E 06	NC		NCOPC		NCOPC
Mercury	NC		NCOPC	3 90E 08	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
	Total		1 54E 07		4 76E-08		8 07E 08		1 79E 08		3 70E 10		7 70E 09		1 03E 05		1 15E 06

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
NC No dose-response value
NCOPC Not calculated because not a constituent of potential concern in this area/med um
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semi Volatile Organic Compounds
TCDD TEQ Tetrachlorodibenzo p dioxin Tox c Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Air (mg/m³ air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh RME Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	NA	NA	NA	NA	NC
1,2-Dichloroethane	1 00E+00	1	1 40E-03	3 64E-03	3 64E-03	2 60E+00
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	3 64E-03	3 64E-03	4 24E-03
Benzene	1 00E+00	1	8 57E-03	3 64E-03	3 64E-03	4 24E-01
Chlorobenzene	1 00E+00	1	1 70E-02	3 64E-03	3 64E-03	2 14E-01
Chloroform	1 00E+00	1	1 43E 02	3 64E-03	3 64E-03	2 54E-01
Dichloromethane	1 00E+00	1	8 60E-01	3 64E-03	3 64E-03	4 23E-03
Ethylbenzene	1 00E+00	1	2 86E-01	3 64E-03	3 64E-03	1 27E-02
Tetrachloroethene	1 00E+00	1	1 70E-01	3 64E-03	3 64E-03	2 14E 02
Toluene	1 00E+00	1	1 14E-01	3 64E-03	3 64E-03	3 19E-02
Trichloroethylene	1 00E+00	1	1 00E-02	3 64E 03	3 64E-03	3 64E 01
Xylenes, Total	1 00E+00	1	2 86E-02	3 64E 03	3 64E-03	1 27E-01
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	1	5 71E-05	3 64E-03	3 64E-03	6 37E+01
4-Nitroaniline	1 00E+00	1	1 14E-03	3 64E-03	3 64E-03	3 19E+00
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1.00E+00	NA	NA	NA	NA	NC
Pesticides (b)						
4,4'-DDT	1 00E+00	NA	NA	NA	NA	NC
beta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	NA	NA	NA	NA	NC
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	NA	NA	NA	NA	NC
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	NA	NA	NA	NA	NC
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NC
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	NA	NA	NA	NA	NC
Cadmium	1 00E+00	NA	NA	NA	NA	NC
Chromium	1 00E+00	1	2 86E-05	3 64E-03	3 64E 03	1 27E+02
Manganese	1 00E+00	1	1 43E-05	3 64E-03	3 64E 03	2 55E+02
Mercury	1 00E+00	1	8 57E-05	3 64E-03	3 64E 03	4 24E+01

TABLE
POTENTIAL NONCARCINOGENIC RISK
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER RME

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/m³)	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ
VOCs (a)																	
1 1 2 Trichloroethane	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 00E 05	NC		NCOPC
1 2 Dichloroethane	2 60E+00		NCOPC		NCOPC		NCOPC	8 50E 05	2 21E 04		NCOPC		NCOPC	2 90E 04	7 53E 04		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 20E 04	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	4 24E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 00E 02	8 49E 05
Benzene	4 24E 01	3 50E 02	1 49E 02	6 60E 03	2 80E 03	2 20E 04	9 34E 05	1 90E 04	8 06E 05		NCOPC	3 40E 05	1 44E 05	4 80E 04	2 04E 04	3 20E 04	1 36E 04
Chlorobenzene	2 14E 01	5 20E 02	1 11E 02	4 60E 02	9 84E 03		NCOPC		NCOPC		NCOPC		NCOPC	2 80E 03	5 99E 04	5 80E 03	1 24E 03
Chloroform	2 54E 01		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 90E 05	9 92E 06		NCOPC
Dichloromethane	4 23E 03		NCOPC	8 30E 03	3 51E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	8 60E 04	3 64E 06
Ethylbenzene	1 27E 02	1 90E 01	2 42E 03	7 20E 02	9 16E 04	1 30E 02	1 65E 04	8 90E 04	1 13E 05		NCOPC	4 10E 03	5 21E 05	6 20E 05	7 89E 07	4 20E 03	5 34E 05
Tetrachloroethene	2 14E 02		NCOPC	6 50E 04	1 39E 05	3 00E 03	6 42E 05	5 60E 04	1 20E 05		NCOPC	--	NCOPC	2 90E 03	6 21E 05	2 10E 04	4 49E 06
Toluene	3 19E 02	2 70E 02	8 61E 04		NCOPC		NCOPC		NCOPC		NCOPC	1 90E 02	6 06E 04	2 00E 03	6 38E 05	3 90E 02	1 24E 03
Trichloroethylene	3 64E 01		NCOPC		NCOPC	1 90E 04	6 91E 05	2 40E 05	8 73E 06		NCOPC	5 90E 06	2 15E 06	4 50E 02	1 64E 02	5 00E 03	1 82E 03
Xylenes Total	1 27E 01	9 70E 01	1 23E 01	3 70E 01	4 71E 02	7 00E 02	8 91E 03	6 70E 03	8 53E 04		NCOPC	2 90E 02	3 69E 03	4 20E 05	5 35E 06	3 50E 02	4 46E 03
SVOCs (b)																	
2 4 6 Trichlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 12E 08	NC
2 Nitroaniline	6 37E+01		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	6 27E 09	3 99E 07
4 Nitroaniline	3 19E+00		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 77E 08	2 48E 07
Benzo(a)anthracene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 40E 09	NC		NCOPC	1 09E 08	NC
Benzo(a)pyrene	NC		NCOPC		NCOPC	9 13E 10	NC	2 45E 09	NC		NCOPC	1 43E 09	NC		NCOPC	7 36E 09	NC
Benzo(b)fluoranthene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 84E 09	NC		NCOPC	9 00E 09	NC
Dibenzo(a h)anthracene	NC		NCOPC		NCOPC		NCOPC	5 04E 10	NC		NCOPC	--	NCOPC		NCOPC	2 45E 09	NC
Pesticides (b)																	
4 4 DDT	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 18E 08	NC
beta BHC	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 54E 08	NC
Dieldrin	NC	2 45E 10	NC		NCOPC		NCOPC		NCOPC		NCOPC	3 67E 10	NC		NCOPC		NCOPC
gamma BHC (Lindane)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 02E 08	NC
Heptachlor	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 04E 09	NC
Herbicides (b)																	
Pentachlorophenol	NC	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	6 00E 07	NC
PCBs (b)																	
Total PCBs	NC	1 47E 08	NC	6 43E 07	NC	9 57E 09	NC	2 55E 09	NC	3 51E 09	NC	6 95E 09	NC		NCOPC	1 37E 06	NC
Dioxin (b)																	
2 3 7 8-TCDD TEQ	NC	8 08E 12	NC	4 61E 11	NC		NCOPC		NCOPC	4 51E 12	NC	2 30E 12	NC		NCOPC		NCOPC
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	1 95E 08	NC		NCOPC		NCOPC
Arsenic	NC		NCOPC		NCOPC	3 54E 08	NC		NCOPC	1 77E 08	NC	1 84E 08	NC		NCOPC		NCOPC
Cadmium	NC		NCOPC		NCOPC		NCOPC	1 25E 07	NC		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	1 27E+02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 47E 07	3 14E 05		NCOPC		NCOPC
Manganese	2 55E+02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 17E 06	2 99E 04	--	NCOPC		NCOPC
Mercury	4 24E+01		NCOPC	3 90E 08	1 65E 06		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
	Total		1 53E 01		6 07E 02		9 30E 03		1 19E 03		NC		4 70E 03		1 81E 02		9 04E 03

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
NC No dose-response value
NCOPC Not calculated because not a constituent of potent al concern in this area/med um
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semi Volatile Organic Compounds
TCDD TEQ Tetrachlorodibenzo p dioxin Toxic Equivalents Concentral on
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - RME INHALATION OF OUTDOOR AIR -VOCs		Assumed Value	Units	Calculated Value
Inhalation Rate	RME Trespassing Teenager	1 2	(m^3 air/hour)	
Body Weight	RME Trespassing Teenager	47	(kg)	
Exposure Time	RME Trespassing Teenager	2	(hrs/day) =	2 00E+00
Exposure Frequency	RME Trespassing Teenager	26	(days)/365 (days) =	7 12E-02
Exposure Duration (cancer)	RME Trespassing Teenager	11	(yrs)/70(yrs) =	1 57E-01
Exposure Duration (noncancer)	RME Trespassing Teenager	11	(yrs)/11(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	ADDinh RME Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E-02	5 72E-04	5 72E-04	5 20E-05
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	5 72E-04	5 72E-04	4 40E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	3 77E-04	3 77E-04	3 04E-05
Chloromethane	1 00E+00	1	6 30E-03	5 72E-04	5 72E-04	3 60E-06
Dichloromethane	1 00E+00	1	1 65E-03	5 72E-04	5 72E-04	9 40E-07
Tetrachloroethene	1 00E+00	1	2 10E-02	5 72E-04	5 72E-04	1 20E-05
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	5 72E-04	5 72E-04	2 29E-04

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - RME

		Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Reference Risk (per mg/m^3)	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk
VOCs													
1,2-Dichloroethane	5 20E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	5 20E-09	2 00E-03	1 04E-07
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	NC	4 90E-05	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	4 40E-06	4 00E-05	1 76E-10	1 80E-07	7 92E-13	--	NCOPC	9 00E-05	3 96E-10	3 90E-05	1 72E-10	5 70E-04	2 51E-09
Chlorobenzene	NC	--	NCOPC	5 80E-07	NC	--	NCOPC	1 20E-04	NC	7 20E-05	NC	7 30E-05	NC
Chloroform	3 04E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	4 25E-09
Chloromethane	3 60E-06	--	NCOPC	1 70E-08	6 12E-14	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	9 40E-07	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	3 01E-12	1 10E-04	1 03E-10
Tetrachloroethene	1 20E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	1 80E-10	5 60E-03	6 72E-08
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	NC
Trichloroethylene	2 29E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	1 99E-09	5 10E-02	1 17E-05
	Total:		1.76E-10		8.53E-13		NCOPC		3.96E-10		7.55E-09		1.18E-05

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh RME Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	1 40E-03	3 64E-03	3 64E-03	2 60E+00
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	2 86E-01	3 64E-03	3 64E-03	1 27E-02
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	3 64E-03	3 64E-03	4 24E-03
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	8 57E-03	3 64E-03	3 64E-03	4 24E-01
Chlorobenzene	1 00E+00	1	1 70E-02	3 64E-03	3 64E-03	2 14E-01
Chloroform	1 00E+00	1	1 43E 02	3 64E-03	3 64E 03	2 54E-01
Chloromethane	1 00E+00	1	2 57E-02	3 64E 03	3 64E-03	1 41E 01
Dichloromethane	1 00E+00	1	8 60E-01	3 64E-03	3 64E-03	4 23E-03
Tetrachloroethene	1 00E+00	1	1 70E-01	3 64E-03	3 64E-03	2 14E-02
Toluene	1 00E+00	1	1 14E-01	3 64E-03	3 64E-03	3 19E-02
Trichloroethylene	1 00E+00	1	1 00E-02	3 64E-03	3 64E 03	3 64E-01

TABLE
POTENTIAL HAZARD INDEX
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - RME

		Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Reference HQ (per mg/m^3)	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs													
1,2-Dichloroethane	2 60E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	2 60E-04	2 00E-03	5 20E-03
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	1 27E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	9 29E-07
4-Methyl-2-pentanone (MIBK)	4 24E-03	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	1 57E-07	4 90E-05	2 08E-07	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	4 24E-01	4 00E-05	1 70E-05	1 80E-07	7 64E-08	--	NCOPC	9 00E-05	3 82E-05	3 90E-05	1 66E-05	5 70E-04	2 42E-04
Chlorobenzene	2 14E-01	--	NCOPC	5 80E-07	1 24E-07	--	NCOPC	1 20E-04	2 57E-05	7 20E-05	1 54E-05	7 30E-05	1 56E-05
Chloroform	2 54E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	3 56E-05
Chloromethane	1 41E-01	--	NCOPC	1 70E-08	2 40E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	4 23E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	1 35E-08	1 10E-04	4 65E-07
Tetrachloroethene	2 14E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	3 21E-07	5 60E-03	1 20E-04
Toluene	3 19E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	6 06E-05
Trichloroethylene	3 64E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	3 16E-06	5 10E-02	1 86E-02
	Total HI:		**1.70E-05**		**2.03E-07**		**NCOPC**		**6.40E-05**		**2.95E-04**		**2.42E-02**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER RME INCIDENTIAL INGESTION AND DERMAL CONTACT SEDIMENT		Assumed Value	Units	Calculated Value
Sediment Ingestion Rate	RME Trespassing Teenager	100	(mg soil/day)	
Sediment on Skin	RME Trespassing Teenager	1	(mg/cm^2)	
Skin Exposed	RME Trespassing Teenager	6026	(cm^2)	
Body Weight	RME Trespassing Teenager	47	(kg)	
Exposure Frequency	RME Trespassing Teenager	13	(days)/365(days) =	3 56E-02
Exposure Duration (cancer)	RME Trespassing Teenager	11	(years)/70(years) =	1 57E 01
Exposure Duration (noncancer)	RME Trespassing Teenager	11	(yrs)/11(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1 00E 06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
TRESPASSING TEENAGER - RME

Constituent	Concentration In Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing RME Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder RME Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Metals											
Arsenic	3 41E+00	0 3	0 001	1 50E+00	1 22E-08	1 22E-08	2 45E-09	2 45E-09	1 83E-08	3 67E-09	2 19E-08
								Total	1 83E-08	3 67E-09	2 19E-08

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
TRESPASSING TEENAGER - RME

Constituent	Concentration In Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing RME Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	ADDder RME Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
Metals											
Arsenic	3 41E+00	0 3	0 001	3 00E-04	7 75E-08	7 75E-08	1 56E-08	1 56E-08	2 58E-04	5 19E-05	3.10E-04
								Total.	2 58E-04	5 19E-05	3 10E-04

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - RME INCIDENTAL INGESTION AND DERMAL CONTACT OF SURFACE WATER		Assumed Value	Units	Calculated Value
Water Ingestion Rate	RME Trespassing Teenager	0 005	(l/day)	
Skin Exposed	RME Trespassing Teenager	6026	(cm)	
Body Weight	RME Trespassing Teenager	47	(kg)	
Exposure Time (dermal route only)	RME Trespassing Teenager	1	(hr/day)	
Exposure Frequency	RME Trespassing Teenager	13	(days)/365 (days) =	3 56E 02
Exposure Duration (cancer)	RME Trespassing Teenager	11	(yrs / 70(yrs) =	1 57E 01
Exposure Duration (noncancer)	RME Trespassing Teenager	11	(yrs / 11(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor (dermal route only)		0 001	(l/cm^3)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg day)$^{-1}$	ADDing RME Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose Ing (mg/kg day)	ADDder RME Trespassing Teenager (mg/kg day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs												
2 4 Dichlorophenol	1 00E+00	NA	NA	2 30E-02	NA	NA	NA	NA	NA	NA	NA	NC
4-Chloroaniline	1 00E+00	NA	NA	6 33E-03	NA	NA	NA	NA	NA	NA	NA	NC
Herbicides												
MCPA	1 00E+00	NA	NA	2 31E-02	NA	NA	NA	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	1 56E-02	NA	NA	NA	NA	NA	NA	NA	NC
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	1 60E-04	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
TRESPASSING TEENAGER - RME

Constituent	Reference Risk (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	Risk	EPC (mg/L)	Risk
SVOCs					
2,4-Dichlorophenol	NC	--	NCOPC	8 95E-03	NC
4-Chloroaniline	NC	--	NCOPC	1 90E-02	NC
Herbicides					
MCPA	NC	--	NCOPC	3 10E-02	NC
MCPP	NC	--	NCOPC	5 30E-02	NC
Metals					
Lead	NC	1 40E-02	NC	--	NCOPC
Manganese	NC	4 60E-01	NC	--	NCOPC
	Total:		**NC**		**NC**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
SVOCs - Semi Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
TRESPASSING TEENAGER - RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg-day)	RME Trespassing ADDing Teenager (mg/kg day)	Chronic Average Daily Dose-Ing (mg/kg-day)	RME Trespassing ADDder Teenager (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs												
2,4-Dichlorophenol	1 00E+00	1	1	2 30E-02	3 00E-03	3 79E-06	3 79E-06	1 05E-04	1 05E-04	1 26E-03	3 50E-02	3 63E-02
4-Chloroaniline	1 00E+00	1	1	6 33E-03	4 00E-03	3 79E-06	3 79E-06	2 89E-05	2 89E-05	9 47E-04	7 22E-03	8 17E-03
Herbicides												
MCPA	1 00E+00	1	1	2 31E-02	5 00E-04	3 79E-06	3 79E-06	1 06E-04	1 06E-04	7 58E-03	2 11E-01	2 19E-01
MCPP	1 00E+00	1	1	1 56E-02	1 00E-03	3 79E-06	3 79E-06	7 12E-05	7 12E-05	3 79E-03	7 12E-02	7 50E-02
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	10	1 60E-04	2 40E-02	3 79E-06	3 79E-06	7 31E-06	7 31E-06	1 58E-04	3 04E-04	4 62E-04

TABLE
POTENTIAL HAZARD INDEX
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
TRESPASSING TEENAGER - RME

Constituent	Reference HQ (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	HQ	EPC (mg/L)	HQ
SVOCs					
2,4-Dichlorophenol	3 63E-02	--	NCOPC	8 95E-03	3 25E-04
4-Chloroaniline	8 17E-03	--	NCOPC	1 90E-02	1 55E-04
Herbicides					
MCPA	2 19E-01	--	NCOPC	3 10E-02	6 78E-03
MCPP	7 50E-02	--	NCOPC	5 30E-02	3 97E-03
Metals					
Lead	NC	1 40E-02	NC	--	NCOPC
Manganese	4 62E-04	4 60E-01	2 13E-04	--	NCOPC
	Total HI:		**2.13E-04**		**1.12E-02**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
SVOCs - Semi Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor:	MLE Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - MLE INCIDENTIAL INGESTION AND DERMAL CONTACT SURFACE SOIL		Assumed Value	Units	Calculated Value
Soil Ingestion Rate	MLE Trespassing Teenager	50	(mg soil/day)	
Soil on Skin	MLE Trespassing Teenager	0.04	(mg/cm^2)	
Skin Exposed	MLE Trespassing Teenager	4672	(cm^2)	
Body Weight	MLE Trespassing Teenager	47	(kg)	
Exposure Frequency	MLE Trespassing Teenager	13	(days)/365(days) =	3.56E-02
Exposure Duration (cancer)	MLE Trespassing Teenager	11	(years)/70(years) =	1.57E-01
Exposure Duration (noncancer)	MLE Trespassing Teenager	11	(yrs)/11(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1.00E-06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - MLE

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Trespassing Teenager (mg/kg day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 10E-02	5 95E-09	5 95E-09	2 23E-10	2 23E-10	6 55E-11	2 45E-12	6 79E-11
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4 Nitroaniline	1 00E+00	NA	NA	2 10E-02	NA	NA	NA	NA	NC	NC	NC
Benzo(a)anthracene	1 00E+00	0 29	0 02	7 30E-01	1 73E 09	1 73E-09	4 45E-10	4 45E-10	1 26E-09	3 25E-10	1 59E-09
Benzo(a)pyrene	1 00E+00	0 29	0 02	7 30E+00	1 73E-09	1 73E-09	4 45E-10	4 45E-10	1 26E-08	3 25E-09	1 59E-08
Benzo(b)fluoranthene	1 00E+00	0 29	0 02	7 30E 01	1 73E-09	1 73E-09	4 45E-10	4 45E-10	1 26E-09	3 25E-10	1 59E-09
Dibenzo(a h)anthracene	1 00E+00	0 29	0 02	7 30E+00	1 73E-09	1 73E-09	4 45E-10	4 45E-10	1 26E-08	3 25E-09	1 59E-08
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	3 40E-01	5 95E-09	5 95E 09	2 23E-10	2 23E-10	2 02E-09	7 57E-11	2 10E-09
beta-BHC	1 00E+00	1	0 01	1 80E+00	5 95E 09	5 95E-09	2 23E-10	2 23E-10	1 07E-08	4 01E-10	1 11E-08
Dieldrin	1 00E+00	1	0 01	1 60E+01	5 95E-09	5 95E-09	2 23E-10	2 23E-10	9 53E-08	3 56E-09	9 88E-08
gamma-BHC (Lindane)	1 00E+00	1	0 01	1 30E+00	5 95E 09	5 95E 09	2 23E 10	2 23E-10	7 74E-09	2 89E-10	8 03E-09
Heptachlor	1 00E+00	1	0 01	4 50E+00	5 95E-09	5 95E-09	2 23E-10	2 23E-10	2 68E-08	1 00E 09	2 78E-08
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	1 20E-01	5 95E-09	5 95E-09	2 23E-10	2 23E-10	7 14E-10	2 67E 11	7 41E-10
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E+00	4 94E-09	4 94E 09	8 90E 10	8 90E-10	9 88E-09	1 78E-09	1 17E-08
Dioxin											
2,3,7,8-TCDD-TEQ	1 00E+00	0 4	0 04	1 50E+05	2 38E-09	2 38E 09	8 90E-10	8 90E-10	3 57E-04	1 34E-04	4 91E-04
Metals											
Antimony	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1 00E+00	0 3	0 001	1 50E+00	1 79E-09	1 79E-09	2 23E-11	2 23E-11	2 68E-09	3 34E-11	2 71E-09
Cadmium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - MLE
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/kg)	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
SVOCs																	
2,4,6-Trichlorophenol	6 79E-11	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 19E+00	2 85E-10
2-Nitroaniline	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 78E+00	NC
4-Nitroaniline	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 90E+01	NC
Benzo(a)anthracene	1 59E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 57E-01	8 83E-10	--	NCOPC	4 05E+00	6 42E-09
Benzo(a)pyrene	1 59E-08	--	NCOPC	--	NCOPC	3 01E-01	4 77E-09	1 24E+00	1 97E-08	--	NCOPC	5.98E-01	9 49E-09	--	NCOPC	2 77E+00	4 38E-08
Benzo(b)fluoranthene	1 59E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 26E-01	1 15E-09	--	NCOPC	3 42E+00	5 42E-09
Dibenzo(a,h)anthracene	1 59E-08	--	NCOPC	--	NCOPC	--	NCOPC	2 12E-01	3 36E-09	--	NCOPC	--	NCOPC	--	NCOPC	9 93E-01	1.57E-08
Pesticides																	
4,4'-DDT	2 10E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 01E+00	1 68E-08
beta-BHC	1 11E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+01	1 45E-07
Dieldrin	9 88E-08	9 10E-02	8 99E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 96E-02	7 87E-09	--	NCOPC	--	NCOPC
gamma-BHC (Lindane)	8 03E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 75E+00	3 01E-08
Heptachlor	2 78E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 50E-01	2 09E-08
Herbicides																	
Pentachlorophenol	7 41E-10	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 20E+02	1 63E-07
PCBs																	
Total PCBs	1 17E-08	5 40E+00	6 29E-08	7 09E+02	8 27E-06	1 78E+00	2 08E 08	5 73E-01	6 68E-09	1 08E+00	1 26E-08	2 75E+00	3 21E 08	--	NCOPC	5 04E+02	5 88E 06
Dioxin																	
2,3,7,8-TCDD-TEQ	4 91E-04	2 99E-03	1 47E-06	5 08E-02	2 49E-05	--	NCOPC	--	NCOPC	1 14E-03	5 58E-07	6 89E-04	3 38E-07	--	NCOPC	--	NCOPC
Metals																	
Antimony	NC	-	NCOPC	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC	6 95E+00	NC	--	NCOPC	--	NCOPC
Arsenic	2 71E-09	--	NCOPC	--	NCOPC	1 41E+01	3 82E-08	--	NCOPC	7 30E+00	1 98E-08	9 66E+00	2 62E-08	--	NCOPC		NCOPC
Cadmium	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 01E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 41E+01	NC	--	NCOPC	--	NCOPC
Manganese	NC		NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	6 03E+02	NC	--	NCOPC	--	NCOPC
Mercury	NC	--	NCOPC	4 30E+01	NC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
	Total:		1.54E-06		3.32E-05		6.38E-08		2.97E-08		5.90E-07		4.16E-07		NCOPC		6.33E-06

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - MLE

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing MLE Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg day)	ADDder MLE Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose Der (mg/kg day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs											
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 00E-04	3 79E 08	3 79E 08	1 42E 09	1 42E-09	3 79E-04	1 42E 05	3 93E-04
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	1	0 01	3 00E-03	3 79E-08	3 79E-08	1 42E 09	1 42E-09	1 26E-05	4 72E-07	1 31E-05
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides											
4,4'-DDT	1 00E+00	1	0 01	5 00E-04	3 79E-08	3 79E-08	1 42E 09	1 42E-09	7 58E-05	2 83E-06	7 86E-05
beta-BHC	1 00E+00	1	0 01	3 00E-04	3 79E-08	3 79E-08	1 42E-09	1 42E-09	1 26E-04	4 72E-06	1 31E-04
Dieldrin	1 00E+00	1	0 01	5 00E-05	3 79E-08	3 79E-08	1 42E-09	1 42E-09	7 58E-04	2 83E-05	7 86E-04
gamma-BHC (Lindane)	1 00E+00	1	0 01	3 00E-04	3 79E-08	3 79E-08	1 42E 09	1 42E-09	1 26E-04	4 72E-06	1 31E-04
Heptachlor	1 00E+00	1	0 01	5 00E-04	3 79E-08	3 79E-08	1 42E 09	1 42E-09	7 58E-05	2 83E-06	7 86E-05
Herbicides											
Pentachlorophenol	1 00E+00	1	0 01	3 00E-02	3 79E 08	3 79E 08	1 42E 09	1 42E-09	1 26E-06	4 72E-08	1 31E-06
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E-05	3 14E-08	3 14E-08	5 66E 09	5 66E-09	1 57E-03	2 83E-04	1 86E 03
Dioxin											
2,3,7 8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Metals											
Antimony	1 00E+00	1	0 007	4 00E-04	3 79E-08	3 79E-08	9 91E-10	9 91E-10	9 47E-05	2 48E-06	9 72E-05
Arsenic	1 00E+00	0 3	0 001	3 00E-04	1 14E-08	1 14E-08	1 42E-10	1 42E-10	3 79E-05	4 72E-07	3 84E-05
Cadmium	1 00E+00	1	0 04	1 00E-03	3 79E-08	3 79E-08	5 66E-09	5 66E-09	3 79E-05	5 66E-06	4 36E-05
Chromium	1 00E+00	0 3	0	3 00E-03	1 14E-08	1 14E-08	0 00E+00	NA	3 79E-06	NC	3 79E-06
Manganese	1 00E+00	1	0 01	2 40E-02	3 79E-08	3 79E-08	1 42E-09	1 42E-09	1 58E-06	5 90E-08	1 64E-06
Mercury	1 00E+00	2	0 007	3 00E-04	7 58E 08	7 58E-08	9 91E-10	9 91E-10	2 53E-04	3 30E-06	2 56E-04

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SURFACE SOIL
TRESPASSING TEENAGER - MLE
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
SVOCs																	
2,4,6-Trichlorophenol	3 93E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 19E+00	1 65E-03
2-Nitroaniline	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 78E+00	NC
4-Nitroaniline	1 31E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 90E+01	3 80E-04
Benzo(a)anthracene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 57E-01	NC	--	NCOPC	4 05E+00	NC
Benzo(a)pyrene	NC	--	NCOPC	--	NCOPC	3 01E-01	NC	1 24E+00	NC	--	NCOPC	5 98E-01	NC	--	NCOPC	2 77E+00	NC
Benzo(b)fluoranthene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 26E-01	NC	--	NCOPC	3 42E+00	NC
Dibenzo(a,h)anthracene	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 12E-01	NC	--	NCOPC	--	NCOPC	--	NCOPC	9 93E-01	NC
Pesticides																	
4,4'-DDT	7 86E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	8 01E+00	6 29E-04
beta-BHC	1 31E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC		NCOPC	1 30E+01	1 70E-03
Dieldrin	7 86E-04	9 10E-02	7 15E-05	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	7 96E-02	6 26E-05	-	NCOPC	--	NCOPC
gamma-BHC (Lindane)	1 31E-04	--	NCOPC	--	NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	3 75E+00	4 91E-04
Heptachlor	7 86E-05	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 50E-01	5 90E-05
Herbicides																	
Pentachlorophenol	1 31E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 20E+02	2 88E-04
PCBs																	
Total PCBs	1 86E-03	5 40E+00	1 00E-02	7 09E+02	1 32E+00	1 78E+00	3 31E-03	5 73E-01	1 06E-03	1 08E+00	2 00E-03	2 75E+00	5 10E-03	-	NCOPC	5 04E+02	9 36E-01
Dioxin																	
2,3,7,8-TCDD-TEQ	NC	2 99E-03	NC	5 08E-02	NC	--	NCOPC	--	NCOPC	1 14E-03	NC	6 89E-04	NC	--	NCOPC	--	NCOPC
Metals																	
Antimony	9 72E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 95E+00	6 76E-04	--	NCOPC	--	NCOPC
Arsenic	3 84E-05	--	NCOPC	--	NCOPC	1 41E+01	5 41E-04	--	NCOPC	7 30E+00	2 80E-04	9 66E+00	3 71E-04	--	NCOPC	--	NCOPC
Cadmium	4 36E-05	--	NCOPC	--	NCOPC	--	NCOPC	2 01E+01	8 77E-04	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC
Chromium	3 79E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 41E+01	3 18E-04	--	NCOPC	--	NCOPC
Manganese	1 64E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 03E+02	9 88E-04	--	NCOPC	--	NCOPC
Mercury	2 56E-04	--	NCOPC	4 30E+01	1 10E 02		NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC
	Total HI:		1.01E-02		1.33E+00		3.85E-03		1.94E-03		2.28E-03		7.52E-03		NCOPC		9.41E-01

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated:	
Receptor:	MLE Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - MLE INHALATION OF OUTDOOR AIR FROM SOIL		Assumed Value	Units	Calculated Value
Inhalation Rate	MLE Trespassing Teenager	1.0	(m^3 air/hour)	
Body Weight	MLE Trespassing Teenager	47	(kg)	
Exposure Time	MLE Trespassing Teenager	2	(hrs/day) =	2.00E+00
Exposure Frequency	MLE Trespassing Teenager	13	(days)/365 (days) =	3.56E-02
Exposure Duration (cancer)	MLE Trespassing Teenager	11	(yrs)/70(yrs) =	1.57E-01
Exposure Duration (noncancer)	MLE Trespassing Teenager	11	(yrs)/11(yrs) =	1.00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg day)[1]	ADDinh MLE Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	1	5 60E-02	2 38E-04	2 38E-04	1 33E-05
1,2-Dichloroethane	1 00E+00	1	9 10E-02	2 38E-04	2 38E-04	2 17E-05
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	2 38E-04	2 38E-04	1 83E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	1 57E-04	1 57E-04	1 27E-05
Dichloromethane	1 00E+00	1	1 65E-03	2 38E-04	2 38E-04	3 92E-07
Ethylbenzene	1 00E+00	1	NA	2 38E-04	2 38E-04	NC
Tetrachloroethene	1 00E+00	1	2 10E-02	2 38E-04	2 38E-04	5 00E-06
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	2 38E-04	2 38E 04	9 53E-05
Xylenes, Total	1 00E+00	NA	NA	NA	NA	NC
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	1	1 09E-02	2 38E-04	2 38E-04	2 58E-06
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)anthracene	1 00E+00	1	3 10E 01	2 38E 04	2 38E 04	7 38E 05
Benzo(a)pyrene	1 00E+00	1	3 10E+00	2 38E-04	2 38E-04	7 38E-04
Benzo(b)fluoranthene	1 00E+00	1	3 10E-01	2 38E 04	2 38E 04	7 38E-05
Dibenzo(a h)anthracene	1 00E+00	1	3 10E+00	2 38E-04	2 38E-04	7 38E-04
Pesticides (b)						
4,4'-DDT	1 00E+00	1	3 40E-01	2 38E-04	2 38E-04	8 09E-05
beta-BHC	1 00E+00	1	1 86E+00	2 38E-04	2 38E-04	4 42E-04
Dieldrin	1 00E+00	1	1 61E+01	2 38E-04	2 38E-04	3 83E-03
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	1	4 55E+00	2 38E 04	2 38E 04	1 08E-03
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	1	2 00E+00	2 38E-04	2 38E-04	4 76E-04
Dioxin (b)						
2,3,7,8-TCDD TEQ	1 00E+00	0 55	1 50E+05	1 31E-04	1 31E-04	1 96E+01
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	1	1 51E+01	2 38E-04	2 38E-04	3 60E-03
Cadmium	1 00E+00	1	6 30E+00	2 38E-04	2 38E-04	1 50E-03
Chromium	1 00E+00	1	4 20E+01	2 38E-04	2 38E-04	1 00E-02
Manganese	1 00E+00	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER MLE

Constituent	Reference Risk (per mg/m³)	O EPC (mg/m³)	O Risk	O North EPC (mg/m³)	O North Risk	P EPC (mg/m³)	P Risk	Q North EPC (mg/m³)	Q North Risk	Q Central EPC (mg/m³)	Q Central Risk	Q South EPC (mg/m³)	Q South Risk	R EPC (mg/m³)	R Risk	S EPC (mg/m³)	S Risk
VOCs (a)																	
1 1 2 Trichloroethane	1 33E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 70E 05	3 60E 10		NCOPC
1 2 Dichloroethane	2 17E 05	--	NCOPC		NCOPC		NCOPC	3 70E 05	8 02E 10		NCOPC		NCOPC	1 50E 04	3 25E 09		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 40E 05	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 10E 03	NC
Benzene	1 83E 06	6 70E 03	1 23E 08	4 10E 03	7 52E 09	1 30E 04	2 38E 10	7 80E 05	1 43E 10		NCOPC	1 50E 05	2 75E 11	2 40E 04	4 40E 10	1 10E 04	2 02E 10
Chlorobenzene	NC	1 50E 02	NC	3 10E 02	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 10E 03	NC	1 30E 03	NC
Chloroform	1 27E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 20E 05	2 78E 10		NCOPC
Dichloromethane	3 92E 07	--	NCOPC	3 50E 03	1 37E 09		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	2 50E 04	9 79E 11
Ethylbenzene	NC	3 30E 02	NC	4 80E 02	NC	1 40E 03	NC	4 00E 04	NC		NCOPC	1 60E 03	NC	3 50E 05	NC	1 20E 03	NC
Tetrachloroethene	5 00E 06		NCOPC	3 40E 04	1 70E 09	2 50E 03	1 25E 08	2 20E 04	1 10E 09		NCOPC		NCOPC	1 40E 03	7 00E 09	8 40E 05	4 20E 10
Toluene	NC	4 80E 03	NC		NCOPC		NCOPC		NCOPC		NCOPC	7 50E 03	NC	1 20E 03	NC	8 70E 03	NC
Trichloroethylene	9 53E 05		NCOPC		NCOPC	3 90E 05	3 72E 09	1 20E 05	1 14E 09		NCOPC	2 50E 06	2 38E 10	5 20E 03	4 95E 07	1 10E 03	1 05E 07
Xylenes Total	NC	1 70E 01	NC	2 50E 01	NC	7 40E 03	NC	2 90E 03	NC		NCOPC	1 10E 02	NC	2 20E 04	NC	8 40E 03	NC
SVOCs (b)																	
2 4 6 Trichlorophenol	2 58E 06		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 72E 09	1 48E 14
2 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 78E 09	NC
4 Nitroaniline	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 95E 08	NC
Benzo(a)anthracene	7 38E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 60E 10	5 61E 14		NCOPC	5 52E 09	4 07E 13
Benzo(a)pyrene	7 38E 04		NCOPC		NCOPC	4 10E 10	3 03E 13	1 69E 09	1 25E 12		NCOPC	8 16E 10	6 02E 13		NCOPC	3 77E 09	2 78E 12
Benzo(b)fluoranthene	7 38E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 89E 10	7 31E 14		NCOPC	4 66E 09	3 44E 13
Dibenzo(a h)anthracene	7 38E 04		NCOPC		NCOPC		NCOPC	2 89E 10	2 14E 13		NCOPC		NCOPC		NCOPC	1 35E 09	9 99E 13
Pesticides (b)																	
4 4 DDT	8 09E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 09E 08	8 82E 13
beta BHC	4 42E 04		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 77E 08	7 83E 12
Dieldrin	3 83E 03	1 24E 10	4 75E 13		NCOPC		NCOPC		NCOPC		NCOPC	1 09E 10	4 16E 13		NCOPC		NCOPC
gamma BHC (Lindane)	NC	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 11E 09	NC
Heptachlor	1 08E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 02E 09	1 11E 12
Herbicides (b)																	
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 00E 07	NC
PCBs (b)																	
Total PCBs	4 76E 04	7 36E 09	3 50E 12	6 43E 07	3 06E 10	2 43E 09	1 16E 12	7 81E 10	3 72E 13	1 47E 09	7 00E 13	3 75E 09	1 78E 12		NCOPC	6 88E 07	3 27E 10
Dioxin (b)																	
2 3 7 8-TCDD TEQ	1 96E+01	4 07E 12	8 00E 11	4 61E 11	9 05E 10		NCOPC		NCOPC	1 55E 12	3 04E 11	9 40E 13	1 85E 11		NCOPC		NCOPC
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 48E 09	NC		NCOPC		NCOPC
Arsenic	3 60E 03		NCOPC		NCOPC	1 92E 08	6 91E 11		NCOPC	9 95E 09	3 58E 11	1 32E 08	4 74E 11		NCOPC		NCOPC
Cadmium	1 50E 03		NCOPC		NCOPC		NCOPC	2 75E 08	4 12E 11		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	1 00E 02	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 15E 07	1 15E 09		NCOPC		NCOPC
Manganese	NC		NCOPC		NCOPC	--	NCOPC		NCOPC		NCOPC	8 23E 07	NC		NCOPC		NCOPC
Mercury	NC		NCOPC	3 90E 08	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
	Total		1 24E 08		1 18E 08		1 65E 08		3 23E 09		6 69E 11		1 48E 09		5 07E 07		1 06E 07

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
MLE Most Likely Exposure
NC No dose response value
NCOPC Not calculated because not a constituent of potential concern in this area/medium
PCBs Polychlorinated Biphenyls
SVOCs Semi Volatile Organic Compounds
TCDD TEQ Tetrachlorodibenzo p dioxin Toxic Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER - MLE

Constituent	Unit Concentration In Air (mg/m³ air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh MLE Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose inh (mg/kg-day)	Hazard Index - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	NA	NA	NA	NA	NC
1,2-Dichloroethane	1 00E+00	1	1 40E-03	1 52E-03	1 52E-03	1.08E+00
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	1 52E-03	1 52E-03	1 77E-03
Benzene	1 00E+00	1	8 57E-03	1 52E-03	1 52E-03	1 77E-01
Chlorobenzene	1 00E+00	1	1 70E-02	1 52E-03	1 52E-03	8 92E-02
Chloroform	1 00E+00	1	1 43E-02	1 52E-03	1 52E-03	1 06E 01
Dichloromethane	1 00E+00	1	8 60E-01	1 52E-03	1 52E-03	1 76E-03
Ethylbenzene	1 00E+00	1	2 86E 01	1 52E-03	1 52E-03	5 30E 03
Tetrachloroethene	1 00E+00	1	1 70E-01	1 52E 03	1 52E-03	8 92E 03
Toluene	1 00E+00	1	1 14E-01	1 52E 03	1 52E 03	1 33E 02
Trichloroethylene	1 00E+00	1	1 00E-02	1 52E 03	1 52E 03	1 52E 01
Xylenes, Total	1 00E+00	1	2 86E-02	1 52E-03	1 52E-03	5 30E 02
SVOCs (b)						
2,4,6-Trichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	1	5 71E 05	1 52E 03	1 52E-03	2 65E+01
4-Nitroaniline	1 00E+00	1	1 14E 03	1 52E-03	1 52E-03	1 33E+00
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NC
Pesticides (b)						
4,4'-DDT	1 00E+00	NA	NA	NA	NA	NC
beta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	NA	NA	NA	NA	NC
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	NA	NA	NA	NA	NC
Herbicides (b)						
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	NA	NA	NA	NA	NC
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NC
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	NA	NA	NA	NA	NC
Cadmium	1 00E+00	NA	NA	NA	NA	NC
Chromium	1 00E+00	1	2 86E 05	1 52E 03	1 52E-03	5 30E+01
Manganese	1 00E+00	1	1 43E-05	1 52E 03	1 52E-03	1 06E+02
Mercury	1 00E+00	1	8 57E-05	1 52E-03	1 52E 03	1 77E+01

TABLE
POTENTIAL NONCARCINOGENIC RISK
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR FROM SOIL
TRESPASSING TEENAGER MLE

Constituent	Reference HQ (per mg/m³)	O EPC (mg/m³)	O HQ	O North EPC (mg/m³)	O North HQ	P EPC (mg/m³)	P HQ	Q North EPC (mg/m³)	Q North HQ	Q Central EPC (mg/m³)	Q Central HQ	Q South EPC (mg/m³)	Q South HQ	R EPC (mg/m³)	R HQ	S EPC (mg/m³)	S HQ
VOCs (a)																	
1 1 2 Trichloroethane	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 70E 05	NC		NCOPC
1 2 Dichloroethane	1 08E+00		NCOPC		NCOPC		NCOPC	3 70E 05	4 01E 05		NCOPC		NCOPC	1 50E 04	1 62E 04		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 40E 05	NC		NCOPC
4 Methyl-2 pentanone (MIBK)	1 77E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC		NCOPC	5 10E 03	9 02E 06
Benzene	1 77E 01	6 70E 03	1 18E 03	4 10E 03	7 25E 04	1 30E 04	2 30E 05	7 80E 05	1 38E 05		NCOPC	1 50E 05	2 65E 06	2 40E 04	4 24E 05	1 10E 04	1 95E 05
Chlorobenzene	8 92E 02	1 50E 02	1 34E 03	3 10E 02	2 76E 03		NCOPC		NCOPC		NCOPC		NCOPC	1 10E 03	9 81E 05	1 30E 03	1 16E 04
Chloroform	1 06E 01	--	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 20E 05	2 33E 06		NCOPC
Dichloromethane	1 76E 03	--	NCOPC	3 50E 03	6 17E 06		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	2 50E 04	4 41E 07
Ethylbenzene	5 30E 03	3 30E 02	1 75E 04	4 80E 02	2 54E 04	1 40E 03	7 42E 06	4 00E 04	2 12E 06		NCOPC	1 60E 03	8 48E 06	3 50E 05	1 85E 07	1 20E 03	6 36E 06
Tetrachloroethene	8 92E 03		NCOPC	3 40E 04	3 03E 06	2 50E 03	2 23E 05	2 20E 04	1 96E 06		NCOPC	--	NCOPC	1 40E 03	1 25E 05	8 40E 05	7 49E 07
Toluene	1 33E 02	4 80E 03	6 38E 05		NCOPC		NCOPC		NCOPC	--	NCOPC	7 50E 03	9 97E 05	1 20E 03	1 60E 05	8 70E 03	1 16E 04
Trichloroethylene	1 52E 01		NCOPC		NCOPC	3 90E 05	5 91E 06	1 20E 05	1 82E 06		NCOPC	2 50E 06	3 79E 07	5 20E 03	7 88E 04	1 10E 03	1 67E 04
Xylenes Total	5 30E 02	1 70E 01	9 02E 03	2 50E 01	1 33E 02	7 40E 03	3 93E 04	2 90E 03	1 54E 04		NCOPC	1 10E 02	5 84E 04	2 20E 04	1 17E 05	8 40E 03	4 46E 04
SVOCs (b)																	
2 4 6 Trichlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 72E 09	NC
2 Nitroaniline	2 65E+01		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 78E 09	1 00E 07
4 Nitroaniline	1 33E+00		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 95E 08	5 25E 08
Benzo(a)anthracene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 60E 10	NC		NCOPC	5 52E 09	NC
Benzo(a)pyrene	NC		NCOPC		NCOPC	4 10E 10	NC	1 69E 09	NC		NCOPC	8 16E 10	NC		NCOPC	3 77E 09	NC
Benzo(b)fluoranthene	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 89E 10	NC		NCOPC	4 66E 09	NC
Dibenzo(a h)anthracene	NC		NCOPC		NCOPC		NCOPC	2 89E 10	NC		NCOPC		NCOPC		NCOPC	1 35E 09	NC
Pesticides (b)																	
4 4 DDT	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 09E 08	NC
beta BHC	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 77E 08	NC
Dieldrin	NC	1 24E 10	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 09E 10	NC		NCOPC		NCOPC
gamma BHC (Lindane)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 11E 09	NC
Heptachlor	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 02E 09	NC
Herbicides (b)																	
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 00E 07	NC
PCBs (b)																	
Total PCBs	NC	7 36E 09	NC	6 43E 07	NC	2 43E 09	NC	7 81E 10	NC	1 47E 09	NC	3 75E 09	NC		NCOPC	6 88E 07	NC
Dioxin (b)																	
2 3 7 8 TCDD TEQ	NC	4 07E 12	NC	4 61E 11	NC		NCOPC		NCOPC	1 55E 12	NC	9 40E 13	NC		NCOPC		NCOPC
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 48E 09	NC		NCOPC		NCOPC
Arsenic	NC		NCOPC		NCOPC	1 92E 08	NC		NCOPC	9 95E 09	NC	1 32E 08	NC		NCOPC		NCOPC
Cadmium	NC		NCOPC		NCOPC		NCOPC	2 75E 08	NC		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	5 30E+01		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 15E 07	6 07E 06		NCOPC		NCOPC
Manganese	1 06E+02		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	8 23E 07	8 73E 05		NCOPC		NCOPC
Mercury	1 77E+01	--	NCOPC	3 90E 08	6 89E 07		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
Total			1 18E-02		1 70E-02		4 61E-04		2 14E-04		NC		7 88E-04		1 13E-03		8 80E-04

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
HI Hazard Index
HQ Hazard Quotient
MLE Most Likely Exposure
NC No dose response value
NCOPC Not calculated because not a constituent of potential concern in this area/medium
PCBs Polychlorinated Biphenyls
SVOCs Semi Volatile Organic Compounds
TCDD TEQ Tetrachlorodibenzo p-dioxin Toxic Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor	MLE Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - MLE INHALATION OF OUTDOOR AIR -VOCs		Assumed Value	Units	Calculated Value
Inhalation Rate	MLE Trespassing Teenager	1 0	(m^3 air/hou)	
Body Weight	MLE Trespassing Teenager	47	(kg)	
Exposure Time	MLE Trespassing Teenager	2	(hrs/day) =	2 00E+00
Exposure Frequency	MLE Trespassing Teenager	13	(days)/365 (days) =	3 56E 02
Exposure Duration (cancer)	MLE Trespassing Teenager	11	(yrs)/70(yrs) =	1 57E 01
Exposure Duration (noncancer)	MLE Trespassing Teenager	11	(yrs)/11(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day) [1]	ADDinh MLE Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E-02	2 38E-04	2 38E-04	2 17E-05
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	2 38E-04	2 38E-04	1 83E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	1 57E-04	1 57E-04	1 27E-05
Chloromethane	1 00E+00	1	6 30E-03	2 38E-04	2 38E-04	1 50E-06
Dichloromethane	1 00E+00	1	1 65E-03	2 38E-04	2 38E-04	3 92E-07
Tetrachloroethene	1 00E+00	1	2 10E-02	2 38E-04	2 38E-04	5 00E-06
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	2 38E-04	2 38E-04	9 53E-05

TABLE
POTENTIAL CARCINOGENIC RISK
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - MLE

		Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Reference Risk (per mg/m^3)	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk
VOCs													
1,2-Dichloroethane	2 17E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	2 17E-09	2 00E-03	4 33E-08
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	NC	4 90E-05	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	1 83E-06	4 00E-05	7 34E-11	1 80E-07	3 30E-13	--	NCOPC	9 00E-05	1 65E-10	3 90E-05	7 15E-11	5 70E-04	1 05E-09
Chlorobenzene	NC	--	NCOPC	5 80E-07	NC	--	NCOPC	1 20E-04	NC	7 20E-05	NC	7 30E-05	NC
Chloroform	1 27E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	1 77E-09
Chloromethane	1 50E-06	--	NCOPC	1 70E-08	2 55E-14	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	3 92E-07	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	1 25E-12	1 10E-04	4 31E-11
Tetrachloroethene	5 00E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	7 50E-11	5 60E-03	2 80E-08
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	NC
Trichloroethylene	9 53E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	8 29E-10	5 10E-02	4 86E-06
	Total:		7.34E-11		3.56E-13		NCOPC		1.65E-10		3.14E-09		4.93E-06

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh MLE Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	1 40E-03	1 52E-03	1 52E-03	1 08E+00
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	2 86E-01	1 52E-03	1 52E-03	5 30E-03
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	1 52E-03	1 52E-03	1 77E-03
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	8 57E-03	1 52E-03	1 52E-03	1 77E-01
Chlorobenzene	1 00E+00	1	1 70E-02	1 52E-03	1 52E-03	8 92E-02
Chloroform	1 00E+00	1	1 43E-02	1 52E-03	1 52E-03	1 06E-01
Chloromethane	1 00E+00	1	2 57E-02	1 52E-03	1 52E-03	5 89E-02
Dichloromethane	1 00E+00	1	8 60E-01	1 52E-03	1 52E-03	1 76E-03
Tetrachloroethene	1 00E+00	1	1 70E-01	1 52E-03	1 52E-03	8 92E-03
Toluene	1 00E+00	1	1 14E-01	1 52E-03	1 52E-03	1 33E-02
Trichloroethylene	1 00E+00	1	1 00E-02	1 52E-03	1 52E-03	1 52E-01

TABLE
POTENTIAL HAZARD INDEX
CARCINOGENIC ASSESSMENT
INHALATION OF
OUTDOOR AIR -VOCs
TRESPASSING TEENAGER - MLE

		Mid				Shallow		Leachate					
		Q - AA-Q-6-24		R - AA-R-1-28		O - AA-O-1-16		O		Q		R	
Constituent	Reference HQ (per mg/m^3)	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs													
1,2-Dichloroethane	1 08E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-04	1 08E-04	2 00E-03	2 17E-03
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 80E-03	NC
2-Butanone (MEK)	5 30E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 30E-05	3 87E-07
4-Methyl-2-pentanone (MIBK)	1 77E-03	--	NCOPC	--	NCOPC	--	NCOPC	3 70E-05	6 54E-08	4 90E-05	8 66E-08	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-06	NC	1 00E-04	NC
Benzene	1 77E-01	4 00E-05	7 07E-06	1 80E-07	3 18E-08	--	NCOPC	9 00E-05	1 59E-05	3 90E-05	6 90E-06	5 70E-04	1 01E-04
Chlorobenzene	8 92E-02	--	NCOPC	5 80E-07	5 17E-08	--	NCOPC	1 20E-04	1 07E-05	7 20E-05	6 42E-06	7 30E-05	6 51E-06
Chloroform	1 06E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-04	1 48E-05
Chloromethane	5 89E-02	--	NCOPC	1 70E-08	1 00E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	1 76E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 20E-06	5 64E-09	1 10E-04	1 94E-07
Tetrachloroethene	8 92E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 50E-05	1 34E-07	5 60E-03	4 99E-05
Toluene	1 33E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-03	2 53E-05
Trichloroethylene	1 52E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-06	1 32E-06	5 10E-02	7 73E-03
	Total HI:		7.07E-06		8.45E-08		NCOPC		2.67E-05		1.23E-04		1.01E-02

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor	MLE Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - MLE INCIDENTIAL INGESTION AND DERMAL CONTACT SEDIMENT		Assumed Value	Units	Calculated Value
Sediment Ingestion Rate	MLE Trespassing Teenager	50	(mg soil/day)	
Sediment on Skin	MLE Trespassing Teenager	1	(mg/cm^2)	
Skin Exposed	MLE Trespassing Teenager	6026	(cm^2)	
Body Weight	MLE Trespassing Teenager	47	(kg)	
Exposure Frequency	MLE Trespassing Teenager	7	(days)/365(days) =	1 92E 02
Exposure Duration (cancer)	MLE Trespassing Teenager	11	(years)/70(years) =	1 57E 01
Exposure Duration (noncancer)	MLE Trespassing Teenager	11	(yrs)/11(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1 00E 06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
TRESPASSING TEENAGER - MLE

Constituent	Concentration In Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor $(mg/kg\text{-}day)^{-1}$	ADDing MLE Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Trespassing Teenager (mg/kg-day)	Lifetime Average Daily Dose-Der. (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Metals											
Arsenic	2 90E+00	0 3	0 001	1 50E+00	2 79E-09	2 79E-09	1 12E-09	1 12E-09	4 19E-09	1.68E-09	5 87E-09
								Total:	4.19E-09	1.68E-09	5.87E-09

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
TRESPASSING TEENAGER - MLE

Constituent	Concentration in Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	MLE Trespassing ADDing Teenager (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	MLE Trespas ADDder ing Teenager (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
Metals											
Arsenic	2 90E+00	0 3	0 001	3 00E 04	1 78E 08	1 78E 08	7 14E 09	7 14E-09	5 93E-05	2 38E-05	8 31E-05
								Total	5 93E-05	2 38E-05	8 31E-05

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor	MLE Trespassing Teenager

ASSUMPTIONS FOR TRESPASSING TEENAGER - MLE INCIDENTAL INGESTION AND DERMAL CONTACT SURFACE WATER		Assumed Value	Units	Calculated Value
Water Ingestion Rate	MLE Trespassing Teenager	0 005	(l/day)	
Skin Exposed	MLE Trespassing Teenager	6026	(cm^2)	
Body Weight	MLE Trespassing Teenager	47	(kg)	
Exposure Time (dermal route only)	MLE Trespassing Teenager	1	(hr/day)	
Exposure Frequency	MLE Trespassing Teenager	7	(days)/365 (days) =	1 92E 02
Exposure Duration (cancer)	MLE Trespassing Teenager	11	(yrs)/ 70(yrs) =	1 57E 01
Exposure Duration (noncancer)	MLE Trespassing Teenager	11	(yrs)/ 11(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor (dermal route only)		0 001	(l/cm^3)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
TRESPASSING TEENAGER MLE

Constituent	Unit Concentration In Groundwater (mg/l)	Oral Water Absorption Adjustment Factor	Dermal Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg-day)[1]	MLE Trespassing Teenager ADDing (mg/kg day)	Lifetime Average Daily Dose Ing (mg/kg day)	MLE Trespassing Teenager ADDder (mg/kg-day)	Lifetime Average Daily Dose Der (mg/kg-day)	Excess Lifetime Cancer Risk Ingestion	Excess Lifetime Cancer Risk Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs												
2 4 Dichlorophenol	1 00E+00	NA	NA	2 30E 02	NA	NA	NA	NA	NA	NA	NA	NC
4 Chloroaniline	1 00E+00	NA	NA	6 33E 03	NA	NA	NA	NA	NA	NA	NA	NC
Herbicides												
MCPA	1 00E+00	NA	NA	2 31E 02	NA	NA	NA	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	1 56E 02	NA	NA	NA	NA	NA	NA	NA	NC
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	1 60E 04	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
TRESPASSING TEENAGER - MLE

Constituent	Reference Risk (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	Risk	EPC (mg/L)	Risk
SVOCs					
2,4-Dichlorophenol	NC	--	NCOPC	6 01E-03	NC
4-Chloroaniline	NC	--	NCOPC	1 22E-02	NC
Herbicides					
MCPA	NC	--	NCOPC	3 10E-02	NC
MCPP	NC	--	NCOPC	5 30E-02	NC
Metals					
Lead	NC	1 40E-02	NC	--	NCOPC
Manganese	NC	4 60E-01	NC	--	NCOPC
	Total:		**NC**		**NC**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
SVOCs - Semi Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
TRESPASSING TEENAGER - MLE

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg-day)	ADDing MLE Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Trespassing Teenager (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs												
2,4-Dichlorophenol	1 00E+00	1	1	2 30E-02	3 00E-03	2 04E-06	2 04E-06	5 66E-05	5 66E-05	6 80E-04	1 89E-02	1 95E-02
4-Chloroaniline	1 00E+00	1	1	6 33E-03	4 00E-03	2 04E-06	2 04E-06	1 56E-05	1 56E-05	5 10E-04	3 89E-03	4 40E 03
Herbicides												
MCPA	1 00E+00	1	1	2 31E-02	5 00E-04	2 04E-06	2 04E-06	5 68E-05	5 68E-05	4 08E-03	1 14E-01	1 18E-01
MCPP	1 00E+00	1	1	1 56E-02	1 00E-03	2 04E 06	2 04E-06	3 83E-05	3 83E-05	2 04E-03	3 83E-02	4 04E-02
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	10	1 60E-04	2 40E-02	2 04E-06	2 04E-06	3 93E-06	3 93E-06	8 50E-05	1 64E-04	2 49E-04

TABLE
POTENTIAL HAZARD INDEX
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
TRESPASSING TEENAGER - MLE

Constituent	Reference HQ (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	HQ	EPC (mg/L)	HQ
SVOCs					
2,4-Dichlorophenol	1 95E-02	--	NCOPC	6 01E-03	1 17E-04
4-Chloroaniline	4 40E-03	--	NCOPC	1 22E-02	5 37E-05
Herbicides					
MCPA	1 18E-01	--	NCOPC	3 10E-02	3 65E-03
MCPP	4 04E-02	--	NCOPC	5 30E-02	2 14E-03
Metals					
Lead	NC	1 40E-02	NC	--	NCOPC
Manganese	2 49E-04	4 60E-01	1 15E-04	--	NCOPC
	Total HI:		**1.15E-04**		**5.96E-03**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
SVOCs - Semi Volatile Organic Compounds

Construction Worker

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER - RME INCIDENTIAL INGESTION AND DERMAL CONTACT WITH COMBINED SOIL		Assumed Value	Units	Calculated Value
Soil Ingestion Rate	RME Construction/Utility Worker	100	(mg soil/day)	
Soil on Skin	RME Construction/Utility Worker	0 19	(mg/cm^2)	
Skin Exposed	RME Construction/Utility Worker	3339	(cm^2)	
Body Weight	RME Construction/Utility Worker	70	(kg)	
Exposure Frequency	RME Construction/Utility Worker	40	(days)/365(days) =	1 10E 01
Exposure Duration (cancer)	RME Construction/Utility Worker	1	(years)/70(years) =	1 43E 02
Exposure Duration (noncancer)	RME Construction/Utility Worker	1	(yrs)/1(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1 00E-06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg day)[1]	ADDing RME Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder RME Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
VOCs											
1 1,2 Trichloroethane	1 00E+00	1	0 01	5 70E 02	2 24E-09	2 24E 09	1 42E 10	1 42E-10	1 27E 10	8 09E 12	1 36E-10
1 2 Dichloroethane	1 00E+00	1	0 01	9 10E-02	2 24E-09	2 24E 09	1 42E 10	1 42E-10	2 04E-10	1 29E-11	2 16E-10
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	0 02	1 50E-02	2 24E 09	2 24E-09	2 84E 10	2 84E-10	3 35E-11	4 26E-12	3 76E-11
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chloroform	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dichloromethane	1 00E+00	1	0 016	7 50E-03	2 24E-09	2 24E 09	2 27E 10	2 27E-10	1 68E-11	1 70E-12	1 85E-11
Ethylbenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Tetrachloroethene	1 00E+00	1	0 01	5 40E-01	2 24E-09	2 24E-09	1 42E 10	1 42E-10	1 21E-09	7 66E-11	1 28E-09
Toluene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	0 01	4 00E-01	2 24E-09	2 24E 09	1 42E 10	1 42E 10	8 95E-10	5 68E-11	9 51E-10
Xylenes, Total	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
SVOCs											
1 2-Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
1 3-Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
1,4-Dichlorobenzene	1 00E+00	1	0 01	2 40E-02	2 24E 09	2 24E 09	1 42E 10	1 42E-10	5 37E-11	3 41E-12	5 71E-11
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 10E-02	2 24E-09	2 24E-09	1 42E 10	1 42E-10	2 46E-11	1 56E-12	2 62E-11
2,4-Dichlorophenol	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
2-Chlorophenol	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
2-Methylnaphthalene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	2 10E-02	NA	NA	NA	NA	NC	NC	NC
Benzo(a)anthracene	1 00E+00	0 29	0 02	7 30E 01	6 49E-10	6 49E-10	2 84E-10	2 84E-10	4 73E-10	2 07E-10	6 81E-10
Benzo(a)pyrene	1 00E+00	0 29	0 02	7 30E+00	6 49E-10	6 49E-10	2 84E-10	2 84E-10	4 73E-09	2 07E-09	6 81E-09
Benzo(b)fluoranthene	1 00E+00	0 29	0 02	7 30E-01	6 49E-10	6 49E-10	2 84E-10	2 84E-10	4 73E-10	2 07E-10	6 81E-10
bis(2-Chloroethyl)ether	1 00E+00	1	0 01	1 10E+00	2 24E-09	2 24E-09	1 42E-10	1 42E-10	2 46E-09	1 56E-10	2 62E-09
bis(2-Ethylhexyl)phthalate	1 00E+00	1	0 004	1 40E-02	2 24E 09	2 24E-09	5 68E 11	5 68E-11	3 13E-11	7 95E-13	3 21E-11
Dibenzo(a,h)anthracene	1 00E+00	0 29	0 02	7 30E+00	6 49E-10	6 49E-10	2 84E 10	2 84E-10	4 73E-09	2 07E-09	6 81E-09
Hexachlorobenzene	1 00E+00	0 83	0 04	1 60E+00	1 86E-09	1 86E 09	5 68E 10	5 68E-10	2 97E-09	9 08E-10	3 88E-09
Naphthalene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Nitrobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides											
4 4'-DDE	1 00E+00	1	0 01	3 40E-01	2 24E-09	2 24E-09	1 42E-10	1 42E-10	7 60E-10	4 82E-11	8 09E-10
4,4'-DDT	1 00E+00	1	0 01	3 40E-01	2 24E-09	2 24E-09	1 42E-10	1 42E-10	7 60E-10	4 82E-11	8 09E-10
Aldrin	1 00E+00	1	0 01	1 70E+01	2 24E 09	2 24E 09	1 42E-10	1 42E-10	3 80E-08	2 41E-09	4 04E-08
alpha-BHC	1 00E+00	1	0 01	6 30E+00	2 24E-09	2 24E 09	1 42E 10	1 42E-10	1 41E-08	8 94E-10	1 50E-08
beta BHC	1 00E+00	1	0 01	1 80E+00	2 24E-09	2 24E 09	1 42E 10	1 42E-10	4 03E-09	2 55E 10	4 28E-09
delta-BHC	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	1	0 01	1 60E+01	2 24E-09	2 24E 09	1 42E 10	1 42E-10	3 58E-08	2 27E-09	3 81E-08
gamma-BHC (Lindane)	1 00E+00	1	0 01	1 30E+01	2 24E-09	2 24E-09	1 42E-10	1 42E-10	2 91E-09	1 84E-10	3 09E-09
Heptachlor	1 00E+00	1	0 01	4 50E+00	2 24E-09	2 24E-09	1 42E 10	1 42E-10	1 01E-08	6 38E-10	1 07E-08
Heptachlor Epoxide	1 00E+00	1	0 01	9 10E+00	2 24E-09	2 24E 09	1 42E 10	1 42E-10	2 04E-08	1 29E-09	2 16E-08

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)⁻¹	ADDing RME Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADD for RME Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Herbicides											
MCPA	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	1	0 01	1 20E-01	2 24E-09	2 24E-09	1 42E 10	1 42E-10	2 68E-10	1 70E-11	2 85E-10
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E+00	1 86E-09	1 86E 09	5 68E 10	5 68E-10	3 71E-09	1 14E-09	4 85E-09
Dioxin											
2 3,7 8-TCDD TEQ	1 00E+00	0 4	0 04	1 50E+05	8 95E-10	8 95E-10	5 68E 10	5 68E-10	1 34E 04	8 51E-05	2 19E-04
Metals											
Antimony	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1 00E+00	0 3	0 001	1 50E+00	6 71E-10	6 71E-10	1 42E-11	1 42E-11	1 01E-09	2 13E-11	1 03E-09
Barium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Cadmium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Copper	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Lead	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Nickel	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/kg)	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
VOCs																	
1 1 2-Trichloroethane	1 36E 10	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 18E+00	4 31E-10	--	NCOPC
1 2-Dichloroethane	2 16E-10	--	NCOPC	--	NCOPC	--	NCOPC	7 43E-01	1 61E-10	--	NCOPC	--	NCOPC	3 28E+01	7 10E-09	--	NCOPC
1 2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 37E+01	NC	--	NCOPC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 00E+02	NC
Benzene	3 78E-11	5 00E+02	1 89E-08	6 90E+01	2 61E-09	1 12E+00	4 23E-11	1 61E+00	6 09E-11	--	NCOPC	2 98E-01	1 13E-11	5 22E+01	1 97E-09	3 50E+01	1 32E-09
Chlorobenzene	NC	7 60E+02	NC	4 80E+02	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 89E+02	NC	1 20E+03	NC
Chloroform	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 93E+00	NC	--	NCOPC
Dichloromethane	1 85E-11	--	NCOPC	8 70E+01	1 61E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 70E+01	1 05E-09
Ethylbenzene	NC	2 80E+03	NC	7 60E+02	NC	7 80E+01	NC	7 78E+00	NC	--	NCOPC	3 53E+01	NC	1 62E+01	NC	1 10E+03	NC
Tetrachloroethene	1 28E-09	--	NCOPC	6 80E+00	8 73E-09	1 54E+01	1 98E-08	4 90E+00	6 29E-09	--	NCOPC	--	NCOPC	4 45E+02	5 72E-07	3 30E+01	4 24E-08
Toluene	NC	3 90E+02	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 69E+02	NC	3 15E+02	NC	6 00E+03	NC
Trichloroethylene	9 51E-10	--	NCOPC	--	NCOPC	9 90E-01	9 42E-10	2 06E-01	1 96E-10	--	NCOPC	5 16E-02	4 91E-11	2 20E+03	2 09E-06	2 40E+02	2 28E-07
Xylenes, Total	NC	1 40E+04	NC	3 90E+03	NC	3 80E+02	NC	5 79E+01	NC	--	NCOPC	2 52E+02	NC	8 88E+01	NC	7 30E+03	NC
SVOCs																	
1 2-Dichlorobenzene	NC		NCOPC	5 20E+02	NC	--	NCOPC	-	NCOPC		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
1 3-Dichlorobenzene	NC	--	NCOPC	1 20E+01	NC	--	NCOPC	-	NCOPC		NCOPC	--	NCOPC	--	NCOPC	1 20E+01	NC
1,4-Dichlorobenzene	5 71E-11	4 70E+01	2 68E-09	1 20E+02	6 85E-09	6 70E+01	3 82E-09	--	NCOPC	--	NCOPC	--	NCOPC	6 42E+00	3 66E-10	2 00E+02	1 14E-08
2,4,6-Trichlorophenol	2 62E-11	6 90E+00	1 81E-10	6 10E+01	1 60E-09	--	NCOPC	9 77E+00	2 56E 10	--	NCOPC	--	NCOPC	1 70E+02	4 45E-09	8 20E+00	2 15E-10
2,4-Dichlorophenol	NC	--	NCOPC	--	NCOPC	--	NCOPC	5 19E+01	NC	--	NCOPC	--	NCOPC	8 47E+02	NC	--	NCOPC
2-Chlorophenol	NC	--	NCOPC	-	NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	9 51E+01	NC	--	NCOPC
2-Methylnaphthalene	NC	--	NCOPC	2 00E+02	NC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
2-Nitroaniline	NC	2 50E+00	NC	6 20E+01	NC	--	NCOPC	6 18E+00	NC	--	NCOPC	--	NCOPC	2 81E+00	NC	4 60E+00	NC
4 Nitroaniline	NC	--	NCOPC	1 00E+03	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 34E+00	NC	5 70E+01	NC
Benzo(a)anthracene	6 81E-10	1 20E+01	8 17E-09	3 60E+01	2 45E 08	--	NCOPC	1 61E+00	1 10E-09	1 07E+00	7 28E-10	1 03E+00	7 01E-10	--	NCOPC	8 00E+00	5 44E-09
Benzo(a)pyrene	6 81E 09	7 10E+00	4 83E-08	1 10E+01	7 49E 08	6 70E-01	4 56E-09	1 67E+00	1 14E-08	1 24E+00	8 44E-09	1 14E+00	7 76E-09	--	NCOPC	5 40E+00	3 68E 08
Benzo(b)fluoranthene	6 81E-10	7 90E+00	5 38E-09	1 20E+01	8 17E-09	--	NCOPC	1 51E+00	1 03E-09	1 60E+00	1 09E-09	1 18E+00	8 03E-10	--	NCOPC	6 60E+00	4 49E 09
bis(2-Chloroethyl)ether	2 62E-09	--	NCOPC	2 10E+00	5 49E 09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
bis(2-Ethylhexyl)phthalate	3 21E-11	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+02	4 17E-09
Dibenzo(a,h)anthracene	6 81E-09	3 00E+00	2 04E-08	4 60E+00	3 13E-08	--	NCOPC	2 82E 01	1 92E 09	--	NCOPC	--	NCOPC	--	NCOPC	1 80E+00	1 23E-08
Hexachlorobenzene	3 88E-09	--	NCOPC	4 50E+00	1 75E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	NC	--	NCOPC	4 10E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 94E+01	NC	4 80E+01	NC
Nitrobenzene	NC	-	NCOPC	1 10E+01	NC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	1 45E+01	NC	--	NCOPC
Pesticides																	
4 4'-DDE	8 09E-10		NCOPC	3 30E+01	2 67E-08		NCOPC		NCOPC	--	NCOPC		NCOPC		NCOPC		NCOPC
4 4 -DDT	8 09E-10		NCOPC	5 80E+01	4 69E 08		NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	1 60E+01	1 29E-08
Aldrin	4 04E-08	7 20E 01	2 91E-08	4 50E+00	1 82E-07	--	NCOPC	--	NCOPC	3 40E-02	1 37E-09	6 78E-02	2 74E-09	--	NCOPC	1 90E-01	7 68E-09
alpha-BHC	1 50E-08		NCOPC	1 50E+00	2 25E-08	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
beta-BHC	4 28E-09	--	NCOPC	2 10E+01	8 99E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 53E-01	3 22E-09	2 60E+01	1 11E-07
delta-BHC	NC	2 85E+00	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dieldrin	3 81E-08	3 80E+00	1 45E-07	5 00E+01	1 90E-06	2 83E-01	1 08E-08	5 84E-01	2 22E-08	1 47E-01	5 59E-09	5 04E-01	1 92E-08	1 22E+00	4 64E-08	3 80E-01	1 45E-08
gamma-BHC (Lindane)	3 09E-09	2 88E+00	8 90E-09	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 50E+00	2 32E-08
Heptachlor	1 07E-08	2 78E+00	2 98E-08	9 90E+00	1 06E-07	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 45E-01	4 76E-09	1 50E+00	1 61E-08
Heptachlor Epoxide	2 16E-08	4 70E-01	1 02E-08	2 70E+00	5 84E-08	--	NCOPC	-	NCOPC	--	NCOPC	1 03E-01	2 23E-09	--	NCOPC	--	NCOPC
Herbicides																	
MCPA	NC	-	NCOPC	-	NCOPC	5 26E+01	NC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
MCPP	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 18E+01	NC	--	NCOPC
Pentachlorophenol	2 85E-10	--	NCOPC	--	NCOPC	--	NCOPC	1 63E+02	4 65E 08	6 52E+00	1 86E-09	7 74E+01	2 21E-08	--	NCOPC	4 40E+02	1 26E-07

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME
SAUGET AREA 2 RI/FS

Constituent	Reference Risk (per mg/kg)	O		O North		P		Q North		Q Central		Q South		R		S	
		EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
PCBs																	
Total PCBs	4 85E-09	2 98E+02	1 44E-06	3 03E+03	1 47E-05	1 69E+01	8 19E-08	5 40E+01	2 62E-07	4 35E+00	2 11E-08	1 90E+01	9 21E-08	8 89E+01	4 31E-07	1 01E+03	4 89E-06
Dioxin																	
2 3,7,8-TCDD-TEQ	2 19E-04	3 04E-02	6 67E-06	4 97E-01	1 09E-04	4 42E-04	9 69E-08	1 11E-02	2 43E 06	3 79E-03	8 31E-07	4 51E-03	9 89E-07	1 78E-03	3 90E 07	2 59E 02	5 67E-06
Metals																	
Antimony	NC		NCOPC	--	NCOPC	--	NCOPC	1 66E+01	NC	--	NCOPC	1 87E+01	NC	-	NCOPC	--	NCOPC
Arsenic	1 03E-09	-	NCOPC	3 70E+01	3 80E-08	1 69E+01	1 74E-08	1 54E+01	1 58E 08	2 22E+01	2 28E-08	1 72E+01	1 77E-08	7 32E+00	7 52E-09	--	NCOPC
Barium	NC	-	NCOPC	--	NCOPC	--	NCOPC	3 03E+03	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Cadmium	NC	--	NCOPC	8 60E+01	NC	1 33E+01	NC	1 89E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+02	NC	--	NCOPC	4 80E+02	NC
Copper	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 41E+03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Lead	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 96E+03	NC	--	NCOPC	8 28E+02	NC	--	NCOPC	8 38E+02	NC
Manganese	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 29E+03	NC	8 53E+02	NC	--	NCOPC	--	NCOPC
Mercury	NC	--	NCOPC	3 60E+02	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 58E+00	NC	8 99E+02	NC	--	NCOPC
Nickel	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 31E+02	NC	--	NCOPC	--	NCOPC
	Total:		**8.44E-06**		**1.26E-04**		**2.36E-07**		**2.80E-06**		**8.94E-07**		**1.15E-06**		**3.56E-06**		**1.12E-05**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing RME Construction/Utility Worker (mg/kg day)	Chronic Average Daily Dose Ing (mg/kg-day)	ADDder RME Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
VOCs											
1,1,2 Trichloroethane	1 00E+00	1	0 01	4 00E-03	1 57E 07	1 57E-07	9 93E-09	9 93E-09	3 91E-05	2 48E-06	4 16E-05
1,2-Dichloroethane	1 00E+00	1	0 01	2 00E-02	1 57E-07	1 57E 07	9 93E-09	9 93E-09	7 83E-06	4 97E-07	8 32E-06
1,2-Dichloroethene (total)	1 00E+00	1	0 01	2 00E-02	1 57E-07	1 57E-07	9 93E-09	9 93E-09	7 83E-06	4 97E-07	8 32E-06
4 Methyl-2-pentanone (MIBK)	1 00E+00	1	0 01	8 00E-02	1 57E-07	1 57E-07	9 93E-09	9 93E-09	1 96E-06	1 24E-07	2 08E-06
Benzene	1 00E+00	1	0 02	4 00E-03	1 57E-07	1 57E 07	1 99E-08	1 99E-08	3 91E-05	4 97E-06	4 41E-05
Chlorobenzene	1 00E+00	1	0 01	2 00E-02	1 57E 07	1 57E-07	9 93E-09	9 93E-09	7 83E-06	4 97E-07	8 32E-06
Chloroform	1 00E+00	1	0 01	1 00E-02	1 57E-07	1 57E-07	9 93E-09	9 93E-09	1 57E-05	9 93E-07	1 66E-05
Dichloromethane	1 00E+00	1	0 016	6 00E-02	1 57E-07	1 57E-07	1 59E-08	1 59E-08	2 61E-06	2 65E-07	2 87E-06
Ethylbenzene	1 00E+00	1	0 01	1 00E-01	1 57E-07	1 57E 07	9 93E-09	9 93E-09	1 57E-06	9 93E-08	1 66E-06
Tetrachloroethene	1 00E+00	1	0 01	1 00E-02	1 57E-07	1 57E-07	9 93E-09	9 93E-09	1 57E-05	9 93E-07	1 66E-05
Toluene	1 00E+00	1	0 01	2 00E-01	1 57E-07	1 57E 07	9 93E-09	9 93E-09	7 83E-07	4 97E-08	8 32E-07
Trichloroethylene	1 00E+00	1	0 01	3 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	5 22E-04	3 31E-05	5 55E-04
Xylenes, Total	1 00E+00	1	0 011	2 00E-01	1 57E-07	1 57E-07	1 09E-08	1 09E-08	7 83E-07	5 46E-08	8 37E-07
SVOCs											
1,2-Dichlorobenzene	1 00E+00	1	0 01	9 00E-02	1 57E-07	1 57E-07	9 93E-09	9 93E-09	1 74E-06	1 10E-07	1 85E-06
1,3-Dichlorobenzene	1 00E+00	1	0 01	9 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	1 74E-04	1 10E-05	1 85E-04
1,4-Dichlorobenzene	1 00E+00	1	0 01	3 00E-02	1 57E 07	1 57E-07	9 93E-09	9 93E-09	5 22E-06	3 31E-07	5 55E-06
2 4,6-Trichlorophenol	1 00E+00	1	0 01	1 00E-04	1 57E-07	1 57E 07	9 93E-09	9 93E-09	1 57E-03	9 93E-05	1 66E-03
2,4-Dichlorophenol	1 00E+00	1	0 01	3 00E-03	1 57E-07	1 57E-07	9 93E-09	9 93E-09	5 22E 05	3 31E-06	5 55E-05
2-Chlorophenol	1 00E+00	1	0 01	5 00E-03	1 57E 07	1 57E 07	9 93E-09	9 93E-09	3 13E 05	1 99E-06	3 33E-05
2-Methylnaphthalene	1 00E+00	0 29	0 1	2 00E 02	4 54E-08	4 54E 08	9 93E-08	9 93E-08	2 27E-06	4 97E-06	7 24E-06
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	1	0 01	3 00E-03	1 57E 07	1 57E-07	9 93E-09	9 93E-09	5 22E-05	3 31E-06	5 55E-05
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
bis(2-Chloroethyl)ether	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
bis(2-Ethylhexyl)phthalate	1 00E+00	1	0 004	2 00E-02	1 57E-07	1 57E-07	3 97E-09	3 97E-09	7 83E-06	1 99E-07	8 03E-06
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Hexachlorobenzene	1 00E+00	0 83	0 04	8 00E 04	1 30E-07	1 30E-07	3 97E-08	3 97E-08	1 62E-04	4 97E-05	2 12E-04
Naphthalene	1 00E+00	0 29	0 1	2 00E-02	4 54E-08	4 54E-08	9 93E-08	9 93E-08	2 27E-06	4 97E-06	7 24E-06
Nitrobenzene	1 00E+00	1	0 01	5 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	3 13E-04	1 99E-05	3 33E-04
Pesticides											
4,4'-DDE	1 00E+00	1	0 01	5 00E 04	1 57E 07	1 57E 07	9 93E-09	9 93E-09	3 13E 04	1 99E 05	3 33E 04
4 4'-DDT	1 00E+00	1	0 01	5 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	3 13E-04	1 99E-05	3 33E-04
Aldrin	1 00E+00	1	0 01	3 00E-05	1 57E-07	1 57E-07	9 93E-09	9 93E-09	5 22E-03	3 31E-04	5 55E-03
alpha-BHC	1 00E+00	1	0 01	3 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	5 22E-04	3 31E-05	5 55E-04
beta-BHC	1 00E+00	1	0 01	3 00E-04	1 57E 07	1 57E-07	9 93E-09	9 93E-09	5 22E-04	3 31E-05	5 55E-04
delta-BHC	1 00E+00	1	0 01	3 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	5 22E-04	3 31E-05	5 55E-04
Dieldrin	1 00E+00	1	0 01	5 00E-05	1 57E-07	1 57E-07	9 93E-09	9 93E-09	3 13E 03	1 99E-04	3 33E-03
gamma-BHC (Lindane)	1 00E+00	1	0 01	3 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	5 22E-04	3 31E-05	5 55E-04
Heptachlor	1 00E+00	1	0 01	5 00E-04	1 57E-07	1 57E-07	9 93E-09	9 93E-09	3 13E-04	1 99E-05	3 33E-04
Heptachlor Epoxide	1 00E+00	1	0 01	1 30E-05	1 57E-07	1 57E-07	9 93E-09	9 93E-09	1 20E-02	7 64E-04	1 28E-02

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing RME Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	ADDder RME Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
Herbicides											
MCPA	1 00E+00	1	0 01	5 00E-04	1 57E 07	1 57E 07	9 93E-09	9 93E-09	3 13E-04	1 99E-05	3 33E-04
MCPP	1 00E+00	1	0 01	1 00E-03	1 57E-07	1 57E-07	9 93E-09	9 93E-09	1 57E-04	9 93E-06	1 66E-04
Pentachlorophenol	1 00E+00	1	0 01	3 00E-02	1 57E-07	1 57E 07	9 93E-09	9 93E-09	5 22E-06	3 31E-07	5 55E-06
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E-05	1 30E-07	1 30E-07	3 97E-08	3 97E-08	6 50E-03	1 99E-03	8 48E-03
Dioxin											
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Metals											
Antimony	1 00E+00	1	0 007	4 00E-04	1 57E 07	1 57E 07	6 95E-09	6 95E-09	3 91E-04	1 74E-05	4 09E 04
Arsenic	1 00E+00	0 3	0 001	3 00E-04	4 70E-08	4 70E-08	9 93E-10	9 93E-10	1 57E-04	3 31E-06	1 60E-04
Barium	1 00E+00	1	0 001	7 00E-02	1 57E-07	1 57E-07	9 93E-10	9 93E-10	2 24E-06	1 42E-08	2 25E-06
Cadmium	1 00E+00	1	0 04	1 00E-03	1 57E-07	1 57E 07	3 97E-08	3 97E-08	1 57E-04	3 97E-05	1 96E-04
Chromium	1 00E+00	0 3	0	3 00E-03	4 70E-08	4 70E-08	0 00E+00	NA	1 57E-05	NC	1 57E-05
Copper	1 00E+00	1	0 002	3 70E-02	1 57E-07	1 57E-07	1 99E-09	1 99E-09	4 23E-06	5 37E 08	4 28E-06
Lead	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	0 01	2 40E-02	1 57E-07	1 57E-07	9 93E-09	9 93E-09	6 52E-06	4 14E-07	6 94E-06
Mercury	1 00E+00	2	0 007	3 00E-04	3 13E 07	3 13E 07	6 95E-09	6 95E-09	1 04E-03	2 32E-05	1 07E-03
Nickel	1 00E+00	1	0 08	2 00E 02	1 57E-07	1 57E-07	7 95E-08	7 95E-08	7 83E-06	3 97E-06	1 18E-05

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HI (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
VOCs																	
1 1,2-Trichloroethane	4 16E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	3 18E+00	1 32E-04	--	NCOPC
1 2-Dichloroethane	8 32E-06	--	NCOPC	--	NCOPC	--	NCOPC	7 43E-01	6 19E-06	-	NCOPC	-	NCOPC	3 28E+01	2 73E-04	--	NCOPC
1 2-Dichloroethene (total)	8 32E-06	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 37E+01	1 14E-04	--	NCOPC
4 Methyl-2-pentanone (MIBK)	2 08E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 00E+02	8 32E-04
Benzene	4 41E-05	5 00E+02	2 21E-02	6 90E+01	3 04E-03	1 12E+00	4 94E-05	1 61E+00	7 10E-05	--	NCOPC	2 98E-01	1 31E-05	5 22E+01	2 30E-03	3 50E+01	1 54E-03
Chlorobenzene	8 32E-06	7 60E+02	6 33E-03	4 80E+02	4 00E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 89E+02	4 90E-03	1 20E+03	9 99E-03
Chloroform	1 66E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 93E+00	8 21E-05	--	NCOPC
Dichloromethane	2 67E-06	--	NCOPC	8 70E+01	2 50E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 70E+01	1 64E-04
Ethylbenzene	1 66E-06	2 80E+03	4 66E-03	7 60E+02	1 27E-03	7 80E+01	1 30E-04	7 78E+00	1 30E-05	--	NCOPC	3 53E+01	5 88E-05	1 62E+01	2 70E-05	1 10E+03	1 83E-03
Tetrachloroethene	1 66E-05	--	NCOPC	6 80E+00	1 13E-04	1 54E+01	2 56E-04	4 90E+00	8 16E-05	--	NCOPC	--	NCOPC	4 45E+02	7 41E-03	3 30E+01	5 49E-04
Toluene	8 32E-07	3 90E+02	3 25E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 69E+02	1 41E-04	3 15E+02	2 62E-04	6 00E+03	4 99E-03
Trichloroethylene	5 55E-04	--	NCOPC	--	NCOPC	9 90E-01	5 49E-04	2 06E-01	1 14E-04	--	NCOPC	5 16E-02	2 86E-05	2 20E+03	1 22E+00	2 40E+02	1 33E-01
Xylenes, Total	8 37E-07	1 40E+04	1 17E-02	3 90E+03	3 27E-03	3 80E+02	3 18E-04	5 79E+01	4 85E-05	--	NCOPC	2 52E+02	2 11E-04	8 88E+01	7 44E-05	7 30E+03	6 11E-03
SVOCs																	
1 2-Dichlorobenzene	1 85E-06	--	NCOPC	5 20E+02	9 62E-04	-	NCOPC	-	NCOPC		NCOPC	-	NCOPC	-	NCOPC	--	NCOPC
1 3-Dichlorobenzene	1 85E-04		NCOPC	1 20E+01	2 22E-03	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	1 20E+01	2 22E-03
1,4-Dichlorobenzene	5 55E 06	4 70E+01	2 61E-04	1 20E+02	6 66E-04	6 70E+01	3 72E-04	--	NCOPC	--	NCOPC	--	NCOPC	6 42E+00	3 56E-05	2 00E+02	1 11E-03
2,4,6-Trichlorophenol	1 66E-03	6 90E+00	1 15E-02	6 10E+01	1 02E-01	--	NCOPC	9 77E+00	1 63E-02	--	NCOPC	--	NCOPC	1 70E+02	2 83E-01	8 20E+00	1 37E-02
2,4-Dichlorophenol	5 55E-05	--	NCOPC	--	NCOPC	--	NCOPC	5 19E+01	2 88E-03	--	NCOPC	--	NCOPC	8 47E+02	4 70E-02	-	NCOPC
2-Chlorophenol	3 33E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 51E+01	3 17E-03	--	NCOPC
2-Methylnaphthalene	7 24E-06	--	NCOPC	2 00E+02	1 45E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
2-Nitroaniline	NC	2 50E+00	NC	6 20E+01	NC	--	NCOPC	6 18E+00	NC	--	NCOPC	--	NCOPC	2 81E+00	NC	4 60E+00	NC
4-Nitroaniline	5 55E-05		NCOPC	1 00E+03	5 55E 02	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	8 34E+00	4 63E-04	5 70E+01	3 16E 03
Benzo(a)anthracene	NC	1 20E+01	NC	3 60E+01	NC	--	NCOPC	1 61E+00	NC	1 07E+00	NC	1 03E+00	NC	--	NCOPC	8 00E+00	NC
Benzo(a)pyrene	NC	7 10E+00	NC	1 10E+01	NC	6 70E-01	NC	1 67E+00	NC	1 24E+00	NC	1 14E+00	NC	--	NCOPC	5 40E+00	NC
Benzo(b)fluoranthene	NC	7 90E+00	NC	1 20E+01	NC		NCOPC	1 51E+00	NC	1 60E+00	NC	1 18E+00	NC	--	NCOPC	6 60E+00	NC
bis(2-Chloroethyl)ether	NC	--	NCOPC	2 10E+00	NC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
bis(2-Ethylhexyl)phthalate	8 03E-06	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+02	1 04E-03
Dibenzo(a,h)anthracene	NC	3 00E+00	NC	4 60E+00	NC	--	NCOPC	2 82E-01	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 80E+00	NC
Hexachlorobenzene	2 12E 04	--	NCOPC	4 50E+00	9 54E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	7 24E-06	--	NCOPC	4 10E+01	2 97E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 94E+01	2 13E-04	4 80E+01	3 47E-04
Nitrobenzene	3 33E-04	--	NCOPC	1 10E+01	3 66E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 45E+01	4 83E-03	--	NCOPC
Pesticides																	
4 4'-DDE	3 33E-04		NCOPC	3 30E+01	1 10E-02	--	NCOPC		NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
4 4 -DDT	3 33E 04		NCOPC	5 80E+01	1 93E-02	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	1 60E+01	5 33E-03
Aldrin	5 55E-03	7 20E-01	4 00E-03	4 50E+00	2 50E-02	--	NCOPC	--	NCOPC	3 40E 02	1 89E-04	6 78E-02	3 76E-04	--	NCOPC	1 90E-01	1 05E-03
alpha-BHC	5 55E-04	--	NCOPC	1 50E+00	8 32E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
beta-BHC	5 55E-04	--	NCOPC	2 10E+01	1 17E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 53E-01	4 18E-04	2 60E+01	1 44E-02
delta-BHC	5 55E-04	2 85E+00	1 58E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dieldrin	3 33E-03	3 80E+00	1 27E-02	5 00E+01	1 66E-01	2 83E-01	9 42E-04	5 84E-01	1 94E-03	1 47E-01	4 89E-04	5 04E-01	1 68E-03	1 22E+00	4 06E-03	3 80E-01	1 27E-03
gamma-BHC (Lindane)	5 55E-04	2 88E+00	1 60E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 50E+00	4 16E-03
Heptachlor	3 33E-04	2 78E+00	9 26E-04	9 90E+00	3 30E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 45E-01	1 48E-04	1 50E+00	4 99E-04
Heptachlor Epoxide	1 28E-02	4 70E-01	6 02E-03	2 70E+00	3 46E-02	--	NCOPC	-	NCOPC	-	NCOPC	1 03E-01	1 32E-03	--	NCOPC	--	NCOPC
Herbicides																	
MCPA	3 33E-04	--	NCOPC	-	NCOPC	5 26E+01	1 75E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC
MCPP	1 66E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 18E+01	1 03E-02	--	NCOPC
Pentachlorophenol	5 55E-06	--	NCOPC	--	NCOPC	--	NCOPC	1 63E+02	9 05E-04	6 52E+00	3 62E-05	7 74E+01	4 30E-04	--	NCOPC	4 40E+02	2 44E-03

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - RME
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HI (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
PCBs																	
Total PCBs	8 48E-03	2 98E+02	2 53E+00	3 03E+03	2 57E+01	1 69E+01	1 43E-01	5 40E+01	4 58E-01	4 35E+00	3 69E-02	1 90E+01	1 61E-01	8 89E+01	7 54E-01	1 01E+03	8 56E+00
Dioxin																	
2,3,7,8-TCDD-TEQ	NC	3 04E-02	NC	4 97E-01	NC	4 42E-04	NC	1 11E-02	NC	3 79E-03	NC	4 51E-03	NC	1 78E-03	NC	2 59E-02	NC
Metals																	
Antimony	4 09E-04	--	NCOPC	--	NCOPC	--	NCOPC	1 66E+01	6 79E-03	--	NCOPC	1 87E+01	7 64E-03	--	NCOPC	--	NCOPC
Arsenic	1 60E-04	--	NCOPC	3 70E+01	5 92E-03	1 69E+01	2 70E 03	1 54E+01	2 46E-03	2 22E+01	3 55E-03	1 72E+01	2 75E-03	7 32E+00	1 17E-03	--	NCOPC
Barium	2 25E-06	--	NCOPC	--	NCOPC	--	NCOPC	3 03E+03	6 82E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Cadmium	1 96E-04	--	NCOPC	8 60E+01	1 69E-02	1 33E+01	2 61E-03	1 69E+01	3 71E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	1 57E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+02	2 04E-03	--	NCOPC	4 80E+02	7 51E-03
Copper	4 28E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 41E+03	2 75E-02	--	NCOPC	--	NCOPC	--	NCOPC
Lead	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 96E+03	NC	--	NCOPC	8 28E+02	NC	--	NCOPC	8 38E+02	NC
Manganese	6 94E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 29E+03	8 95E-03	8 53E+02	5 92E-03	--	NCOPC	--	NCOPC
Mercury	1 07E-03	--	NCOPC	3 60E+02	3 84E-01	--	NCOPC	--	NCOPC	--	NCOPC	3 58E+00	3 82E-03	6 99E+02	7 46E-01	--	NCOPC
Nickel	1 18E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 31E+02	5 09E-03	--	NCOPC	--	NCOPC
	Total HI:		**2.61E+00**		**2.66E+01**		**1.69E-01**		**5.00E-01**		**7.76E-02**		**1.93E-01**		**3.09E+00**		**8.77E+00**

Notes
-- Not a constituent of concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated:	
Receptor:	RME Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER - RME INHALATION OF EXCAVATION AIR FROM SOIL		Assumed Value	Units	Calculated Value
Inhalation Rate	RME Construction/Utility Worker	2.5	(m^3 air/hour)	
Body Weight	RME Construction/Utility Worker	70	(kg)	
Exposure Time	RME Construction/Utility Worker	8	(hrs/day) =	8.00E+00
Exposure Frequency	RME Construction/Utility Worker	40	(days)/365 (days) =	1.10E-01
Exposure Duration (cancer)	RME Construction/Utility Worker	1	(yrs)/70(yrs) =	1.43E-02
Exposure Duration (noncancer)	RME Construction/Utility Worker	1	(yrs)/1(yrs) =	1.00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration in Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)[1]	ADDinh RME Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk Inhalation
VOCs (a)						
1 1,2 Trichloroethane	1 00E+00	1	5 60E-02	4 47E-04	4 47E-04	2 50E-05
1 2-Dichloroethane	1 00E+00	1	9 10E-02	4 47E-04	4 47E-04	4 07E-05
1 2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	4 47E-04	4 47E-04	3 44E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	2.95E-04	2 95E-04	2 38E-05
Dichloromethane	1 00E+00	1	1 65E-03	4 47E-04	4 47E-04	7 36E-07
Ethylbenzene	1 00E+00	1	NA	4 47E-04	4 47E-04	NC
Tetrachloroethene	1 00E+00	1	2 10E-02	4 47E-04	4 47E-04	9 39E-06
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	4 47E-04	4 47E-04	1 79E-04
Xylenes Total	1 00E+00	NA	NA	NA	NA	NC
SVOCs (b)						
1 2-Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NC
1 3-Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NC
1 4-Dichlorobenzene	1 00E+00	1	2.20E-02	4 47E-04	4 47E-04	9 84E-06
2 4 6-Trichlorophenol	1 00E+00	1	1 09E-02	4 47E-04	4 47E-04	4 85E-06
2 4-Dichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Chlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Methylnaphthalene	1 00E+00	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)anthracene	1 00E+00	1	3 10E-01	4 47E 04	4 47E-04	1 39E-04
Benzo(a)pyrene	1 00E+00	1	3 10E+00	4 47E-04	4 47E-04	1 39E 03
Benzo(b)fluoranthene	1 00E+00	1	3 10E-01	4 47E-04	4 47E-04	1 39E-04
bis(2-Chloroethyl)ether	1 00E+00	1	1 16E+00	4 47E-04	4 47E-04	5 17E-04
bis(2 Ethylhexyl)phthalate	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a h)anthracene	1 00E+00	1	3 10E+00	4 47E-04	4 47E-04	1 39E 03
Hexachlorobenzene	1 00E+00	1	1 61E+00	4 47E-04	4 47E-04	7.20E-04
Naphthalene	1 00E+00	NA	NA	NA	NA	NC
Nitrobenzene	1 00E+00	NA	NA	NA	NA	NC
Pesticides (b)						
4 4 DDE	1 00E+00	NA	NA	NA	NA	NC
4 4 DDT	1 00E+00	1	3 40E-01	4 47E-04	4 47E-04	1 52E-04
Aldrin	1 00E+00	1	1 72E+01	4 47E-04	4 47E-04	7 67E 03
alpha-BHC	1 00E+00	1	6 30E+00	4 47E-04	4 47E-04	2 82E-03
beta-BHC	1 00E+00	1	1 86E+00	4 47E-04	4 47E-04	8 30E-04
delta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	1	1 61E+01	4 47E-04	4 47E-04	7.20E-03
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	1	4 55E+00	4 47E-04	4 47E-04	2 04E-03
Heptachlor Epoxide	1 00E+00	1	9 10E+00	4 47E-04	4 47E-04	4 07E-03
Herbicides (b)						
MCPA	1 00E+00	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	1	2 00E+00	4 47E-04	4 47E-04	8 95E-04
Dioxin (b)						
2 3 7 8-TCDD TEQ	1 00E+00	0 55	1 50E+05	2 46E-04	2 46E-04	3 69E+01
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	1	1 51E+01	4 47E-04	4 47E-04	6 75E-03
Barium	1 00E+00	NA	NA	NA	NA	NC
Cadmium	1 00E+00	1	6 30E+00	4 47E-04	4 47E-04	2 82E-03
Chromium	1 00E+00	1	4.20E+01	4 47E-04	4 47E-04	1 88E-02
Copper	1 00E+00	NA	NA	NA	NA	NC
Lead	1 00E+00	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NC
Nickel	1 00E+00	NA	NA	NA	NA	NC

TABLE
CARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER RME

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/m³)	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk
VOCs (a)																	
1 1 2 Trichloroethane	2 50E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 50E 04	6 26E 09		NCOPC
1 2 Dichloroethane	4 07E 05		NCOPC		NCOPC		NCOPC	6 80E 04	2 77E 08		NCOPC		NCOPC	1 40E 03	5 70E 08		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 90E 04	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 90E 02	NC
Benzene	3 44E 06	8 60E 01	2 96E-06	1 20E 01	4 13E 07	1 90E 03	6 54E 09	2 80E 03	9 64E 09		NCOPC	5 20E 04	1 79E-09	2 40E-03	8 27E 09	1 60E 03	5 51E 09
Chlorobenzene	NC	5 40E 01	NC	3 40E 01	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 40E 02	NC	2 90E 02	NC
Chloroform	2 38E 05		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 90E 04	4 52E 09		NCOPC
Dichloromethane	7 36E-07		NCOPC	2 00E 01	1 47E 07		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	4 30E 03	3 16E 09
Ethylbenzene	NC	2 30E+00	NC	6 20E-01	NC	6 40E-02	NC	6 30E-03	NC		NCOPC	2 90E 02	NC	3 10E-04	NC	2 10E 02	NC
Tetrachloroethene	9 39E-06		NCOPC	1 20E 02	1 13E-07	2 80E-02	2 63E-07	8 80E 03	8 27E 08		NCOPC		NCOPC	1 40E-02	1 32E 07	1 10E 03	1 03E 08
Toluene	NC	4 90E 01	NC		NCOPC		NCOPC		NCOPC		NCOPC	2 10E-01	NC	1 00E-02	NC	1 90E-01	NC
Trichloroethylene	1 79E 04		NCOPC		NCOPC	1 60E 03	2 86E 07	3 20E 04	5 73E 08		NCOPC	8 10E 05	1 45E-08	2 30E 01	4 12E-05	2 50E-02	4 47E 06
Xylenes Total	NC	1 30E+01	NC	3 60E+00	NC	3 50E-01	NC	5 30E 02	NC		NCOPC	2 30E-01	NC	2 10E-03	NC	1 70E 01	NC
SVOCs (b)																	
1 2 Dichlorobenzene	NC		NCOPC	3 12E 05	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
1 3 Dichlorobenzene	NC		NCOPC	7 20E-07	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 20E 07	NC
1 4 Dichlorobenzene	9 84E 06	2 82E 06	2 78E 11	7 20E-06	7 09E 11	4 02E-06	3 96E 11		NCOPC		NCOPC		NCOPC	3 85E-07	3 79E 12	1 20E-05	1 18E 10
2 4 6 Trichlorophenol	4 85E-06	4 14E 07	2 01E 12	3 66E 06	1 78E 11		NCOPC	5 86E 07	2 84E 12		NCOPC		NCOPC	1 02E 05	4 95E 11	4 92E-07	2 39E 12
2 4 Dichlorophenol	NC		NCOPC		NCOPC		NCOPC	3 11E 06	NC		NCOPC		NCOPC	5 08E 05	NC		NCOPC
2 Chlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 71E 06	NC		NCOPC
2 Methylnaphthalene	NC		NCOPC	1 20E 05	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
2 Nitroaniline	NC	1 50E 07	NC	3 72E 06	NC		NCOPC	3 71E 07	NC		NCOPC		NCOPC	1 69E 07	NC	2 76E 07	NC
4 Nitroaniline	NC		NCOPC	6 00E 05	NC		NCOPC		NCOPC		NCOPC		NCOPC	5 00E 07	NC	3 42E 06	NC
Benzo(a)anthracene	1 39E-04	7 20E 07	9 98E 11	2 16E-06	3 00E 10		NCOPC	9 66E 08	1 34E 11	6 42E 08	8 90E 12	6 18E 08	8 57E 12		NCOPC	4 80E 07	6 66E 11
Benzo(a)pyrene	1 39E-03	4 26E 07	5 91E 10	6 60E 07	9 15E 10	4 02E 08	5 57E 11	1 00E 07	1 39E 10	44E 08	1 03E 10	6 84E 08	9 48E 11	--	NCOPC	3 24E-07	4 49E 10
Benzo(b)fluoranthene	1 39E 04	4 74E 07	6 57E 11	7 20E 07	9 98E 11		NCOPC	9 06E-08	1 26E 11	160E 08	1 33E 11	7 08E 08	9 82E 12		NCOPC	3 96E 07	5 49E 11
bis(2 Chloroethyl)ether	5 17E-04		NCOPC	1 26E-07	6 51E 11		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
bis(2 Ethylhexyl)phthalate	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 80E 06	NC
Dibenzo(a h)anthracene	1 39E 03	1 80E 07	2 50E 10	2 76E 07	3 83E 10		NCOPC	1 69E 08	2 35E 11		NCOPC		NCOPC		NCOPC	1 08E-07	1 50E 10
Hexachlorobenzene	7 20E-04		NCOPC	2 70E 07	1 94E 10		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
Naphthalene	NC		NCOPC	2 46E 06	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 76E 06	NC	2 88E 06	NC
Nitrobenzene	NC		NCOPC	6 60E 07	NC		NCOPC		NCOPC		NCOPC		NCOPC	8 70E 07	NC		NCOPC
Pesticides (b)																	
4 4 DDE	NC		NCOPC	1 98E-06	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
4 4 DDT	1 52E-04		NCOPC	3 48E-06	5 28E 10		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	9 60E 07	1 46E 10
Aldrin	7 67E 03	4 32E 08	3 31E 10	2 70E 07	2 07E 09		NCOPC		NCOPC	104E 09	1 56E 11	4 07E 09	3 12E 11		NCOPC	1 14E 08	8 75E 11
alpha BHC	2 82E-03		NCOPC	9 00E 08	2 54E 10		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	--	NCOPC
beta BHC	6 30E-04		NCOPC	1 26E 06	1 05E 09		NCOPC		NCOPC		NCOPC		NCOPC	4 52E 08	3 75E 11	1 56E 06	1 29E 09
delta BHC	NC	1 71E 07	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
Dieldrin	7 20E 03	2 28E 07	1 64E 09	3 00E-06	2 16E 08	1 70E 08	1 22E 10	3 50E 08	2 52E 10	182E 09	6 35E 11	3 02E-08	2 18E 10	7 32E-08	5 27E 10	2 28E 08	1 64E 10
gamma BHC (Lindane)	NC	1 73E 07	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	4 50E 07	NC
Heptachlor	2 04E-03	1 67E 07	3 39E 10	5 94E-07	1 21E 09		NCOPC		NCOPC		NCOPC		NCOPC	2 67E-08	5 43E 11	9 00E-08	1 83E 10
Heptachlor Epoxide	4 07E 03	2 82E 08	1 15E 10	1 62E-07	6 59E 10		NCOPC		NCOPC		NCOPC	6 18E 09	2 52E 11		NCOPC		NCOPC
Herbicides (b)																	
MCPA	NC		NCOPC		NCOPC	3 16E 06	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
MCPP	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 71E 06	NC		NCOPC
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC	9 78E 06	NC	391E 07	NC	4 64E 06	NC		NCOPC	2 64E 05	NC

TABLE
CARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - RME

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/m³)	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk
PCBs (b)																	
Total PCBs	8 95E-04	1 79E-05	1 60E-08	1 82E-04	1 63E-07	1 01E-06	9 07E-10	3 24E-06	2 90E-09	2 61E-07	2 33E-10	1 14E-06	1 02E-09	5 33E-06	4 77E-09	6 05E-05	5 41E-08
Dioxin (b)																	
2,3,7,8-TCDD-TEQ	3 69E+01	1 82E-09	6 73E-08	2 98E-08	1 10E-06	2 65E-11	9 79E-10	6 66E-10	2 46E-08	2 27E-10	8 39E-09	2 71E-10	9 99E-09	1 07E-10	3 94E-09	1 55E-09	5 73E-08
Metals (b)																	
Antimony	NC	--	NCOPC	--	NCOPC	--	NCOPC	9 96E-07	NC	--	NCOPC	1 12E-06	NC	--	NCOPC	--	NCOPC
Arsenic	6 75E-03	--	NCOPC	2 22E-06	1 50E-08	1 01E-06	6 85E-09	9 24E-07	6 24E-09	33E-06	9 00E-09	1 03E-06	6 97E-09	4 39E-07	2 97E-09	--	NCOPC
Barium	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 82E-04	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Cadmium	2 82E-03	--	NCOPC	5 16E-06	1 45E-08	7 98E-07	2 25E-09	1 13E-06	3 20E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	1 88E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 80E-06	1 47E-07	--	NCOPC	2 88E-05	5 41E-07
Copper	NC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	3 85E-04	NC	--	NCOPC	--	NCOPC	--	NCOPC
Lead	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 18E-04	NC	--	NCOPC	4 97E-05	NC	--	NCOPC	5 03E-05	NC
Manganese	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 74E-05	NC	5 12E-05	NC	--	NCOPC	--	NCOPC
Mercury	NC	--	NCOPC	2 16E-05	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 15E-07	NC	4 19E-05	NC	--	NCOPC
Nickel	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 59E-05	NC	--	NCOPC	--	NCOPC
	Total:		3.08E-06		2.00E-06		5.67E-07		2.15E-07		1.78E-08		1.81E-07		4.14E-05		5.15E-06

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh RME Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index Inhalation
VOCs (a)						
1 1 2 Trichloroethane	1 00E+00	NA	NA	NA	NA	NC
1 2-Dichloroethane	1 00E+00	1	1 40E-03	3 13E 02	3 13E-02	2.24E+01
1 2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	3 13E-02	3 13E-02	3 65E-02
Benzene	1 00E+00	1	8 57E-03	3 13E-02	3 13E-02	3 65E+00
Chlorobenzene	1 00E+00	1	1 70E-02	3 13E-02	3 13E-02	1 84E+00
Chloroform	1 00E+00	1	1 43E-02	3 13E-02	3 13E-02	2 19E+00
Dichloromethane	1 00E+00	1	8 60E-01	3 13E-02	3 13E-02	3 64E-02
Ethylbenzene	1 00E+00	1	2 86E-01	3 13E-02	3 13E-02	1 09E-01
Tetrachloroethene	1 00E+00	1	1 70E-01	3 13E-02	3 13E-02	1 84E-01
Toluene	1 00E+00	1	1 14E-01	3 13E-02	3 13E-02	2 75E-01
Trichloroethylene	1 00E+00	1	1 00E-02	3 13E-02	3 13E-02	3 13E+00
Xylenes Total	1 00E+00	1	2 86E-02	3 13E-02	3 13E-02	1 10E+00
SVOCs (b)						
1 2 Dichlorobenzene	1 00E+00	1	5 70E-02	3 13E-02	3 13E-02	5 49E-01
1 3-Dichlorobenzene	1 00E+00	1	2.29E-01	3 13E-02	3 13E-02	1 37E-01
1 4-Dichlorobenzene	1 00E+00	1	2.29E-01	3 13E-02	3 13E-02	1 37E-01
2 4 6-Trichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2 4-Dichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2 Chlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Methylnaphthalene	1 00E+00	1	8 57E-04	3 13E-02	3 13E-02	3 65E+01
2 Nitroaniline	1 00E+00	1	5 71E-05	3 13E-02	3 13E-02	5 48E+02
4-Nitroaniline	1 00E+00	1	1 14E-03	3 13E-02	3 13E-02	2 75E+01
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NC
bis(2-Chloroethyl)ether	1 00E+00	NA	NA	NA	NA	NC
bis(2-Ethylhexyl)phthalate	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a h)anthracene	1 00E+00	NA	NA	NA	NA	NC
Hexachlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Naphthalene	1 00E+00	1	8 57E 04	3 13E 02	3 13E-02	3 65E+01
Nitrobenzene	1 00E+00	1	5 70E-04	3 13E-02	3 13E-02	5 49E+01
Pesticides (b)						
4 4 DDE	1 00E+00	NA	NA	NA	NA	NC
4 4 DDT	1 00E+00	NA	NA	NA	NA	NC
Aldrin	1 00E+00	NA	NA	NA	NA	NC
alpha-BHC	1 00E+00	NA	NA	NA	NA	NC
beta-BHC	1 00E+00	NA	NA	NA	NA	NC
delta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	NA	NA	NA	NA	NC
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	NA	NA	NA	NA	NC
Heptachlor Epoxide	1 00E+00	NA	NA	NA	NA	NC
Herbicides (b)						
MCPA	1 00E+00	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	NA	NA	NA	NA	NC
Dioxin (b)						
2 3 7 8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NC
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	NA	NA	NA	NA	NC
Barium	1 00E+00	1	1 40E-04	3 13E-02	3 13E-02	2.24E+02
Cadmium	1 00E+00	NA	NA	NA	NA	NC
Chromium	1 00E+00	1	2 86E-05	3 13E-02	3 13E-02	1 09E+03
Copper	1 00E+00	NA	NA	NA	NA	NC
Lead	1 00E+00	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	1 43E-05	3 13E-02	3 13E-02	2 19E+03
Mercury	1 00E+00	1	8 57E-05	3 13E-02	3 13E-02	3 65E+02
Nickel	1 00E+00	NA	NA	NA	NA	NC

TABLE
POTENTIAL HAZARD QUOTIENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - RME

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/m³)	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ
VOCs (a)																	
1 1,2-Trichloroethane	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 50E-04	NC		NCOPC
1 2-Dichloroethane	2 24E+01	--	NCOPC	--	NCOPC	--	NCOPC	6 80E-04	1 5[illegible]E-02	--	NCOPC	--	NCOPC	1 40E-03	3 13E-02	--	NCOPC
1 2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 90E-04	NC	--	NCOPC
4-Methyl-2-pentanone (MIBK)	3 65E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	9 90E-02	3 62E-03
Benzene	3 65E+00	8 60E-01	3 14E+00	1 20E-01	4 38E-01	1 90E-03	6 94E-03	2 80E-03	1 0[illegible]E-02	--	NCOPC	5 20E-04	1 90E-03	2 40E-03	8 77E-03	1 60E-03	5 84E-03
Chlorobenzene	1 84E+00	5 40E-01	9 95E-01	3 40E-01	6 26E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-02	2 58E-02	2 90E-02	5 34E-02
Chloroform	2 19E+00	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-04	4 16E-04	--	NCOPC
Dichloromethane	3 64E-02	--	NCOPC	2 00E-01	7 28E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 30E-03	1 57E-04
Ethylbenzene	1 09E-01	2 30E+00	2 52E-01	6 20E-01	6 79E-02	6 40E-02	7 01E-03	6 30E-03	6 90E-04	--	NCOPC	2 90E-02	3 17E-03	3 10E-04	3 39E-05	2 10E-02	2 30E-03
Tetrachloroethene	1 84E-01	--	NCOPC	1 20E-02	2 21E-03	2 80E-02	5 16E-03	8 80E-03	1 6[illegible]E-03	--	NCOPC	--	NCOPC	1 40E-02	2 58E-03	1 10E-03	2 03E-04
Toluene	2 75E-01	4 90E-01	1 35E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	5 77E-02	1 00E-02	2 75E-03	1 90E-01	5 22E-02
Trichloroethylene	3 13E+00	--	NCOPC	--	NCOPC	1 60E-03	5 01E-03	3 20E-04	1 00E-03	--	NCOPC	8 10E-05	2 54E-04	2 30E-01	7 20E-01	2 50E-02	7 83E-02
Xylenes, Total	1 10E+00	1 30E+01	1 42E+01	3 60E+00	3 95E+00	3 50E-01	3 84E-01	5 30E-02	5 8[illegible]E-02	--	NCOPC	2 30E-01	2 52E-01	2 10E-03	2 30E-03	1 70E-01	1 86E-01
SVOCs (b)																	
1,2-Dichlorobenzene	5 49E-01	--	NCOPC	3 12E-05	1 71E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC
1 3-Dichlorobenzene	1 37E-01	--	NCOPC	7 20E-07	9 86E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	7 20E-07	9 86E-08
1 4-Dichlorobenzene	1 37E-01	2 82E-06	3 86E-07	7 20E-06	9 86E-07	4 02E-06	5 51E-07	--	NCOPC	--	NCOPC	--	NCOPC	3 85E-07	5 28E-08	1 20E-05	1 64E-06
2 4,6-Trichlorophenol	NC	4 14E-07	NC	3 66E-06	NC	--	NCOPC	5 86E-07	NC	--	NCOPC	--	NCOPC	1 02E-05	NC	4 92E-07	NC
2,4-Dichlorophenol	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 11E-06	NC	--	NCOPC	--	NCOPC	5 08E-05	NC	--	NCOPC
2 Chlorophenol	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 71E-06	NC	--	NCOPC
2-Methylnaphthalene	3 65E+01	--	NCOPC	1 20E-05	4 38E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
2-Nitroaniline	5 48E+02	1 50E-07	8 22E-05	3 72E-06	2 04E-03	--	NCOPC	3 71E-07	2 0[illegible]E-04	--	NCOPC	--	NCOPC	1 69E-07	9 24E-05	2 76E-07	1 51E-04
4-Nitroaniline	2 75E+01	--	NCOPC	6 00E-05	1 65E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 00E-07	1 37E-05	3 42E-06	9 39E-05
Benzo(a)anthracene	NC	7 20E-07	NC	2 16E-06	NC	--	NCOPC	9 66E-08	NC	6 42E-08	NC	6 18E-08	NC	--	NCOPC	4 80E-07	NC
Benzo(a)pyrene	NC	4 26E-07	NC	6 60E-07	NC	4 02E-08	NC	1 00E-07	NC	7 44E-08	NC	6 84E-08	NC	--	NCOPC	3 24E-07	NC
Benzo(b)fluoranthene	NC	4 74E-07	NC	7 20E-07	NC	--	NCOPC	9 06E-08	NC	9 60E-08	NC	7 08E-08	NC	--	NCOPC	3 96E-07	NC
bis(2-Chloroethyl)ether	NC	--	NCOPC	1 26E-07	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
bis(2-Ethylhexyl)phthalate	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 80E-06	NC
Dibenzo(a,h)anthracene	NC	1 80E-07	NC	2 76E-07	NC	--	NCOPC	1 69E-08	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 08E-07	NC
Hexachlorobenzene	NC	--	NCOPC	2 70E-07	NC	--	NCOPC	--	NCOPC		NCOPC	-	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	3 65E+01	--	NCOPC	2 46E-06	8 99E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 76E-06	6 44E-05	2 88E-06	1 05E-04
Nitrobenzene	5 49E+01	--	NCOPC	6 60E-07	3 63E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 70E-07	4 78E-05	--	NCOPC
Pesticides (b)																	
4 4'-DDE	NC	--	NCOPC	1 98E-06	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
4 4'-DDT	NC	--	NCOPC	3 48E-06	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	9 60E-07	NC
Aldrin	NC	4 32E-08	NC	2 70E-07	NC	--	NCOPC	-	NCOPC	2 04E-09	NC	4 07E-09	NC	--	NCOPC	1 14E-08	NC
alpha-BHC	NC	--	NCOPC	9 00E-08	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
beta-BHC	NC	--	NCOPC	1 26E-06	NC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	4 52E-08	NC	1 56E-06	NC
delta-BHC	NC	1 71E-07	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dieldrin	NC	2 28E-07	NC	3 00E-06	NC	1 70E-08	NC	3 50E-08	NC	8 82E-09	NC	3 02E-08	NC	7 32E-08	NC	2 28E-08	NC
gamma-BHC (Lindane)	NC	1 73E-07	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 50E-07	NC
Heptachlor	NC	1 67E-07	NC	5 94E-07	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 67E-08	NC	9 00E-08	NC
Heptachlor Epoxide	NC	2 82E-08	NC	1 62E-07	NC	--	NCOPC	--	NCOPC	-	NCOPC	6 18E-09	NC	--	NCOPC	--	NCOPC
Herbicides (b)																	
MCPA	NC	--	NCOPC	--	NCOPC	3 16E-06	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
MCPP	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	3 71E-06	NC	--	NCOPC
Pentachlorophenol	NC	--	NCOPC	--	NCOPC	--	NCOPC	9 78E-06	NC	3 91E-07	NC	4 64E-06	NC	--	NCOPC	2 64E-05	NC

TABLE
POTENTIAL HAZARD QUOTIENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - RME

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/m³)	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ
PCBs (b)																	
Total PCBs	NC	1 79E-05	NC	1 82E-04	NC	1 01E-06	NC	3 24E-06	NC	2 61E-07	NC	1 14E-06	NC	5 33E-06	NC	6 05E-05	NC
Dioxin (b)																	
2,3 7,8-TCDD-TEQ	NC	1 82E-09	NC	2 98E-08	NC	2 65E-11	NC	6 66E-10	NC	2 27E-10	NC	2 71E-10	NC	1 07E-10	NC	1 55E-09	NC
Metals (b)																	
Antimony	NC	--	NCOPC	--	NCOPC	--	NCOPC	9 96E-07	NC	--	NCOPC	1 12E-06	NC	--	NCOPC	--	NCOPC
Arsenic	NC	--	NCOPC	2 22E-06	NC	1 01E-06	NC	9 24E-07	NC	1 33E-06	NC	1 03E-06	NC	4 39E-07	NC	--	NCOPC
Barium	2 24E+02	--	NCOPC	--	NCOPC	--	NCOPC	1 82E-04	4 0"E-02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Cadmium	NC	--	NCOPC	5 16E-06	NC	7 98E-07	NC	1 13E-06	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	1 09E+03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	7 80E-06	8 54E-03	--	NCOPC	2 88E-05	3 15E-02
Copper	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 85E-04	NC	--	NCOPC	--	NCOPC	--	NCOPC
Lead	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 18E-04	NC	--	NCOPC	4 97E-05	NC	--	NCOPC	5 03E-05	NC
Manganese	2 19E+03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	7 74E-05	1 70E-01	5 12E-05	1 12E-01	--	NCOPC	--	NCOPC
Mercury	3 65E+02	--	NCOPC	2 16E-05	7 89E-03	--	NCOPC	--	NCOPC	--	NCOPC	2 15E-07	7 85E-05	4 19E-05	1 53E-02	--	NCOPC
Nickel	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 59E-05	NC	--	NCOPC	--	NCOPC
	Total HI		**1.88E+01**		**5.10E+00**		**4.08E-01**		**1.2[illegible]E-01**		**1.70E-01**		**4.36E-01**		**8.10E-01**		**4.14E-01**

Notes
Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated:	
Receptor:	RME Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER-RME INCIDENTAL INGESTION AND DERMAL CONTACT SHALLOW GROUNDWATER AND LEACHATE		Assumed Value	Units	Calculated Value
Water Ingestion Rate	RME Construction/Utility Worker	0.005	(l/day)	
Skin Exposed	RME Construction/Utility Worker	3339	(cm^2)	
Body Weight	RME Construction/Utility Worker	70	(kg)	
Exposure Time (dermal route only)	RME Construction/Utility Worker	1	(hr/day)	
Exposure Frequency	RME Construction/Utility Worker	10	(days)/365 (days) =	2.74E-02
Exposure Duration (cancer)	RME Construction/Utility Worker	1	(yrs)/ 70(yrs) =	1.43E-02
Exposure Duration (noncancer)	RME Construction/Utility Worker	1	(yrs)/ 1(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor (dermal route only)		0.001	(l/cm^3)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg day)[1]	RME Construction/Utility Worker ADDing (mg/kg day)	Lifetime Average Daily Dose Ing (mg/kg-day)	RME Construction/Utility Worker ADDder (mg/kg day)	Lifetime Average Daily Dose Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
VOCs												
1,2-Dichloroethane	1.00E+00	1	1	5.30E-03	9.10E-02	2.80E-08	2.80E-08	9.89E-08	9.89E-08	2.54E-09	9.00E-09	1.15E-08
1,2-Dichloroethene (total)	1.00E+00	NA	NA	1.00E-02	NA	NA	NA	NA	NA	NA	NA	NC
2-Butanone (MEK)	1.00E+00	NA	NA	1.10E-03	NA	NA	NA	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1.00E+00	NA	NA	2.77E-03	NA	NA	NA	NA	NA	NA	NA	NC
Acetone	1.00E+00	NA	NA	5.69E-04	NA	NA	NA	NA	NA	NA	NA	NC
Benzene	1.00E+00	1	2.13	2.10E-02	1.50E-02	2.80E-08	2.80E-08	8.35E-07	8.35E-07	4.19E-10	1.25E-08	1.29E-08
Chlorobenzene	1.00E+00	NA	NA	4.10E-02	NA	NA	NA	NA	NA	NA	NA	NC
Chloroform	1.00E+00	NA	NA	8.90E-03	NA	NA	NA	NA	NA	NA	NA	NC
Chloromethane	1.00E+00	1	1	4.20E-03	1.30E-02	2.80E-08	2.80E-08	7.84E-08	7.84E-08	3.63E-10	1.02E-09	1.38E-09
Dichloromethane	1.00E+00	1	1.6	4.50E-03	7.50E-03	2.80E-08	2.80E-08	1.34E-07	1.34E-07	2.10E-10	1.01E-09	1.22E-09
Tetrachloroethene	1.00E+00	1	1	4.80E-02	5.40E-01	2.80E-08	2.80E-08	8.96E-07	8.96E-07	1.51E-08	4.84E-07	4.99E-07
Toluene	1.00E+00	NA	NA	4.50E-02	NA	NA	NA	NA	NA	NA	NA	NC
Trichloroethylene	1.00E+00	1	1	1.60E-02	4.00E-01	2.80E-08	2.80E-08	2.99E-07	2.99E-07	1.12E-08	1.19E-07	1.31E-07
SVOCs												
2,4,6-Trichlorophenol	1.00E+00	1	1	5.00E-02	1.10E-02	2.80E-08	2.80E-08	9.33E-07	9.33E-07	3.08E-10	1.03E-08	1.06E-08
2,4-Dichlorophenol	1.00E+00	NA	NA	2.30E-02	NA	NA	NA	NA	NA	NA	NA	NC
2,4-Dimethylphenol	1.00E+00	NA	NA	1.50E-02	NA	NA	NA	NA	NA	NA	NA	NC
2-Chlorophenol	1.00E+00	NA	NA	1.10E-02	NA	NA	NA	NA	NA	NA	NA	NC
2-Nitroaniline	1.00E+00	NA	NA	5.45E-03	NA	NA	NA	NA	NA	NA	NA	NC
3-Methylphenol/4-Methylphenol	1.00E+00	NA	NA	1.00E-02	NA	NA	NA	NA	NA	NA	NA	NC
4-Chloroaniline	1.00E+00	NA	NA	6.33E-03	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1.00E+00	NA	NA	2.68E-03	2.10E-02	NA	NA	NA	NA	NC	NC	NC
Benzo(a)pyrene	1.00E+00	1	1	1.20E+00	7.30E+00	2.80E-08	2.80E-08	2.24E-05	2.24E-05	2.04E-07	1.64E-04	1.64E-04
Benzo(b)fluoranthene	1.00E+00	1	1	1.20E+00	7.30E-01	2.80E-08	2.80E-08	2.24E-05	2.24E-05	2.04E-08	1.64E-05	1.64E-05
Benzo(g,h,i)perylene	1.00E+00	NA	NA	5.34E+00	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(k)fluoranthene	1.00E+00	1	1	1.20E+00	7.30E-02	2.80E-08	2.80E-08	2.24E-05	2.24E-05	2.04E-09	1.64E-06	1.64E-06
Dibenzo(a,h)anthracene	1.00E+00	1	1	2.70E+00	7.30E+00	2.80E-08	2.80E-08	5.04E-05	5.04E-05	2.04E-07	3.68E-04	3.68E-04
Indeno(1,2,3-cd)pyrene	1.00E+00	1	1	1.90E+00	7.30E-01	2.80E-08	2.80E-08	3.55E-05	3.55E-05	2.04E-08	2.59E-05	2.59E-05
Naphthalene	1.00E+00	NA	NA	6.90E-02	NA	NA	NA	NA	NA	NA	NA	NC
Nitrobenzene	1.00E+00	NA	NA	6.96E-03	NA	NA	NA	NA	NA	NA	NA	NC
Phenol	1.00E+00	NA	NA	5.50E-03	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides												
4,4'-DDT	1.00E+00	1	1	4.30E-01	3.40E-01	2.80E-08	2.80E-08	8.03E-06	8.03E-06	9.51E-09	2.73E-06	2.74E-06
beta-BHC	1.00E+00	1	1	1.60E-02	1.80E+00	2.80E-08	2.80E-08	2.99E-07	2.99E-07	5.03E-08	5.38E-07	5.88E-07
Dieldrin	1.00E+00	1	1	1.60E-02	1.60E+01	2.80E-08	2.80E-08	2.99E-07	2.99E-07	4.47E-07	4.78E-06	5.23E-06
Endrin Ketone	1.00E+00	NA	NA	1.60E-02	NA	NA	NA	NA	NA	NA	NA	NC
gamma-BHC (Lindane)	1.00E+00	1	1	1.40E-02	1.30E+00	2.80E-08	2.80E-08	2.61E-07	2.61E-07	3.63E-08	3.40E-07	3.76E-07
Heptachlor	1.00E+00	1	1	1.10E-02	4.50E+00	2.80E-08	2.80E-08	2.05E-07	2.05E-07	1.28E-07	9.24E-07	1.05E-06

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg day)[1]	RME Construction/Utility Worker ADDing (mg/kg-day)	Lifetime Average Daily Dose Ing (mg/kg-day)	RME Construction/Utility Worker ADDder (mg/kg-day)	Lifetime Average Daily Dose Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Herbicides												
2 4,5-T	1 00E+00	NA	NA	1 40E-04	NA	NA	NA	NA	NA	NA	NA	NC
2 4 D	1 00E+00	NA	NA	6 45E-03	NA	NA	NA	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	1	1	6 50E-01	1 20E 01	2 80E 08	2 80E 08	1 21E 05	1 21E-05	3 35E 09	1 46E 06	1 46E 06
PCBs												
Total PCBs	1 00E+00	1	1 1	7 10E-01	2 00F+00	2 80E-08	2 80E 08	1 46E-05	1 46E-05	5 59E 08	2 92E 05	2 92E 05
Dioxin												
2 3 7,8 TCDD-TEQ	1 00E+00	1	1 8	1 40E+00	1 50E+05	2 80E 08	2 80E-08	4 70E-05	4 70E 05	4 19E-03	7 06E+00	7 06E+00
Metals												
Antimony	1 00E+00	NA	NA	1 60E 04	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1 00E+00	1	1	1 60E-04	1 50E+00	2 80F-08	2 80E 08	2 99F-09	2 99E-09	4 19E-08	4 48E 09	4 64E 08
Beryllium	1 00E+00	NA	NA	1 60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1 00E+00	NA	NA	6 67E-04	NA	NA	NA	NA	NA	NA	NA	NC
Cobalt	1 00E+00	NA	NA	4 00E-04	NA	NA	NA	NA	NA	NA	NA	NC
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	1 60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	1 67E-03	NA	NA	NA	NA	NA	NA	NA	NC
Nickel	1 00E+00	NA	NA	5 45E-05	NA	NA	NA	NA	NA	NA	NA	NC
Thallium	1 00E+00	NA	NA	1 60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Vanadium	1 00E+00	NA	NA	1 60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Zinc	1 00E+00	NA	NA	6 00E 04	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK - RME
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Reference Risk (per mg/L)	Shallow		Leachate					
		O - AA-O-1-16		O		Q		R	
		EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk
VOCs									
1,2-Dichloroethane	1 15E-08	--	NCOPC	--	NCOPC	2 15E+00	2 48E-08	5 00E+01	5 77E-07
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+01	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	7 90E+00	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	2 10E-01	NC	7 50E-01	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	1 40E+00	NC	3 20E+01	NC
Benzene	1 29E-08	--	NCOPC	9 20E-01	1 19E-08	4 25E-01	5 50E-09	6 80E+00	8.80E-08
Chlorobenzene	NC	--	NCOPC	1 70E+00	NC	1 15E+00	NC	1 30E+00	NC
Chloroform	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 00E+00	NC
Chloromethane	1 38E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	1 22E-09	--	NCOPC	-	NCOPC	4 70E-02	5 72E-11	1 90E+00	2 31E-09
Tetrachloroethene	4 99E-07	--	NCOPC		NCOPC	8 25E-02	4 12E 08	3 30E+01	1 65E-05
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 10E+01	NC
Trichloroethylene	1 31E-07	--	NCOPC	--	NCOPC	2 00E-02	2 61E-09	1 50E+02	1 96E-05
SVOCs									
2,4,6-Trichlorophenol	1 06E-08	--	NCOPC	3 80E-01	4 02E-09	1 25E+01	1 32E-07	--	NCOPC
2,4-Dichlorophenol	NC	--	NCOPC	3 20E-01	NC	1 70E+02	NC	-	NCOPC
2,4-Dimethylphenol	NC	--	NCOPC	--	NCOPC	2 40E-01	NC	-	NCOPC
2-Chlorophenol	NC	--	NCOPC	3 30E-01	NC	7 90E+00	NC	1 10E+01	NC
2 Nitroaniline	NC	--	NCOPC	2 60E-01	NC	1 55E+01	NC	--	NCOPC
3-Methylphenol/4-Methylphenol	NC	--	NCOPC	6 40E-01	NC	1 60E+00	NC	4 50E+00	NC
4-Chloroaniline	NC	--	NCOPC	4 20E+00	NC	9 30E+00	NC	4 20E+01	NC
4-Nitroaniline	NC	--	NCOPC	7 00E-01	NC	1 07E+00	NC	1 80E+01	NC
Benzo(a)pyrene	1 64E-04	1 60E-03	2 62E-07	--	NCOPC		NCOPC	--	NCOPC
Benzo(b)fluoranthene	1 64E-05	1.10E-03	1 80E-08	--	NCOPC	--	NCOPC	--	NCOPC
Benzo(g,h,i)perylene	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E+00	NC
Benzo(k)fluoranthene	1 64E-06	1 20E-03	1 96E-09	--	NCOPC		NCOPC	--	NCOPC
Dibenzo(a,h)anthracene	3 68E-04	2 70E-03	9 94E-07	--	NCOPC	--	NCOPC	--	NCOPC
Indeno(1,2,3-cd)pyrene	2 59E-05	3 00E-03	7.77E-08	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	NC	--	NCOPC	5 70E-01	NC	1 20E+00	NC	--	NCOPC
Nitrobenzene	NC	--	NCOPC	8 00E-02	NC	1 30E+00	NC	--	NCOPC
Phenol	NC	--	NCOPC	3 80E+00	NC	8 05E+00	NC	1 10E+03	NC
Pesticides									
4,4'-DDT	2 74E-06	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	5 75E-07
beta BHC	5 88E-07	--	NCOPC	2 50E-03	1 47E-09	1 35E-02	7 94E-09	2 00E-01	1 18E-07
Dieldrin	5 23E-06	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-01	9 93E-07
Endrin Ketone	NC	--	NCOPC	--	NCOPC	3 20E-03	NC	--	NCOPC
gamma-BHC (Lindane)	3 76E 07	--	NCOPC	--	NCOPC	--	NCOPC	2 80E-02	1 05E-08
Heptachlor	1 05E-06	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	2 20E-07

TABLE
POTENTIAL CARCINOGENIC RISK - RME
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Reference Risk (per mg/L)	Shallow		Leachate					
		O - AA-O-1-16		O		Q		R	
		EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk
Herbicides									
2,4,5-T	NC	--	NCOPC	4 80E-01	NC	--	NCOPC	--	NCOPC
2,4-D	NC	--	NCOPC	9 30E-01	NC	9 65E+01	NC	3 80E+00	NC
Pentachlorophenol	1 46E-06	--	NCOPC	7 80E-01	1 14E-06	4 60E+00	6 71E-06	--	NCOPC
PCBs									
Total PCBs	2 92E-05	--	NCOPC	5 49E-02	1 60E-06	1 04E-03	3 05E-08	3 98E+00	1 16E-04
Dioxin									
2,3,7,8-TCDD-TEQ	7 06E+00	--	NCOPC	6 87E 07	4 85E-06	--	NCOPC	3 14E-06	2 22E-05
Metals									
Antimony	NC	--	NCOPC	--	NCOPC	1 60E-02	NC	--	NCOPC
Arsenic	4 64E-08	7 00E-02	3 25E-09	--	NCOPC	-	NCOPC	--	NCOPC
Beryllium	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 10E-02	NC
Chromium	NC	--	NCOPC	--	NCOPC	--	NCOPC	6 00E-01	NC
Cobalt	NC	--	NCOPC	--	NCOPC	-	NCOPC	2 60E+00	NC
Lead	NC	1 90E-02	NC	--	NCOPC	--	NCOPC	--	NCOPC
Manganese	NC	4 10E+00	NC	1 80E+01	NC	1 80E+00	NC	2 50E+02	NC
Mercury	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E-02	NC
Nickel	NC	--	NCOPC	--	NCOPC	3 10E-01	NC	1 80E+00	NC
Thallium	NC	--	NCOPC	3 70E-03	NC	--	NCOPC	1 20E-01	NC
Vanadium	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 60E-01	NC
Zinc	NC	--	NCOPC	--	NCOPC	7 45E+00	NC	9 90E+01	NC
	Total:		**1.36E-06**		**7.81E-06**		**6.96E-06**		**1.77E-04**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg-day)	ADDing RME Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose Ing (mg/kg day)	ADDder RME Construction/Utilit Worker (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
VOCs												
1,2-Dichloroethane	1 00E+00	1	1	5 30E-03	2 00E-02	1 96E-06	1 96E 06	6 93E 06	6 93E-06	9 78E-05	3 46E-04	4 44E 04
1 2-Dichloroethene (total)	1 00E+00	1	1	1 00E-02	2 00E-02	1 96E-06	1 96E-06	31E-05	1 31E-05	9 78E-05	6 53E-04	7 51E-04
2-Butanone (MEK)	1 00E+00	1	1	1 10E-03	6 00E-01	1 96E-06	1 96E 06	44E 06	1 44E-06	3 26E-06	2 40E-06	5 66E-06
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	1	2 77E-03	8 00E-02	1 96E 06	1 96E-06	62E-06	3 62E-06	2 45E-05	4 52E-05	6 97E-05
Acetone	1 00E+00	1	1	5 69E-04	1 00E-01	1 96E-06	1 96E-06	44E 07	7 44E-07	1 96E-05	7 44E-06	2 70E-05
Benzene	1 00E+00	1	2 13	2 10E-02	4 00E-03	1 96E-06	1 96E-06	85E-05	5 85E-05	4 89E-04	1 46E-02	1 51E-02
Chlorobenzene	1 00E+00	1	1	4 10E-02	2 00E-02	1 96E-06	1 96E-06	36E-05	5 36E-05	9 78E-05	2 68E-03	2 78E-03
Chloroform	1 00E+00	1	1	8 90E-03	1 00E-02	1 96E-06	1 96E-06	16E-05	1 16E-05	1 96E-04	1 16E-03	1 36E-03
Chloromethane	1 00E+00	NA	NA	4 20E-03	NA	NA	NA	NA	NA	NA	NA	NC
Dichloromethane	1 00E+00	1	1 6	4 50E-03	6 00E-02	1 96E-06	1 96E-06	41E-06	9 41E-06	3 26E-05	1 57E 04	1 89E-04
Tetrachloroethene	1 00E+00	1	1	4 80E-02	1 00E-02	1 96E-06	1 96E 06	27E 05	6 27E-05	1 96E-04	6 27E-03	6 47E-03
Toluene	1 00E+00	1	1	4 50E-02	2 00E-01	1 96E-06	1 96E-06	88E-05	5 88E-05	9 78E-06	2 94E-04	3 04E-04
Trichloroethylene	1 00E+00	1	1	1 60E-02	3 00E-04	1 96E-06	1 96E-06	09E-05	2 09E-05	6 52E-03	6 97E-02	7 62E-02
SVOCs												
2 4 6 Trichlorophenol	1 00E+00	1	1	5 00E-02	1 00E-04	1 96E 06	1 96E 06	53E 05	6 53E 05	1 96E 02	6 53E-01	6 73E 01
2 4-Dichlorophenol	1 00E+00	1	1	2 30E-02	3 00E-03	1 96E-06	1 96E-06	01E-05	3 01E-05	6 52E-04	1 00E 02	1 07E-02
2 4-Dimethylphenol	1 00E+00	1	1	1 50E-02	2 00E-02	1 96E 06	1 96E 06	96E-05	1 96E 05	9 78E-05	9 80E 04	1 08E-03
2-Chlorophenol	1 00E+00	1	1	1 10E-02	5 00E-03	1 96E-06	1 96E 06	44E-05	1 44E-05	3 91E-04	2 88E-03	3 27E-03
2-Nitroaniline	1 00E+00	NA	NA	5 45E-03	NA	NA	NA	NA	NA	NA	NA	NC
3-Methylphenol/4 Methylphenol	1 00E+00	1	1	1 00E-02	5 00E-02	1 96E 06	1 96E-06	31E-05	1 31E-05	3 91E-05	2 61E-04	3 01E-04
4 Chloroaniline	1 00E+00	1	1	6 33E-03	4 00E-03	1 96E-06	1 96E-06	27E-06	6 27E-06	4 89E-04	2 07E 03	2 56E-03
4 Nitroaniline	1 00E+00	1	1	2 66E-03	3 00E-03	1 96E 06	1 96E-06	47E-06	3 47E 06	6 52E-04	1 16E-03	1 81E-03
Benzo(a)pyrene	1 00E+00	NA	NA	1 20E+00	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	1 20E+00	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(g,h,i)perylene	1 00E+00	1	1	5 34E+00	3 00E-02	1 96E 06	1 96E 06	98E-03	6 98E-03	6 52E-05	2 33E-01	2 33E-01
Benzo(k)fluoranthene	1 00E+00	NA	NA	1 20E+00	NA	NA	NA	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	2 70E+00	NA	NA	NA	NA	NA	NA	NA	NC
Indeno(1,2,3 cd)pyrene	1 00E+00	NA	NA	1 90E+00	NA	NA	NA	NA	NA	NA	NA	NC
Naphthalene	1 00E+00	1	1	6 90E-02	2 00E-02	1 96E 06	1 96E 06	02E-05	9 02E-05	9 78E-05	4 51E-03	4 61E-03
Nitrobenzene	1 00E+00	1	1	6 96E-03	5 00E-04	1 96E-06	1 96E-06	10E-06	9 10E-06	3 91E 03	1 82E-02	2 21E-02
Phenol	1 00E+00	1	1	5 50E 03	3 00E-01	1 96E-06	1 96E 06	19E 06	7 19E 06	6 52E-06	2 40E 05	3 05E 05
Pesticides												
4,4'-DDT	1 00E+00	1	1	4 30E-01	5 00E-04	1 96E 06	1 96E-06	62E-04	5 62E-04	3 91E-03	1 12E+00	1 13E+00
beta BHC	1 00E+00	1	1	1 60E-02	3 00E-04	1 96E-06	1 96E 06	09E 05	2 09E-05	6 52E 03	6 97E-02	7 62E 02
Dieldrin	1 00E+00	1	1	1 60E-02	5 00E-05	1 96E-06	1 96E-06	09E-05	2 09E 05	3 91E-02	4 18E-01	4 57E-01
Endrin Ketone	1 00E+00	1	1	1 60E-02	3 00E-04	1 96E 06	1 96E-06	09E-05	2 09E-05	6 52E-03	6 97E-02	7 62E-02
gamma-BHC (Lindane)	1 00E+00	1	1	1 40E 02	3 00E-04	1 96E 06	1 96E 06	83E 05	1 83E 05	6 52E-03	6 10E-02	6 75E-02
Heptachlor	1 00E+00	1	1	1 10E-02	5 00E-04	1 96E 06	1 96E-06	44E-05	1 44E-05	3 91E-03	2 88E-02	3 27E-02
Herbicides												
2,4,5-T	1 00E+00	1	1	1 40E-04	1 00E-02	1 96E-06	1 96E-06	84E 07	1 84E-07	1 96E-04	1 84E-05	2 14E-04
2 4-D	1 00E+00	1	1	8 45E-03	1 00E-02	1 96E-06	1 96E 06	10E-05	1 10E-05	1 96E-04	1 10E-03	1 30E-03
Pentachlorophenol	1 00E+00	1	1	6 50E-01	3 00E-02	1 96E-06	1 96E-06	49E-04	6 49E-04	6 52E-05	2 83E-02	2 84E-02

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral Water Absorption Adjustment Factor	Dermal Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg-day)	ADDing RME Construction/Utility Worker (mg/kg day)	Chronic Average Daily Dose Ing (mg/kg-day)	ADDder RME Construction/Utility Worker (mg/kg day)	Chronic Average Daily Dose Der (mg/kg-day)	Hazard Index Ingestion	Hazard Index Dermal Contact	Total Hazard Index
PCBs												
Total PCBs	1 00E+00	1	1 1	7 10E-01	2 00E-05	1 96E 06	1 96E 06	02E 03	1 02E 03	9 78E 02	5 10E+01	5 11E+01
Dioxin												
2 3 7 8 TCDD-TEQ	1 00E+00	NA	NA	1 40E+00	NA	NA	NA	NA	NA	NA	NA	NC
Metals												
Antimony	1 00E+00	1	6 7	1 60E-04	4 00E-04	1 96E 06	1 96E 06	40E 06	1 40E 06	4 89E 03	3 50E 03	8 39E-03
Arsenic	1 00E+00	1	1	1 60E-04	3 00E-04	1 96E 06	1 96E 06	09E 07	2 09E 07	6 52E 03	6 97E 04	7 22E 03
Beryllium	1 00E+00	1	100	1 60E-04	2 00E-03	1 96E 06	1 96E 06	09E 05	2 09E 05	9 78E 04	1 05E 02	1 14E-02
Chromium	1 00E+00	1	40	6 67E-04	3 00E-03	1 96E 06	1 96E 06	49E 05	3 49E-05	6 52E 04	1 18E 02	1 23E 02
Cobalt	1 00E+00	1	1	4 00E-04	2 00E-02	1 96E 06	1 96E 06	23E-07	5 23E 07	9 78E 05	2 61E-05	1 24E 04
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	10	1 60E-04	2 40E-02	1 96E 06	1 96E 06	09E 06	2 09E 06	8 15E 05	8 71E 05	1 69E-04
Mercury	1 00E+00	2	13 7	1 67E-03	3 00E-04	3 91E 06	3 91E 06	99E 05	2 99E 05	1 30E 02	9 97E 02	1 13E-01
Nickel	1 00E+00	1	77	5 45E-05	2 00E-02	1 96E 06	1 96E-06	48E 06	5 48E 06	9 78E 05	2 74E 04	3 72E-04
Thallium	1 00E+00	1	1	1 60E-04	6 67E-05	1 96E 06	1 96E 06	09E 07	2 09E-07	2 93E 02	3 13E-03	3 25E-02
Vanadium	1 00E+00	1	10	1 60E-04	7 00E-03	1 96E 06	1 96E 06	09E 06	2 09E 06	2 80E 04	2 99E 04	5 78E 04
Zinc	1 00E+00	1 6	3 03	6 00E-04	3 00E-01	3 13E 06	3 13E 06	38E 06	2 38E-06	1 04E 05	7 92E 06	1 84E 05

TABLE
POTENTIAL HAZARD INDEX - RME
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - RME

	Reference	Shallow		Leachate					
	HQ	O - AA-O-1-16		O		Q		R	
Constituent	(per mg/L)	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ
VOCs									
1,2 Dichloroethane	4 44E-04	--	NCOPC	--	NCOPC	2 15E+00	9 55E-04	5 00E+01	2 22E-02
1,2-Dichloroethene (total)	7 51E-04	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+01	9 77E-03
2-Butanone (MEK)	5 66E-06	--	NCOPC	--	NCOPC	--	NCOPC	7 90E+00	4 47E-05
4-Methyl-2-pentanone (MIBK)	6 97E-05	--	NCOPC	2 10E-01	1 46E-05	7 50E-01	5 23E-05	--	NCOPC
Acetone	2 70E-05	--	NCOPC	--	NCOPC	1 40E+00	3 78E-05	3 20E+01	8 64E-04
Benzene	1 51E-02	--	NCOPC	9 20E-01	1 39E-02	4 25E-01	6 42E-03	6 80E+00	1 03E-01
Chlorobenzene	2 78E-03	--	NCOPC	1 70E+00	4 72E-03	1 15E+00	3 19E-03	1 30E+00	3 61E-03
Chloroform	1 36E-03	--	NCOPC	--	NCOPC	--	NCOPC	2 00E+00	2 72E-03
Chloromethane	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	1 89E-04	--	NCOPC	-	NCOPC	4 70E-02	8 90E-06	1 90E+00	3 60E-04
Tetrachloroethene	6 47E-03		NCOPC	--	NCOPC	8 25E-02	5 34E-04	3 30E+01	2 13E-01
Toluene	3 04E-04	--	NCOPC	--	NCOPC	--	NCOPC	2 10E+01	6 38E-03
Trichloroethylene	7 62E-02	--	NCOPC	--	NCOPC	2 00E-02	1 52E-03	1 50E+02	1 14E+01
SVOCs									
2,4,6-Trichlorophenol	6 73E-01	--	NCOPC	3 80E-01	2 56E-01	1 25E+01	8 41E+00	--	NCOPC
2,4-Dichlorophenol	1 07E-02	--	NCOPC	3 20E-01	3 41E-03	1 70E+02	1 81E+00	-	NCOPC
2,4-Dimethylphenol	1 08E-03	--	NCOPC	--	NCOPC	2 40E-01	2 59E-04	--	NCOPC
2-Chlorophenol	3 27E-03	--	NCOPC	3 30E-01	1 08E 03	7 90E+00	2 58E-02	1 10E+01	3 59E-02
2-Nitroaniline	NC	--	NCOPC	2 60E-01	NC	1 55E+01	NC	--	NCOPC
3-Methylphenol/4-Methylphenol	3 01E-04	--	NCOPC	6 40E-01	1 92E-04	1 60E+00	4 81E-04	4 50E+00	1 35E-03
4-Chloroaniline	2 56E-03	--	NCOPC	4 20E+00	1 07E-02	9 30E+00	2 38E-02	4 20E+01	1 07E-01
4 Nitroaniline	1 81E-03	--	NCOPC	7 00E-01	1 27E-03	1 07E+00	1 94E-03	1 80E+01	3 26E-02
Benzo(a)pyrene	NC	1 60E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Benzo(b)fluoranthene	NC	1 10E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Benzo(g,h,i)perylene	2 33E-01	--	NCOPC	--	NCOPC	--	NCOPC	1 40E+00	3 26E-01
Benzo(k)fluoranthene	NC	1 20E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Dibenzo(a,h)anthracene	NC	2 70E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Indeno(1,2,3-cd)pyrene	NC	3 00E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	4 61E-03	--	NCOPC	5 70E-01	2 63E-03	1 20E+00	5 53E-03	--	NCOPC
Nitrobenzene	2 21E-02	--	NCOPC	8 00E-02	1.77E-03	1 30E+00	2 87E-02	--	NCOPC
Phenol	3 05E-05	--	NCOPC	3 80E+00	1 16E-04	8 05E+00	2 45E-04	1 10E+03	3 35E-02
Pesticides									
4,4'-DDT	1 13E+00	-	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	2 37E-01
beta-BHC	7 62E-02	--	NCOPC	2 50E-03	1 91E-04	1 35E-02	1 03E-03	2 00E-01	1 52E-02
Dieldrin	4 57E-01	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-01	8 69E-02
Endrin Ketone	7 62E-02	--	NCOPC	--	NCOPC	3 20E-03	2 44E-04	--	NCOPC
gamma-BHC (Lindane)	6 75E-02	--	NCOPC	--	NCOPC	--	NCOPC	2 80E-02	1 89E-03
Heptachlor	3 27E-02	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	6 86E-03

TABLE
POTENTIAL HAZARD INDEX - RME
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - RME

	Reference	Shallow		Leachate					
	HQ	O - AA-O-1-16		O		Q		R	
Constituent	(per mg/L)	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ
Herbicides									
2,4,5-T	2 14E-04	--	NCOPC	4 80E-01	1 03E-04	--	NCOPC		NCOPC
2,4-D	1 30E-03	--	NCOPC	9 30E-01	1 21E-03	9 65E+01	1 25E-01	3 80E+00	4 94E-03
Pentachlorophenol	2 84E-02	--	NCOPC	7 80E-01	2 21E-02	4 60E+00	1 31E-01	--	NCOPC
PCBs									
Total PCBs	5 11E+01	--	NCOPC	5 49E-02	2 81E+00	1 04E-03	5 34E-02	3 98E+00	2 04E+02
Dioxin									
2,3,7,8-TCDD-TEQ	NC	--	NCOPC	6 87E-07	NC	--	NCOPC	3 14E-06	NC
Metals									
Antimony	8 39E-03	--	NCOPC	--	NCOPC	1 60E-02	1 34E-04	--	NCOPC
Arsenic	7 22E-03	7 00E-02	5 05E-04	--	NCOPC	--	NCOPC	--	NCOPC
Beryllium	1 14E-02	--	NCOPC	--	NCOPC	--	NCOPC	3 10E 02	3 54E-04
Chromium	1 23E-02	--	NCOPC	--	NCOPC	--	NCOPC	6 00E-01	7 36E-03
Cobalt	1 24E-04	--	NCOPC	--	NCOPC	--	NCOPC	2 60E+00	3 22E-04
Lead	NC	1 90E-02	NC	--	NCOPC	--	NCOPC	--	NCOPC
Manganese	1 69E 04	4 10E+00	6 92E-04	1 80E+01	3 04E-03	1 80E+00	3 04E-04	2 50E+02	4 22E 02
Mercury	1 13E-01	--	NCOPC	--	NCOPC	--	NCOPC	1 30E-02	1 47E-03
Nickel	3 72E-04	--	NCOPC	--	NCOPC	3 10E-01	1 15E-04	1 80E+00	6 70E-04
Thallium	3 25E-02	--	NCOPC	3 70E-03	1 20E-04	--	NCOPC	1 20E 01	3 90E-03
Vanadium	5 78E-04	--	NCOPC	--	NCOPC	--	NCOPC	3 60E-01	2 08E-04
Zinc	1 84E-05	--	NCOPC	--	NCOPC	7 45E+00	1 37E-04	9 90E+01	1 82E-03
	Total HI:		**1.20E-03**		**3.13E+00**		**1.06E+01**		**2.16E+02**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient.
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor	RME Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER - RME INHALATION OF VOCs IN EXCAVATION TRENCH AIR		Assumed Value	Un ts	Calculated Value
Inhalation Rate	RME Construction/Utility Worker	2 5	(m^3 air/hour)	
Body Weight	RME Construction/Utility Worker	70	(kg)	
Exposure Time	RME Construction/Utility Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	RME Construction/Utility Worker	40	(days)/365 (days) =	1 10E 01
Exposure Duration (cancer)	RME Construction/Utility Worker	1	(yrs)/70(yrs) =	1 43E 02
Exposure Duration (noncancer)	RME Construction/Utility Worker	1	(yrs)/1(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF VOCs IN
EXCAVATION TRENCH AIR
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)$^{-1}$	ADDinh RME Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E-02	4 47E-04	4 47E-04	4 07E-05
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	4 47E-04	4 47E-04	3 44E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	2 95E-04	2 95E-04	2 38E-05
Chloromethane	1 00E+00	1	6 30E-03	4 47E-04	4 47E-04	2 82E-06
Dichloromethane	1 00E+00	1	1 65E-03	4 47E-04	4 47E-04	7 36E-07
Tetrachloroethene	1 00E+00	1	2 10E-02	4 47E-04	4 47E-04	9 39E-06
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	4 47E-04	4 47E-04	1 79E-04

TABLE
POTENTIAL CARCINOGENIC RISK
CONSTRUCTION/UTILITY WORKER - RME
EXCAVATION TRENCH AIR

Constituent	Reference Risk (per mg/m^3)	Shallow		Leachate					
		O - AA-O-1-16		O		Q		R	
		EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk
VOCs									
1,2-Dichloroethane	4 07E-05	--	NCOPC	--	NCOPC	5 78E-02	2 35E-06	1 35E+00	5 48E-05
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 86E-01	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 69E-01	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	4 51E-03	NC	1 61E-02	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	2 98E-02	NC	6 81E-01	NC
Benzene	3 44E-06	--	NCOPC	2 49E-02	8 58E-08	1 15E-02	3 96E-08	1 84E-01	6 34E-07
Chlorobenzene	NC	--	NCOPC	4 24E-02	NC	2 87E-02	NC	3 25E-02	NC
Chloroform	2 38E-05	--	NCOPC	--	NCOPC	--	NCOPC	5 48E-02	1 30E-06
Chloromethane	2 82E-06	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC
Dichloromethane	7 36E-07	--	NCOPC	--	NCOPC	1 42E-03	1 05E-09	5 76E-02	4 24E-08
Tetrachloroethene	9 39E-06	--	NCOPC	--	NCOPC	1 99E-03	1 87E-08	7 95E-01	7 47E-06
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	5 22E-01	NC
Trichloroethylene	1 79E-04	--	NCOPC	--	NCOPC	5 16E-04	9 24E-08	3 87E+00	6 93E-04
	Total:		**NCOPC**		**8 58E-08**		**2.51E-06**		**7.57E-04**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF VOCs IN
EXCAVATION TRENCH AIR
CONSTRUCTION/UTILITY WORKER - RME

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh RME Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	5 00E-03	3 13E-02	3 13E-02	6 26E+00
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	1 00E+00	3 13E-02	3 13E-02	3 13E-02
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	3 00E+00	3 13E-02	3 13E-02	1 04E-02
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	3 00E-02	3 13E-02	3 13E-02	1 04E+00
Chlorobenzene	1 00E+00	1	6 00E-02	3 13E-02	3 13E-02	5 22E-01
Chloroform	1 00E+00	1	5 00E-02	3 13E-02	3 13E-02	6 26E-01
Chloromethane	1 00E+00	1	9 00E-02	3 13E-02	3 13E-02	3 48E-01
Dichloromethane	1 00E+00	1	3 00E+00	3 13E-02	3 13E 02	1 04E-02
Tetrachloroethene	1 00E+00	1	6 00E-01	3 13E-02	3 13E-02	5 22E-02
Toluene	1 00E+00	1	4 00E-01	3 13E-02	3 13E-02	7 83E-02
Trichloroethylene	1 00E+00	1	4 00E-02	3 13E-02	3 13E-02	7 83E-01

TABLE
POTENTIAL HAZARD QUOTIENT
CONSTRUCTION/UTILITY WORKER - RME
EXCAVATION TRENCH AIR

Constituent	Reference HQ (per mg/m^3)	Shallow		Leachate					
		O - AA-O-1-16		O		Q		R	
		EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs									
1,2-Dichloroethane	6 26E+00	--	NCOPC	--	NCOPC	5 78E-02	3 62E-01	1 35E+00	8 42E+00
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 86E-01	NC
2-Butanone (MEK)	3 13E-02	--	NCOPC	--	NCOPC	--	NCOPC	1 69E-01	5 30E-03
4-Methyl-2-pentanone (MIBK)	1 04E-02	--	NCOPC	4 51E-03	4 70E-05	1 61E-02	1 68E-04	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	2 98E-02	NC	6 81E-01	NC
Benzene	1 04E+00	--	NCOPC	2 49E-02	2 60E-02	1 15E-02	1 20E-02	1 84E-01	1 92E-01
Chlorobenzene	5 22E-01	--	NCOPC	4 24E-02	2 22E-02	2 37E-02	1 50E-02	3 25E-02	1 69E-02
Chloroform	6 26E-01	--	NCOPC	--	NCOPC	--	NCOPC	5 48E-02	3 43E-02
Chloromethane	3 48E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	1 04E-02	--	NCOPC	--	NCOPC	1 42E-03	1 49E-05	5 76E-02	6 01E-04
Tetrachloroethene	5 22E-02	--	NCOPC	--	NCOPC	1 39E-03	1 04E-04	7 95E-01	4 15E-02
Toluene	7 83E-02	--	NCOPC	--	NCOPC	--	NCOPC	5 22E-01	4 08E-02
Trichloroethylene	7 83E-01	--	NCOPC	--	NCOPC	5 16E-04	4 04E-04	3 87E+00	3 03E+00
	Total HI:		**NCOPC**		**4.82E-02**		**3.90E-01**		**1.18E+01**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor:	MLE Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER - MLE INCIDENTIAL INGESTION AND DERMAL CONTACT WITH COMBINED SOIL		Assumed Value	Units	Calculated Value
Soil Ingestion Rate	MLE Construction/Utility Worker	64	(mg soil/day)	
Soil on Skin	MLE Construction/Utility Worker	0.19	(mg/cm^2)	
Skin Exposed	MLE Construction/Utility Worker	3339	(cm^2)	
Body Weight	MLE Construction/Utility Worker	70	(kg)	
Exposure Frequency	MLE Construction/Utility Worker	20	(days)/365(days) =	5.48E-02
Exposure Duration (cancer)	MLE Construction/Utility Worker	1	(years)/70(years) =	1.43E-02
Exposure Duration (noncancer)	MLE Construction/Utility Worker	1	(yrs)/1(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1.00E-06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
VOCs											
1 1 2-Trichloroethane	1 00E+00	1	0 01	5 70E-02	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	4 08E-11	4 04E-12	4 48E-11
1 2-Dichloroethane	1 00E+00	1	0 01	9 10E 02	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	6 51E-11	6 46E-12	7 16E-11
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4 Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	0 02	1 50E-02	7 16E-10	7 16E-10	1 42E-10	1 42E-10	1 07E-11	2 13E-12	1 29E-11
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chloroform	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dichloromethane	1 00E+00	1	0 016	7 50E-03	7 16E-10	7 16E-10	1 14E- 0	1 14E-10	5 37E-12	8 51E-13	6 22E-12
Ethylbenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Tetrachloroethene	1 00E+00	1	0 01	5 40E-01	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	3 86E-10	3 83E-11	4 25E-10
Toluene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	0 01	4 00E-01	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	2 86E-10	2 84E-11	3 15E-10
Xylenes, Total	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
SVOCs											
1,2 Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
1,3-Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
1,4-Dichlorobenzene	1 00E+00	1	0 01	2 40E-02	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	1 72E-11	1 70E-12	1 89E-11
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 10E-02	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	7 87E-12	7 80E-13	8 65E-12
2,4-Dichlorophenol	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
2-Chlorophenol	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
2-Methylnaphthalene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	2 10E-02	NA	NA	NA	NA	NC	NC	NC
Benzo(a)anthracene	1 00E+00	0 29	0 02	7 30E 01	2 08E-10	2 08E-10	1 42E- 0	1 42E-10	1 52E-10	1 04E-10	2 55E-10
Benzo(a)pyrene	1 00E+00	0 29	0 02	7 30E+00	2 08E-10	2 08E-10	1 42E 0	1 42E-10	1 52E-09	1 04E-09	2 55E-09
Benzo(b)fluoranthene	1 00E+00	0 29	0 02	7 30E-01	2 08E-10	2 08E-10	1 42E- 0	1 42E-10	1 52E-10	1 04E-10	2 55E-10
bis(2-Chloroethyl)ether	1 00E+00	1	0 01	1 10E+00	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	7 87E-10	7 80E-11	8 65E-10
bis(2-Ethylhexyl)phthalate	1 00E+00	1	0 004	1 40E 02	7 16E 10	7 16E-10	2 84E- 1	2 84E-11	1 00E-11	3 97E-13	1 04E-11
Dibenzo(a,h)anthracene	1 00E+00	0 29	0 02	7 30E+00	2 08E-10	2 08E-10	1 42E-10	1 42E-10	1 52E-09	1 04E-09	2 55E-09
Hexachlorobenzene	1 00E+00	0 83	0 04	1 60E+00	5 94E-10	5 94E-10	2 84E-10	2 84E-10	9 50E-10	4 54E-10	1 40E-09
Naphthalene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Nitrobenzene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides											
4,4'-DDE	1 00E+00	1	0 01	3 40E-01	7 16E-10	7 16E-10	7 09E-11	7 09E-11	2 43E-10	2 41E-11	2 67E-10
4,4'-DDT	1 00E+00	1	0 01	3 40E-01	7 16E-10	7 16E-10	7 09E 1	7 09E-11	2 43E-10	2 41E-11	2 67E-10
Aldrin	1 00E+00	1	0 01	1 70E+01	7 16E 10	7 16E 10	7 09E 1	7 09E-11	1 22E-08	1 21E-09	1 34E-08
alpha-BHC	1 00E+00	1	0 01	6 30E+00	7 16E-10	7 16E-10	7 09E 11	7 09E-11	4 51E-09	4 47E-10	4 96E 09
beta-BHC	1 00E+00	1	0 01	1 80E+00	7 16E 10	7 16E 10	7 09E- 1	7 09E-11	1 29E-09	1 28E-10	1 42E-09
delta-BHC	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	1	0 01	1 60E+01	7 16E-10	7 16E-10	7 09E-11	7 09E-11	1 15E-08	1 14E-09	1 26E-08
gamma-BHC (Lindane)	1 00E+00	1	0 01	1 30E+00	7 16E-10	7 16E-10	7 09E-11	7 09E-11	9 30E-10	9 22E-11	1 02E-09
Heptachlor	1 00E+00	1	0 01	4 50E+00	7 16E-10	7 16E-10	7 09E-11	7 09E-11	3 22E 09	3 19E-10	3 54E-09
Heptachlor Epoxide	1 00E+00	1	0 01	9 10E+00	7 16E-10	7 16E-10	7 09E- 1	7 09E-11	6 51E-09	6 46E-10	7 16E-09

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration in Soil (mg/kg soil)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Herbicides											
MCPA	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	1	0 01	1 20E-01	7 16E-10	7 16E-10	7 09E-11	7 09E-11	8 59E-11	8 51E-12	9 44E-11
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E+00	5 94E-10	5 94E-10	2 84E-10	2 84E-10	1 19E-09	5 68E-10	1 76E-09
Dioxin											
2,3,7,8-TCDD-TEQ	1 00E+00	0 4	0 04	1 50E+05	2 86E-10	2 86E-10	2 84E-10	2 84E-10	4 29E-05	4 26E-05	8 55E-05
Metals											
Antimony	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1 00E+00	0 3	0 001	1 50E+00	2 15E-10	2 15E-10	7 09E-12	7 09E-12	3 22E-10	1 06E-11	3 33E-10
Barium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Cadmium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Copper	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Lead	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Nickel	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - MLE
SAUGET AREA 2 RI/FS

Constituent	Reference Risk (per mg/kg)	O		O North		P		Q North		Q Central		Q South		R		S	
		EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
VOCs																	
1,1,2-Trichloroethane	4 48E-11	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 69E+00	7 57E-11	--	NCOPC
1,2-Dichloroethane	7 16E-11	--	NCOPC	--	NCOPC	--	NCOPC	3 23E-01	2 31E-11	--	NCOPC	--	NCOPC	1 68E+01	1 20E-09	--	NCOPC
1 2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 18E+00	NC	--	NCOPC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 03E+02	NC
Benzene	1 29E-11	9 64E+01	1 24E-09	4 35E+01	5 60E-10	6 62E-01	8 51E-12	6 77E-01	8 71E-12	--	NCOPC	1 34E-01	1 72E-12	2 62E+01	3 37E-10	1 18E+01	1 51E-10
Chlorobenzene	NC	2 20E+02	NC	3 22E+02	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 33E+02	NC	2 65E+02	NC
Chloroform	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 79E+00	NC	--	NCOPC
Dichloromethane	6 22E-12	--	NCOPC	3 67E+01	2 28E-10	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 64E+01	1 02E-10
Ethylbenzene	NC	4 85E+02	NC	5 05E+02	NC	8 69E+00	NC	3 47E+00	NC	-	NCOPC	1 36E+01	NC	9 04E+00	NC	3 01E+02	NC
Tetrachloroethene	4 25E-10	--	NCOPC	3 55E+00	1 51E-09	1 31E+01	5 56E-09	1 95E+00	8 30E-10	--	NCOPC	--	NCOPC	2 25E+02	9 54E-08	1 30E+01	5 51E-09
Toluene	NC	6 95E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 50E+01	NC	1 78E+02	NC	1 35E+03	NC
Trichloroethylene	3 15E-10	--	NCOPC	--	NCOPC	2 01E-01	6 31E-11	1 07E-01	3 36E-11	--	NCOPC	2 18E-02	6 87E-12	2 53E+02	7 98E-08	5 41E+01	1 70E-08
Xylenes, Total	NC	2 46E+03	NC	2 59E+03	NC	4 02E+01	NC	2 55E+01	NC	--	NCOPC	9 53E+01	NC	4 53E+01	NC	1 77E+03	NC
SVOCs																	
1 2-Dichlorobenzene	NC		NCOPC	2 47E+02	NC	-	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
1 3-Dichlorobenzene	NC	--	NCOPC	5 93E+00	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 39E+00	NC
1,4-Dichlorobenzene	1 89E-11	1 87E+01	3 53E-10	6 37E+01	1 20E-09	2 44E+01	4 61E-10	--	NCOPC	--	NCOPC	--	NCOPC	2 51E+00	4 75E-11	3 90E+01	7 36E-10
2,4,6-Trichlorophenol	8 65E-12	2 58E+00	2 23E-11	2 41E+01	2 08E-10	--	NCOPC	3 90E+00	3 37E-11	--	NCOPC	--	NCOPC	7 34E+01	6 36E-10	3 03E+00	2 63E-11
2,4-Dichlorophenol	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 29E+01	NC	--	NCOPC	--	NCOPC	3 27E+02	NC	--	NCOPC
2-Chlorophenol	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 73E+01	NC	--	NCOPC
2-Methylnaphthalene	NC	--	NCOPC	8 27E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
2-Nitroaniline	NC	1 13E+00	NC	2 30E+01	NC	--	NCOPC	3 81E+00	NC	--	NCOPC	--	NCOPC	1 52E+00	NC	2 16E+00	NC
4-Nitroaniline	NC	--	NCOPC	3 43E+02	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 12E+00	NC	1 94E+01	NC
Benzo(a)anthracene	2 55E-10	4 61E+00	1 18E-09	1 53E+01	3 91E-09	--	NCOPC	1 23E+00	3 15E-10	6 07E-01	1 55E-10	5 92E-01	1 51E-10	--	NCOPC	2 96E+00	7 55E-10
Benzo(a)pyrene	2 55E-09	2 88E+00	7 35E-09	6 52E+00	1 66E-08	2 63E 01	6 71E-10	1 32E+00	3 36E-09	6 42E-01	1 64E-09	6 83E-01	1 74E-09	--	NCOPC	2 32E+00	5 92E-09
Benzo(b)fluoranthene	2 55E-10	3 17E+00	8 09E-10	6 13E+00	1 56E-09	--	NCOPC	1 18E+00	3 00E-10	7 82E-01	2 00E-10	7 09E-01	1 81E-10	--	NCOPC	2 65E+00	6 75E-10
bis(2-Chloroethyl)ether	8 65E-10	--	NCOPC	1 14E+00	9 88E-10	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
bis(2-Ethylhexyl)phthalate	1 04E-11	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 03E+01	5 23E-10
Dibenzo(a,h)anthracene	2 55E-09	8 52E-01	2 17E-09	2 13E+00	5 42E-09	--	NCOPC	2 11E-01	5 39E-10	--	NCOPC	--	NCOPC	--	NCOPC	9 93E-01	2 53E-09
Hexachlorobenzene	1 40E-09	--	NCOPC	1 94E+00	2 73E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	NC	--	NCOPC	1 84E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 17E+01	NC	2 10E+01	NC
Nitrobenzene	NC	--	NCOPC	4 11E+00	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 63E+00	NC	--	NCOPC
Pesticides																	
4,4'-DDE	2 67E-10	--	NCOPC	1 70E+01	4 55E 09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC
4,4'-DDT	2 67E-10		NCOPC	2 04E+01	5 47E-09		NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 83E+00	7 56E-10
Aldrin	1 34E-08	1 46E-01	1 95E-09	2 20E+00	2 94E-08	--	NCOPC	--	NCOPC	1 89E-02	2 53E-10	3 92E-02	5 24E-10	--	NCOPC	6 05E-02	8 09E-10
alpha-BHC	4 96E-09	--	NCOPC	5 99E-01	2 97E-09	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
beta-BHC	1 42E-09	--	NCOPC	7 26E+00	1 03E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 49E-01	4 94E-10	4 38E+00	6 20E-09
delta-BHC	NC	9 17E-01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dieldrin	1 26E-08	1 27E+00	1 59E-08	1 95E+01	2 45E-07	1 26E-01	1 58E-09	3 45E-01	4 35E-09	7 01E-02	8 82E-10	1 33E-01	1 67E-09	3 41E-01	4 29E-09	1 13E-01	1 43E-09
gamma-BHC (Lindane)	1 02E-09	5 06E-01	5 18E-10	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 27E+00	1 30E-09
Heptachlor	3 54E-09	7 86E-01	2 78E-09	3 40E+00	1 20E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 86E-01	6 59E-10	2 73E-01	9 65E-10
Heptachlor Epoxide	7 16E-09	1 46E-01	1 05E-09	1 25E+00	8 95E-09	--	NCOPC	--	NCOPC	--	NCOPC	3 76E-02	2 69E-10	--	NCOPC	--	NCOPC
Herbicides																	
MCPA	NC	--	NCOPC	--	NCOPC	2 16E+01	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
MCPP	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 67E+01	NC	--	NCOPC
Pentachlorophenol	9 44E-11	--	NCOPC	--	NCOPC	--	NCOPC	6 54E+01	6 17E-09	1 63E+00	1 54E-10	3 57E+01	3 37E-09	--	NCOPC	1 15E+02	1 08E-08
PCBs																	
Total PCBs	1 76E-09	6 97E+01	1 22E-07	1 78E+03	3 13E-06	4 44F+00	7 80E-09	2 93E+01	5 14E-08	2 40E+00	4 21E-09	5 66E+00	9 93E-09	4 12E+01	7 23E-08	1 76E+02	3 09E-07

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER MLE
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/kg)	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
Dioxin																	
2 3 7 8-TCDD TEQ	8 55E 05	6 41E 03	5 48E-07	3 25E 01	2 78E 05	2 83E 04	2 42E-08	5 24E-03	4 48E 07	2 42E 03	2 07E-07	2 15E 03	1 84E-07	1 31E 03	1 12E 07	4 67E-03	3 99E 07
Metals																	
Antimony	NC		NCOPC	--	NCOPC	--	NCOPC	7 77E+00	NC		NCOPC	1 15E+01	NC	-	NCOPC	-	NCOPC
Arsenic	3 33E-10	--	NCOPC	2 00E+01	6 65E 09	1 29E+01	4 29E 09	1 18E+01	3 92E 09	1 47E+01	4 90E-09	1 31E+01	4 37E-09	6 12E+00	2 04E 09	--	NCOPC
Barium	NC		NCOPC		NCOPC		NCOPC	1 38E+03	NC		NCOPC		NCOPC		NCOPC	--	NCOPC
Cadmium	NC	--	NCOPC	3 93E+01	NC	1 07E+01	NC	1 23E+01	NC		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	NC	-	NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	8 82E+01	NC	--	NCOPC	1 79E+02	NC
Copper	NC	-	NCOPC		NCOPC	--	NCOPC		NCOPC	2 29E+03	NC	-	NCOPC	--	NCOPC	--	NCOPC
Lead	NC		NCOPC	-	NCOPC	-	NCOPC	1 96E+03	NC	-	NCOPC	8 28E+02	NC	--	NCOPC	8 38E+02	NC
Manganese	NC		NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	8 42E+02	NC	7 01E+02	NC		NCOPC	--	NCOPC
Mercury	NC	--	NCOPC	1 65E+02	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 58E+00	NC	2 51E+02	NC	--	NCOPC
Nickel	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 14E+02	NC	--	NCOPC	--	NCOPC
	Total:		7.06E-07		3 13E 06		4 47E-08		5 19E-07		2 20E-07		2 06E-07		3.70E-07		7 64E-07

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	MLE Construction/Utility Worker ADDing (mg/kg-day)	Chronic Average Daily Dose Ing (mg/kg-day)	MLE Construction/Utility Worker ADDder (mg/kg-day)	Chronic Average Daily Dose Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
VOCs											
1,1,2-Trichloroethane	1 00E+00	1	0 01	4 00E-03	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 25E-05	1 24E-06	1 38E-05
1,2-Dichloroethane	1 00E+00	1	0 01	2 00E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	2 50E-06	2 48E-07	2 75E-06
1,2-Dichloroethene (total)	1 00E+00	1	0 01	2 00E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	2 50E-06	2 48E-07	2 75E-06
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	0 01	8 00E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	6 26E-07	6 21E-08	6 88E-07
Benzene	1 00E+00	1	0 02	4 00E-03	5 01E-08	5 01E-08	9 93E-09	9 93E-09	1 25E-05	2 48E-06	1 50E-05
Chlorobenzene	1 00E+00	1	0 01	2 00E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	2 50E-06	2 48E-07	2 75E-06
Chloroform	1 00E+00	1	0 01	1 00E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	5 01E-06	4 97E-07	5 51E-06
Dichloromethane	1 00E+00	1	0 016	6 00E 02	5 01E-08	5 01E 08	7 95E-09	7 95E-09	8 35E-07	1 32E-07	9 67E-07
Ethylbenzene	1 00E+00	1	0 01	1 00E-01	5 01E-08	5 01E-08	4 97E-09	4 97E-09	5 01E-07	4 97E-08	5 51E-07
Tetrachloroethene	1 00E+00	1	0 01	1 00E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	5 01E-06	4 97E-07	5 51E-06
Toluene	1 00E+00	1	0 01	2 00E-01	5 01E-08	5 01E 08	4 97E-09	4 97E-09	2 50E-07	2 48E-08	2 75E-07
Trichloroethylene	1 00E+00	1	0 01	3 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 67E-04	1 66E-05	1 84E-04
Xylenes, Total	1 00E+00	1	0 011	2 00E 01	5 01E-08	5 01E 08	5 46E 09	5 46E-09	2 50E-07	2 73E-08	2 78E-07
SVOCs											
1 2-Dichlorobenzene	1 00E+00	1	0 01	9 00E-02	5 01E-08	5 01E 08	4 97E-09	4 97E-09	5 57E-07	5 52E-08	6 12E-07
1,3-Dichlorobenzene	1 00E+00	1	0 01	9 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	5 57E-05	5 52E-06	6 12E-05
1,4-Dichlorobenzene	1 00E+00	1	0 01	3 00E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 67E-06	1 66E-07	1 84E-06
2,4,6-Trichlorophenol	1 00E+00	1	0 01	1 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	5 01E-04	4 97E-05	5 51E-04
2,4-Dichlorophenol	1 00E+00	1	0 01	3 00E-03	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 67E-05	1 66E-06	1 84E-05
2-Chlorophenol	1 00E+00	1	0 01	5 00E-03	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 00E-05	9 93E-07	1 10E-05
2-Methylnaphthalene	1 00E+00	0 29	0 1	2 00E-02	1 45E-08	1 45E-08	4 97E-08	4 97E-08	7 26E-07	2 48E-06	3 21E-06
2 Nitroaniline	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
4 Nitroaniline	1 00E+00	1	0 01	3 00E-03	5 01E 08	5 01E 08	4 97E 09	4 97E-09	1 67E-05	1 66E-06	1 84E 05
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
bis(2-Chloroethyl)ether	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
bis(2-Ethylhexyl)phthalate	1 00E+00	1	0 004	2 00E-02	5 01E-08	5 01E-08	1 99E-09	1 99E-09	2 50E-06	9 93E-08	2 60E-06
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Hexachlorobenzene	1 00E+00	0 83	0 04	8 00E-04	4 16E-08	4 16E-08	1 99E-08	1 99E-08	5 20E-05	2 48E-05	7 68E-05
Naphthalene	1 00E+00	0 29	0 1	2 00E-02	1 45E-08	1 45E-08	4 97E-08	4 97E-08	7 26E-07	2 48E-06	3 21E-06
Nitrobenzene	1 00E+00	1	0 01	5 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 00E-04	9 93E-06	1 10E-04
Pesticides											
4,4'-DDE	1 00E+00	1	0 01	5 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 00E-04	9 93E-06	1 10E-04
4,4'-DDT	1 00E+00	1	0 01	5 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 00E-04	9 93E-06	1 10E-04
Aldrin	1 00E+00	1	0 01	3 00E-05	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 67E-03	1 66E-04	1 84E-03
alpha-BHC	1 00E+00	1	0 01	3 00E-04	5 01E-08	5 01E-08	4 97E 09	4 97E-09	1 67E-04	1 66E-05	1 84E-04
beta-BHC	1 00E+00	1	0 01	3 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 67E-04	1 66E-05	1 84E-04
delta-BHC	1 00E+00	1	0 01	3 00E-04	5 01E-08	5 01E-08	4 97E 09	4 97E-09	1 67E-04	1 66E-05	1 84E-04
Dieldrin	1 00E+00	1	0 01	5 00E-05	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 00E-03	9 93E-05	1 10E-03
gamma-BHC (Lindane)	1 00E+00	1	0 01	3 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 67E-04	1 66E-05	1 84E-04
Heptachlor	1 00E+00	1	0 01	5 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 00E-04	9 93E-06	1 10E-04
Heptachlor Epoxide	1 00E+00	1	0 01	1 30E-05	5 01E-08	5 01E-08	4 97E-09	4 97E-09	3 85E-03	3 82E-04	4 24E-03

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration in Soil (mg/kg-soil)	Oral - Soil Absorption Adjustment Factor	Dermal Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing MLE Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose Ing (mg/kg-day)	ADDder MLE Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose Der (mg/kg-day)	Hazard Index Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
Herbicides											
MCPA	1 00E+00	1	0 01	5 00E-04	5 01E-08	5 01E-08	4 97E-09	4 97E-09	1 00E-04	9 93E-06	1 10E-04
MCPP	1 00E+00	1	0 01	1 00E-03	5 01E-08	5 01E-08	4 97E 09	4 97E-09	5 01E-05	4 97E-06	5 51E-05
Pentachlorophenol	1 00E+00	1	0 01	3 00E-02	5 01E-08	5 01E 08	4 97E-09	4 97E-09	1 67E-06	1 66E-07	1 84E-06
PCBs											
Total PCBs	1 00E+00	0 83	0 04	2 00E-05	4 16E-06	4 16E-08	1 99E-08	1 99E-08	2 08E-03	9 93E-04	3 07E-03
Dioxin											
2,3,7,8 TCDD TEQ	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Metals											
Antimony	1 00E+00	1	0 007	4 00E-04	5 01E-08	5 01E 08	3 48E 09	3 48E-09	1 25E-04	8 69E-06	1 34E-04
Arsenic	1 00E+00	0 3	0 001	3 00E-04	1 50E-08	1 50E 08	4 97E-10	4 97E-10	5 01E-05	1 66E-06	5 18E-05
Barium	1 00E+00	1	0 001	7 00E-02	5 01E-08	5 01E-08	4 97E-10	4 97E-10	7 16E-07	7 09E-09	7 23E-07
Cadmium	1 00E+00	1	0 04	1 00E-03	5 01E-08	5 01E 08	1 99E-08	1 99E-08	5 01E-05	1 99E-05	7 00E-05
Chromium	1 00E+00	0 3	0	3 00E-03	1 50E-08	1 50E 08	0 00E+00	NA	5 01E-06	NC	5 01E-06
Copper	1 00E+00	1	0 002	3 70E-02	5 01E-08	5 01E 08	9 93E-10	9 93E-10	1 35E-06	2 68E-08	1 38E-06
Lead	1 00E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	0 01	2 40E-02	5 01E-08	5 01E-08	4 97E-09	4 97E-09	2 09E-06	2 07E-07	2 29E-06
Mercury	1 00E+00	2	0 007	3 00E-04	1 00E-07	1 00E 07	3 48E 09	3 48E-09	3 34E-04	1 16E-05	3 46E-04
Nickel	1 00E+00	1	0 08	2 00E-02	5 01E-08	5 01E-08	3 97E 08	3 97E-08	2 50E-06	1 99E-06	4 49E-06

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - MLE
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HI (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
VOCs																	
1 1,2-Trichloroethane	1 38E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 69E+00	2 33E-05	--	NCOPC
1 2-Dichloroethane	2 75E-06	--	NCOPC	--	NCOPC	--	NCOPC	3 23E-01	8 89E-07	--	NCOPC	--	NCOPC	1 68E+01	4 63E-05	--	NCOPC
1,2-Dichloroethene (total)	2 75E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 18E+00	1 70E-05	--	NCOPC
4-Methyl-2-pentanone (MIBK)	6 88E-07	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 03E+02	7 11E-05
Benzene	1 50E-05	9 64E+01	1 45E-03	4 35E+01	6 53E-04	6 62E-01	9 93E-06	6 77E-01	1 02E-05	--	NCOPC	1 34E-01	2 01E-06	2 62E+01	3 93E-04	1 18E+01	1 77E-04
Chlorobenzene	2 75E-06	2 20E+02	6 06E-04	3 22E+02	8 86E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 33E+02	6 42E-04	2 65E+02	7 30E-04
Chloroform	5 51E-06	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	2 79E+00	1 54E-05	--	NCOPC
Dichloromethane	9 67E-07	--	NCOPC	3 67E+01	3 55E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 64E+01	1 59E-05
Ethylbenzene	5 51E-07	4 85E+02	2 67E-04	5 05E+02	2 78E-04	8 69E+00	4 79E-06	3 47E+00	1 91E-06	--	NCOPC	1 36E+01	7 47E-06	9 04E+00	4 98E-06	3 01E+02	1 66E-04
Tetrachloroethene	5 51E-06	--	NCOPC	3 55E+00	1 95E-05	1 31E+01	7 21E-05	1 95E+00	1 08E-05	--	NCOPC	--	NCOPC	2 25E+02	1 24E-03	1 30E+01	7 14E-05
Toluene	2 75E-07	6 95E+01	1 91E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 50E+01	1 79E-05	1 78E+02	4 91E-05	1 35E+03	3 71E-04
Trichloroethylene	1 84E-04	--	NCOPC	--	NCOPC	2 01E-01	3 68E-05	1 07E-01	1 96E-05	--	NCOPC	2 18E-02	4 01E-06	2 53E+02	4 65E-02	5 41E+01	9 93E-03
Xylenes, Total	2 78E-07	2 46E+03	6 84E-04	2 59E+03	7 20E-04	4 02E+01	1 12E-05	2 55E+01	7 07E-06	-	NCOPC	9 53E+01	2 65E-05	4 53E+01	1 26E-05	1 77E+03	4 91E-04
SVOCs																	
1,2-Dichlorobenzene	6 12E-07	--	NCOPC	2 47E+02	1 51E-04	-	NCOPC	--	NCOPC		NCOPC	--	NCOPC	-	NCOPC	--	NCOPC
1,3-Dichlorobenzene	6 12E-05	--	NCOPC	5 93E+00	3 63E-04	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	3 39E+00	2 07E-04
1,4-Dichlorobenzene	1 84E-06	1 87E+01	3 44E-05	6 37E+01	1 17E-04	2 44E+01	4 48E-05	--	NCOPC	--	NCOPC	--	NCOPC	2 51E+00	4 62E-06	3 90E+01	7 16E-05
2 4,6-Trichlorophenol	5 51E-04	2 58E+00	1 42E-03	2 41E+01	1 32E-02	--	NCOPC	3 90E+00	2 15E-03	-	NCOPC	--	NCOPC	7 34E+01	4 04E-02	3 03E+00	1 67E-03
2 4-Dichlorophenol	1 84E-05	--	NCOPC	--	NCOPC	--	NCOPC	2 29E+01	4 21E-04	--	NCOPC	--	NCOPC	3 27E+02	6 01E-03	--	NCOPC
2-Chlorophenol	1 10E-05	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	3 73E+01	4 11E-04	--	NCOPC
2-Methylnaphthalene	3 21E-06	--	NCOPC	8 27E+01	2 66E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
2-Nitroaniline	NC	1 13E+00	NC	2 30E+01	NC	--	NCOPC	3 81E+00	NC	--	NCOPC	--	NCOPC	1 52E+00	NC	2 16E+00	NC
4-Nitroaniline	1 84E-05	--	NCOPC	3 43E+02	6 30E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 12E+00	7 55E-05	1 94E+01	3 55E-04
Benzo(a)anthracene	NC	4 61E+00	NC	1 53E+01	NC	--	NCOPC	1 23E+00	NC	6 07E-01	NC	5 92E-01	NC	--	NCOPC	2 96E+00	NC
Benzo(a)pyrene	NC	2 88E+00	NC	6 52E+00	NC	2 63E 01	NC	1 32E+00	NC	6 42E-01	NC	6 83E-01	NC	--	NCOPC	2 32E+00	NC
Benzo(b)fluoranthene	NC	3 17E+00	NC	6 13E+00	NC	-	NCOPC	1 18E+00	NC	7 82E-01	NC	7 09E-01	NC	--	NCOPC	2 65E+00	NC
bis(2-Chloroethyl)ether	NC	--	NCOPC	1 14E+00	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC
bis(2-Ethylhexyl)phthalate	2 60E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 03E+01	1 31E-04
Dibenzo(a,h)anthracene	NC	8 52E-01	NC	2 13E+00	NC	--	NCOPC	2 11E-01	NC	--	NCOPC	--	NCOPC	--	NCOPC	9 93E-01	NC
Hexachlorobenzene	7 68E-05	--	NCOPC	1 94E+00	1 49E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	3 21E-06	--	NCOPC	1 84E+01	5 90E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 17E+01	3 75E-05	2 10E+01	6 76E-05
Nitrobenzene	1 10E 04	--	NCOPC	4 11E+00	4 52E 04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	6 63E+00	7 30E-04	--	NCOPC
Pesticides																	
4,4'-DDE	1 10E 04	--	NCOPC	1 70E+01	1 87E 03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
4 4'-DDT	1 10E-04		NCOPC	2 04E+01	2 25E 03		NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 83E+00	3 11E-04
Aldrin	1 84E-03	1 46E-01	2 67E-04	2 20E+00	4 04E 03	--	NCOPC	--	NCOPC	1 89E-02	3 47E-05	3 92E-02	7 20E-05	--	NCOPC	6 05E-02	1 11E-04
alpha-BHC	1 84E-04	--	NCOPC	5 99E-01	1 10E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
beta-BHC	1 84E-04	--	NCOPC	7 26E+00	1 33E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	3 49E-01	6 40E-05	4 38E+00	8 03E-04
delta-BHC	1 84E-04	9 17E-01	1 68E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dieldrin	1 10E-03	1 27E+00	1 39E-03	1 95E+01	2 14E-02	1 26E-01	1 38E-04	3 45E-01	3 80E-04	7 01E-02	7 72E-05	1 33E-01	1 46E-04	3 41E-01	3 75E-04	1 13E-01	1 25E-04
gamma-BHC (Lindane)	1 84E-04	5 06E-01	9 29E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 27E+00	2 34E-04
Heptachlor	1 10E-04	7 86E-01	8 66E-05	3 40E+00	3 74E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 86E-01	2 05E-05	2 73E 01	3 00E-05
Heptachlor Epoxide	4 24E-03	1 46E-01	6 19E-04	1 25E+00	5 30E-03	--	NCOPC	--	NCOPC	--	NCOPC	3 76E-02	1 59E-04	--	NCOPC	--	NCOPC
Herbicides																	
MCPA	1 10E-04	--	NCOPC	--	NCOPC	2 16E+01	2 38E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
MCPP	5 51E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	4 67E+01	2 57E-03	--	NCOPC
Pentachlorophenol	1 84E-06	--	NCOPC	--	NCOPC	--	NCOPC	6 54E+01	1 20E-04	1 63E+00	2 99E-06	3 57E+01	6 55E-05	--	NCOPC	1 15E+02	2 10E-04
PCBs																	
Total PCBs	3 07E-03	6 97E+01	2 14E-01	1 78E+03	5 48E+00	4 44E+00	1 36E-02	2 93E+01	9 00E-02	2 40E+00	7 36E-03	5 66E+00	1 74E-02	4 12E+01	1 27E-01	1 76E+02	5 40E-01

TABLE
POTENTIAL HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT WITH
COMBINED SOIL
CONSTRUCTION/UTILITY WORKER - MLE
SAUGET AREA 2 RI/FS

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HI (per mg/kg)	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
Dioxin																	
2,3,7,8-TCDD-TEQ	NC	6 41E-03	NC	3 25E-01	NC	2 83E-04	NC	5 24E-03	NC	2 42E-03	NC	2 15E-03	NC	1 31E-03	NC	4 67E-03	NC
Metals																	
Antimony	1 34E-04	--	NCOPC	--	NCOPC	--	NCOPC	7 77E+00	1 04E-03	--	NCOPC	1 15E+01	1 54E-03	--	NCOPC	--	NCOPC
Arsenic	5 18E-05	--	NCOPC	2 00E+01	1 04E-03	1 29E+01	6 68E-04	1 18E+01	6 10E-04	1 47E+01	7 62E-04	1 31E+01	6 79E-04	6 12E+00	3 17E-04	--	NCOPC
Barium	7 23E-07	--	NCOPC	--	NCOPC	--	NCOPC	1 38E+03	9 95E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Cadmium	7 00E-05	--	NCOPC	3 93E+01	2 75E-03	1 07E+01	7 46E-04	1 23E+01	8 58E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	5 01E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 82E+01	4 42E-04	--	NCOPC	1 79E+02	8 98E-04
Copper	1 38E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 29E+03	3 16E-03	--	NCOPC	--	NCOPC	--	NCOPC
Lead	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 96E+03	NC	--	NCOPC	8 28E+02	NC	--	NCOPC	8 38E+02	NC
Manganese	2 29E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	8 42E+02	1 93E-03	7 01E+02	1 61E-03	--	NCOPC	--	NCOPC
Mercury	3 46E-04	--	NCOPC	1 65E+02	5 70E-02	--	NCOPC	--	NCOPC	--	NCOPC	2 58E+00	8 90E-04	2 51E+02	8 66E-02	--	NCOPC
Nickel	4 49E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	2 14E+02	9 60E-04	--	NCOPC	--	NCOPC
	Total HI:		**2.21E-01**		**5.60E+00**		**1.78E-02**		**9.66E-02**		**1.33E-02**		**2.40E-02**		**3.13E-01**		**5.67E-01**

Notes
-- Not a constituent of concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated:	
Receptor.	MLE Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER - MLE INHALATION OF EXCAVATION AIR FROM SOIL		Assumed Value	Units	Calculated Value
Inhalation Rate	MLE Construction/Utility Worker	1 5	(m^3 air/hour)	
Body Weight	MLE Construction/Utility Worker	70	(kg)	
Exposure Time	MLE Construction/Utility Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	MLE Construction/Utility Worker	20	(days)/365 (days) =	5 48E-02
Exposure Duration (cancer)	MLE Construction/Utility Worker	1	(yrs)/70(yrs) =	1 43E-02
Exposure Duration (noncancer)	MLE Construction/Utility Worker	1	(yrs)/1(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day)[1]	ADDinh MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs (a)						
1 1,2-Trichloroethane	1 00E+00	1	5 60E-02	1 34E-04	1 34E-04	7 51E-06
1,2-Dichloroethane	1 00E+00	1	9 10E-02	1 34E-04	1 34E-04	1.22E-05
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	1 34E-04	1 34E-04	1 03E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	8 86E-05	8 86E-05	7 13E-06
Dichloromethane	1 00E+00	1	1 65E-03	1 34E-04	1 34E-04	2.21E-07
Ethylbenzene	1 00E+00	1	NA	1 34E-04	1 34E-04	NC
Tetrachloroethene	1 00E+00	1	2 10E-02	1 34E-04	1 34E-04	2 82E-06
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	1 34E-04	1 34E-04	5 37E-05
Xylenes Total	1 00E+00	NA	NA	NA	NA	NC
SVOCs (b)						
1,2-Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NC
1,3-Dichlorobenzene	1 00E+00	NA	NA	NA	NA	NC
1 4-Dichlorobenzene	1 00E+00	1	2.20E-02	1 34E-04	1 34E-04	2 95E-06
2,4 6-Trichlorophenol	1 00E+00	1	1 09E-02	1 34E-04	1 34E-04	1 46E-06
2 4-Dichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Chlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Methylnaphthalene	1 00E+00	NA	NA	NA	NA	NC
2-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
4-Nitroaniline	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)anthracene	1 00E+00	1	3 10E-01	1 34E-04	1 34E-04	4 16E-05
Benzo(a)pyrene	1 00E+00	1	3 10E+00	1 34E-04	1 34E-04	4 16E-04
Benzo(b)fluoranthene	1 00E+00	1	3 10E-01	1 34E-04	1 34E-04	4 16E-05
bis(2-Chloroethyl)ether	1 00E+00	1	1 16E+00	1 34E-04	1 34E-04	1 55E-04
bis(2-Ethylhexyl)phthalate	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a h)anthracene	1 00E+00	1	3 10E+00	1 34E-04	1 34E-04	4 16E-04
Hexachlorobenzene	1 00E+00	1	1 61E+00	1 34E-04	1 34E-04	2 16E-04
Naphthalene	1 00E+00	NA	NA	NA	NA	NC
Nitrobenzene	1 00E+00	NA	NA	NA	NA	NC
Pesticides (b)						
4 4 -DDE	1 00E+00	NA	NA	NA	NA	NC
4 4' DDT	1 00E+00	1	3 40E-01	1 34E-04	1 34E-04	4 56E-05
Aldrin	1 00E+00	1	1 72E+01	1 34E-04	1 34E-04	2 30E-03
alpha-BHC	1 00E+00	1	6 30E+00	1 34E-04	1 34E-04	8 45E-04
beta-BHC	1 00E+00	1	1 86E+00	1 34E-04	1 34E-04	2 49E-04
delta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	1	1 61E+01	1 34E-04	1 34E-04	2 16E-03
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	1	4 55E+00	1 34E-04	1 34E-04	6 11E-04
Heptachlor Epoxide	1 00E+00	1	9 10E+00	1 34E-04	1 34E-04	1.22E-03
Herbicides (b)						
MCPA	1 00E+00	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	1	2.00E+00	1 34E-04	1 34E-04	2 68E-04
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	0 55	1 50E+05	7 38E-05	7 38E-05	1 11E+01
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	1	1 51E+01	1 34E-04	1 34E-04	2 03E-03
Barium	1 00E+00	NA	NA	NA	NA	NC
Cadmium	1 00E+00	1	6 30E+00	1 34E-04	1 34E-04	8 45E-04
Chromium	1 00E+00	1	4.20E+01	1 34E-04	1.34E-04	5 64E-03
Copper	1 00E+00	NA	NA	NA	NA	NC
Lead	1 00E+00	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	NA	NA	NC
Mercury	1 00E+00	NA	NA	NA	NA	NC
Nickel	1 00E+00	NA	NA	NA	NA	NC

TABLE
CARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER MLE

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/m³)	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk
VOCs (a)																	
1 1 2 Trichloroethane	7 51E 06		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 30E 04	9 77E 10		NCOPC
1 2 Dichloroethane	1 22E 05		NCOPC		NCOPC		NCOPC	2 90E 04	3 54E 09		NCOPC		NCOPC	7 40E 04	9 04E 09		NCOPC
1 2 Dichloroethene (total)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 70E 04	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 50E 02	NC
Benzene	1 03E 06	1 70E 01	1 76E 07	7 60E 02	7 85E 08	1 10E 03	1 14E 09	1 20E 03	1 24E 09		NCOPC	2 30E 04	2 38E 10	1 20E 03	1 24E 09	5 40E 04	5 58E 10
Chlorobenzene	NC	1 60E 01	NC	2 30E 01	NC		NCOPC		NCOPC		NCOPC		NCOPC	5 60E 03	NC	6 40E 03	NC
Chloroform	7 13E 06		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 10E 04	7 84E 10		NCOPC
Dichloromethane	2 21E 07		NCOPC	8 30E 02	1 83E 08		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 20E 03	2 65E 10
Ethylbenzene	NC	3 90E 01	NC	4 10E 01	NC	7 10E 03	NC	2 80E 03	NC		NCOPC	1 10E 02	NC	1 70E 04	NC	5 80E 03	NC
Tetrachloroethene	2 82E 06		NCOPC	6 30E 03	1 78E 08	2 30E 02	6 48E 08	3 50E 03	9 88E 09		NCOPC		NCOPC	7 20E 03	2 03E 08	4 20E 04	1 18E 09
Toluene	NC	8 70E 02	NC		NCOPC		NCOPC		NCOPC		NCOPC	8 10E 02	NC	5 80E 03	NC	4 40E 02	NC
Trichloroethylene	5 37E 05		NCOPC		NCOPC	3 20E 04	1 72E 08	1 70E 04	9 12E 09		NCOPC	3 40E 05	1 82E 09	2 60E 02	1 40E 06	5 60E 03	3 01E 07
Xylenes Total	NC	2 30E+00	NC	2 40E+00	NC	3 70E 02	NC	2 30E 02	NC		NCOPC	8 80E 02	NC	1 10E 03	NC	4 20E 02	NC
SVOCs (b)																	
1 2 Dichlorobenzene	NC		NCOPC	1 48E 05	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
1 3 Dichlorobenzene	NC		NCOPC	3 56E 07	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 03E 07	NC
1 4 Dichlorobenzene	2 95E 06	1 12E 06	3 32E 12	3 82E 06	1 13E 11	1 47E 06	4 33E 12		NCOPC		NCOPC		NCOPC	1 51E 07	4 45E 13	2 34E 06	6 91E 12
2 4 6-Trichlorophenol	1 46E 06	1 55E 07	2 25E 13	1 44E 06	2 10E 12		NCOPC	2 34E 07	3 40E 13		NCOPC		NCOPC	4 41E 06	6 42E 12	1 82E 07	2 65E 13
2 4 Dichlorophenol	NC		NCOPC		NCOPC		NCOPC	1 38E 06	NC		NCOPC		NCOPC	1 96E 05	NC	--	NCOPC
2 Chlorophenol	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 24E 06	NC	--	NCOPC
2 Methylnaphthalene	NC	--	NCOPC	4 96E 06	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
2 Nitroaniline	NC	6 75E 08	NC	1 38E 06	NC		NCOPC	2 28E 07	NC		NCOPC		NCOPC	9 12E 08	NC	1 29E 07	NC
4 Nitroaniline	NC		NCOPC	2 06E 05	NC		NCOPC		NCOPC		NCOPC		NCOPC	2 47E 07	NC	1 16E 06	NC
Benzo(a)anthracene	4 16E 05	2 77E 07	1 15E 11	9 21E 07	3 83E 11		NCOPC	7 40E 08	3 08E 12	3 64E 08	1 52E 12	3 55E 08	1 48E 12		NCOPC	1 78E 07	7 39E 12
Benzo(a)pyrene	4 16E 04	1 73E 07	7 20E 11	3 91E 07	1 63E 10	1 58E 08	6 56E 12	7 91E 08	3 29E 11	3 85E 08	1 30E 11	4 10E 08	1 70E 11		NCOPC	1 39E 07	5 79E 11
Benzo(b)fluoranthene	4 16E 05	1 90E 07	7 92E 12	3 68E 07	1 53E 11		NCOPC	7 07E 08	2 94E 12	4 69E 08	1 95E 12	4 25E 08	1 77E 12		NCOPC	1 59E 07	6 61E 12
bis(2 Chloroethyl)ether	1 55E 04		NCOPC	6 85E 08	1 06E 11		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
bis(2 Ethylhexyl)phthalate	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	3 02E 06	NC
Dibenzo(a h)anthracene	4 16E 04	5 11E 08	2 13E 11	1 28E 07	5 30E 11		NCOPC	1 27E 08	5 27E 12		NCOPC		NCOPC		NCOPC	5 96E 08	2 48E 11
Hexachlorobenzene	2 16E 04		NCOPC	1 17E 07	2 52E 11		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
Naphthalene	NC		NCOPC	1 10E 06	NC		NCOPC		NCOPC		NCOPC		NCOPC	7 02E 07	NC	1 26E 06	NC
Nitrobenzene	NC		NCOPC	2 47E 07	NC		NCOPC		NCOPC		NCOPC		NCOPC	3 98E 07	NC		NCOPC
Pesticides (b)																	
4 4 DDE	NC		NCOPC	1 02E 06	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
4 4 DDT	4 56E 05		NCOPC	1 23E 06	5 59E 11		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 70E 07	7 73E 12
Aldrin	2 30E 03	8 74E 09	2 01E 11	1 32E 07	3 04E 10		NCOPC		NCOPC	1 14E 09	2 31E 12	2 35E 09	5 41E 12		NCOPC	3 63E 09	8 35E 12
alpha BHC	8 45E 04		NCOPC	3 59E 08	3 04E 11		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
beta BHC	2 49E 04	--	NCOPC	4 35E 07	1 08E 10		NCOPC		NCOPC		NCOPC		NCOPC	2 09E 08	5 21E 12	2 63E 07	6 54E 11
delta BHC	NC	5 50E 08	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
Dieldrin	2 16E 03	7 60E 08	1 64E 10	1 17E 06	2 52E 09	7 53E 09	1 63E 11	2 07E 08	4 48E 11	4 21E 09	9 09E 12	7 96E 09	1 72E 11	2 04E 08	4 42E 11	6 80E 09	1 47E 11
gamma BHC (Lindane)	NC	3 04E 08	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	7 64E 08	NC
Heptachlor	6 11E 04	4 72E 08	2 88E 11	2 04E 07	1 25E 10		NCOPC		NCOPC		NCOPC		NCOPC	1 12E 08	6 82E 12	1 64E 08	9 98E 12
Heptachlor Epoxide	1 22E 03	8 77E 09	1 07E 11	7 50E 08	9 16E 11		NCOPC		NCOPC		NCOPC	2 26E 09	2 75E 12		NCOPC	--	NCOPC
Herbicides (b)																	
MCPA	NC		NCOPC		NCOPC	1 30E 06	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC
MCPP	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	2 80E 06	NC		NCOPC
Pentachlorophenol	NC		NCOPC		NCOPC		NCOPC	3 92E 06	NC	9 76E 08	NC	2 14E 06	NC		NCOPC	6 88E 06	NC

TABLE
CARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER MLE

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	Risk (per mg/m³)	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk	EPC (mg/m³)	Risk
PCBs (b)																	
Total PCBs	2 68E 04	4 18E 06	1 12E 09	1 07E 04	2 87E 08	2 67E 07	7 15E 11	1 76E 06	4 72E 10	1 44E 07	3 36E 11	3 39E 07	9 11E 11	2 47E 06	6 63E 10	1 05E 05	2 83E 09
Dioxin (b)																	
2 3 7 8-TCDD TEQ	1 11E+01	3 85E 10	4 26E 09	1 95E 08	2 16E 07	1 70E 11	1 88E 10	3 14E 10	3 48E 09	1 45E 10	1 31E 09	1 29E 10	1 43E 09	7 89E 11	8 73E 10	2 80E 10	3 10E 09
Metals (b)																	
Antimony	NC		NCOPC		NCOPC		NCOPC	4 66E 07	NC		NCOPC	6 89E 07	NC		NCOPC		NCOPC
Arsenic	2 03E 03		NCOPC	1 20E 06	2 43E 09	7 75E 07	1 57E 09	7 07E 07	1 43E 09	8 83E 07	1 79E 09	7 88E 07	1 60E 09	3 67E 07	7 44E 10		NCOPC
Barium	NC		NCOPC		NCOPC		NCOPC	8 26E 05	NC		NCOPC		NCOPC		NCOPC		NCOPC
Cadmium	8 45E 04		NCOPC	2 36E 06	2 00E 09	6 40E 07	5 41E 10	7 36E 07	6 22E 10		NCOPC		NCOPC		NCOPC		NCOPC
Chromium	5 64E 03		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	5 29E 06	2 98E 08		NCOPC	1 08E 05	6 06E 08
Copper	NC		NCOPC		NCOPC		NCOPC		NCOPC	1 37E 04	NC		NCOPC		NCOPC		NCOPC
Lead	NC		NCOPC		NCOPC		NCOPC	1 17E 04	NC		NCOPC	4 97E 05	NC	–	NCOPC	5 03E 05	NC
Manganese	NC		NCOPC		NCOPC		NCOPC		NCOPC	5 05E 05	NC	4 21E 05	NC		NCOPC		NCOPC
Mercury	NC		NCOPC	9 90E 06	NC		NCOPC		NCOPC		NCOPC	1 55E 07	NC	1 50E 05	NC		NCOPC
Nickel	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 28E 05	NC		NCOPC		NCOPC
	Total		1 81E 07		3 67E 07		8 55E 08		2 99E 08		3 47E 09		3 51E 08		1 43E 08		3 69E 07

Notes
Not a constituent of potential concern in this area/medium
EPC Exposure Point Concentration
NC N dose response value
NCOPC Not calculated because not a constituent of potential concern in this area/med um
MLE Most Likely Exposure
PCBs Polychlorinated Biphenyls
SVOCs Semi Volatile Organic Compounds
TCDD TEQ Tetrachlorodibenzo-p dioxin Toxic Equivalents Concentration
VOCs Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDinh MLE Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-inh (mg/kg-day)	Hazard Index - Inhalation
VOCs (a)						
1,1,2-Trichloroethane	1 00E+00	NA	NA	NA	NA	NC
1,2-Dichloroethane	1 00E+00	1	1 40E-03	9 39E-03	9 39E-03	6 71E+00
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	8 57E-01	9 39E-03	9 39E-03	1 10E-02
Benzene	1 00E+00	1	8 57E-03	9 39E-03	9 39E-03	1 10E+00
Chlorobenzene	1 00E+00	1	1 70E-02	9 39E-03	9 39E-03	5 53E-01
Chloroform	1 00E+00	1	1 43E-02	9 39E-03	9 39E-03	6 57E-01
Dichloromethane	1 00E+00	1	8 60E-01	9 39E-03	9 39E-03	1 09E-02
Ethylbenzene	1 00E+00	1	2.86E-01	9 39E-03	9 39E-03	3.28E-02
Tetrachloroethene	1 00E+00	1	1 70E-01	9 39E-03	9 39E-03	5.53E-02
Toluene	1 00E+00	1	1 14E-01	9 39E-03	9 39E-03	8 24E-02
Trichloroethylene	1 00E+00	1	1 00E-02	9 39E-03	9 39E-03	9 39E-01
Xylenes Total	1 00E+00	1	2.86E-02	9 39E-03	9 39E-03	3.29E-01
SVOCs (b)						
1,2-Dichlorobenzene	1 00E+00	1	5 70E-02	9 39E-03	9 39E-03	1 65E-01
1,3-Dichlorobenzene	1 00E+00	1	2.29E-01	9 39E-03	9 39E-03	4 11E-02
1,4-Dichlorobenzene	1 00E+00	1	2.29E-01	9 39E-03	9 39E-03	4 11E-02
2,4,6-Trichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2 4-Dichlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Chlorophenol	1 00E+00	NA	NA	NA	NA	NC
2-Methylnaphthalene	1 00E+00	1	8 57E-04	9 39E-03	9 39E-03	1 10E+01
2-Nitroaniline	1 00E+00	1	5 71E-05	9 39E-03	9 39E-03	1 64E+02
4-Nitroaniline	1 00E+00	1	1 14E-03	9 39E-03	9 39E-03	8.24E+00
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NA	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	NA	NA	NC
bis(2-Chloroethyl)ether	1 00E+00	NA	NA	NA	NA	NC
bis(2-Ethylhexyl)phthalate	1 00E+00	NA	NA	NA	NA	NC
Dibenzo(a h)anthracene	1 00E+00	NA	NA	NA	NA	NC
Hexachlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Naphthalene	1 00E+00	1	8 57E-04	9 39E-03	9 39E-03	1 10E+01
Nitrobenzene	1 00E+00	1	5 70E-04	9 39E-03	9 39E-03	1 65E+01
Pesticides (b)						
4 4 -DDE	1 00E+00	NA	NA	NA	NA	NC
4 4 -DDT	1 00E+00	NA	NA	NA	NA	NC
Aldrin	1 00E+00	NA	NA	NA	NA	NC
alpha-BHC	1 00E+00	NA	NA	NA	NA	NC
beta-BHC	1 00E+00	NA	NA	NA	NA	NC
delta-BHC	1 00E+00	NA	NA	NA	NA	NC
Dieldrin	1 00E+00	NA	NA	NA	NA	NC
gamma-BHC (Lindane)	1 00E+00	NA	NA	NA	NA	NC
Heptachlor	1 00E+00	NA	NA	NA	NA	NC
Heptachlor Epoxide	1 00E+00	NA	NA	NA	NA	NC
Herbicides (b)						
MCPA	1 00E+00	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	NA	NA	NA	NA	NC
PCBs (b)						
Total PCBs	1 00E+00	NA	NA	NA	NA	NC
Dioxin (b)						
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NA	NC
Metals (b)						
Antimony	1 00E+00	NA	NA	NA	NA	NC
Arsenic	1 00E+00	NA	NA	NA	NA	NC
Barium	1 00E+00	1	1 40E-04	9 39E-03	9 39E-03	6 71E+01
Cadmium	1 00E+00	NA	NA	NA	NA	NC
Chromium	1 00E+00	1	2.86E-05	9 39E-03	9 39E-03	3.28E+02
Copper	1 00E+00	NA	NA	NA	NA	NC
Lead	1 00E+00	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	1 43E-05	9 39E-03	9 39E-03	6 58E+02
Mercury	1 00E+00	1	8 57E-05	9 39E-03	9 39E-03	1 10E+02
Nickel	1 00E+00	NA	NA	NA	NA	NC

TABLE
POTENTIAL HAZARD QUOTIENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER MLE

Constituent	Reference HQ (per mg/m³)	O		O North		P		Q North		Q Central		Q South		R		S	
		EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ
VOCs (a)																	
1 1 2-Trichloroethane	NC		NCOPC	-	NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	1 30E 04	NC		NCOPC
1 2 Dichloroethane	6 71E+00		NCOPC	-	NCOPC		NCOPC	2 90E 04	1 95E 03		NCOPC		NCOPC	7 40E 04	4 97E 03		NCOPC
1 2-Dichloroethene (total)	NC		NCOPC	--	NCOPC		NCOPC	--	NCOPC		NCOPC		NCOPC	2 70E-04	NC		NCOPC
4 Methyl 2 pentanone (MIBK)	1 10E 02	-	NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	-	NCOPC	-	NCOPC	--	NCOPC	2 50E-02	2 74E-04
Benzene	1 10E+00	1 70E 01	1 86E 01	7 60E-02	8 33E 02	1 10E 03	1 21E 03	1 20E-03	1 32E-03		NCOPC	2 30E 04	2 52E-04	1 20E-03	1 32E 03	5 40E 04	5 92E 04
Chlorobenzene	5 53E 01	1 60E 01	8 84E 02	2 30E-01	1 27E 01	-	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	5 60E 03	3 09E-03	6 40E-03	3 54E-03
Chloroform	6 57E-01	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC		NCOPC	-	NCOPC	1 10E 04	7 23E 05	-	NCOPC
Dichloromethane	1 09E-02	--	NCOPC	8 30E-02	9 07E 04	--	NCOPC	-	NCOPC		NCOPC	-	NCOPC	--	NCOPC	1 20E-03	1 31E-05
Ethylbenzene	3 28E-02	3 90E 01	1 28E-02	4 10E-01	1 35E 02	7 10E 03	2 33E 04	2 80E 03	9 20E 05	--	NCOPC	1 10E-02	3 61E 04	1 70E-04	5 58E-06	5 80E-03	1 90E-04
Tetrachloroethene	5 53E-02	--	NCOPC	6 30E 03	3 48E 04	2 30E 02	1 27E-03	3 50E 03	1 93E 04	--	NCOPC	--	NCOPC	7 20E-03	3 98E-04	4 20E-04	2 32E-05
Toluene	8 24E-02	8 70E-02	7 17E-03	-	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	8 10E-02	6 67E-03	5 80E-03	4 78E 04	4 40E-02	3 63E 03
Trichloroethylene	9 39E-01	--	NCOPC	-	NCOPC	3 20E-04	3 01E-04	1 70E 04	1 60E 04	--	NCOPC	3 40E-05	3 19E-05	2 60E-02	2 44E-02	5 60E-03	5 26E-03
Xylenes Total	3 29E-01	2 30E+00	7 56E 01	2 40E+00	7 89E 01	3 70E 02	1 22E 02	2 30E 02	7 56E 03		NCOPC	8 80E 02	2 89E-02	1 10E-03	3 62E 04	4 20E-02	1 38E 02
SVOCs (b)																	
1 2 Dichlorobenzene	1 65E-01	-	NCOPC	1 48E 05	2 44E 06		NCOPC		NCOPC	-	NCOPC	--	NCOPC		NCOPC		NCOPC
1 3 Dichlorobenzene	4 11E 02	--	NCOPC	3 56E 07	1 46E 08	--	NCOPC		NCOPC		NCOPC	-	NCOPC	-	NCOPC	2 03E 07	8 35E-09
1 4 Dichlorobenzene	4 11E-02	1 12E-06	4 62E-08	3 82E 06	1 57E 07	1 47E 06	6 02E 08	--	NCOPC		NCOPC		NCOPC	1 51E 07	6 20E 09	2 34E 06	9 62E 08
2 4 6-Trichlorophenol	NC	1 55E 07	NC	1 44E 06	NC		NCOPC	2 34E 07	NC		NCOPC	--	NCOPC	4 41E 06	NC	1 82E 07	NC
2 4 Dichlorophenol	NC	--	NCOPC	--	NCOPC	-	NCOPC	1 38E-06	NC		NCOPC	-	NCOPC	1 96E 05	NC		NCOPC
2 Chlorophenol	NC	-	NCOPC	-	NCOPC		NCOPC	-	NCOPC		NCOPC		NCOPC	2 24E 06	NC		NCOPC
2-Methylnaphthalene	1 10E+01	--	NCOPC	4 96E-06	5 44E 05		NCOPC		NCOPC		NCOPC	-	NCOPC	--	NCOPC		NCOPC
2-Nitroaniline	1 64E+02	6 75E 08	1 11E-05	1 38E 06	2 27E 04		NCOPC	2 28E 07	3 75E 05		NCOPC		NCOPC	9 12E 08	1 50E 05	1 29E 07	2 13E 05
4 Nitroaniline	8 24E+00	-	NCOPC	2 06E 05	1 70E 04		NCOPC		NCOPC	-	NCOPC		NCOPC	2 47E 07	2 03E 06	1 16E 06	9 57E 06
Benzo(a)anthracene	NC	2 77E 07	NC	9 21E 07	NC		NCOPC	7 40E 08	NC	3 34E-08	NC	3 55E 08	NC		NCOPC	1 78E-07	NC
Benzo(a)pyrene	NC	1 73E 07	NC	3 91E 07	NC	1 58E 08	NC	7 91E 08	NC	3 35E-08	NC	4 10E 08	NC	--	NCOPC	1 39E-07	NC
Benzo(b)fluoranthene	NC	1 90E 07	NC	3 68E 07	NC		NCOPC	7 07E 08	NC	4 39E 08	NC	4 25E 08	NC		NCOPC	1 59E-07	NC
bis(2-Chloroethyl)ether	NC		NCOPC	6 85E-08	NC		NCOPC		NCOPC	--	NCOPC	--	NCOPC		NCOPC	--	NCOPC
bis(2-Ethylhexyl)phthalate	NC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	3 02E 06	NC
Dibenzo(a h)anthracene	NC	5 11E-08	NC	1 28E-07	NC	--	NCOPC	1 27E 08	NC	--	NCOPC	--	NCOPC	-	NCOPC	5 96E-08	NC
Hexachlorobenzene	NC	-	NCOPC	1 17E-07	NC	-	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC
Naphthalene	1 10E+01	--	NCOPC	1 10E 06	1 21E 05	--	NCOPC		NCOPC		NCOPC	-	NCOPC	7 02E 07	7 69E 06	1 26E 06	1 38E-05
Nitrobenzene	1 65E+01		NCOPC	2 47E 07	4 06E-06		NCOPC	-	NCOPC	--	NCOPC	-	NCOPC	3 98E 07	6 58E-06		NCOPC
Pesticides (b)																	
4 4 DDE	NC		NCOPC	1 02E-06	NC		NCOPC		NCOPC		NCOPC		NCOPC	-	NCOPC		NCOPC
4 4 DDT	NC		NCOPC	1 23E 06	NC		NCOPC		NCOPC		NCOPC	--	NCOPC	--	NCOPC	1 70E-07	NC
Aldrin	NC	8 74E 09	NC	1 32E 07	NC		NCOPC		NCOPC	1 14E-09	NC	2 35E 09	NC	--	NCOPC	3 63E 09	NC
alpha-BHC	NC	--	NCOPC	3 59E 08	NC		NCOPC		NCOPC		NCOPC	-	NCOPC	--	NCOPC	--	NCOPC
beta BHC	NC	-	NCOPC	4 35E 07	NC		NCOPC		NCOPC	-	NCOPC	--	NCOPC	2 09E 08	NC	2 63E 07	NC
delta BHC	NC	5 50E 08	NC	--	NCOPC		NCOPC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	-	NCOPC
Dieldrin	NC	7 60E 08	NC	1 17E 06	NC	7 53E 09	NC	2 07E-08	NC	4 21E 09	NC	7 96E-09	NC	2 04E 08	NC	6 80E 09	NC
gamma BHC (Lindane)	NC	3 04E 08	NC	--	NCOPC		NCOPC		NCOPC		NCOPC	-	NCOPC	--	NCOPC	7 64E-08	NC
Heptachlor	NC	4 72E-08	NC	2 04E-07	NC		NCOPC		NCOPC		NCOPC	--	NCOPC	1 12E-08	NC	1 64E 08	NC
Heptachlor Epoxide	NC	8 77E 09	NC	7 50E 08	NC	-	NCOPC		NCOPC	--	NCOPC	2 26E 09	NC		NCOPC	--	NCOPC
Herbicides (b)																	
MCPA	NC	--	NCOPC		NCOPC	1 30E 06	NC	-	NCOPC		NCOPC	--	NCOPC		NCOPC	-	NCOPC
MCPP	NC		NCOPC		NCOPC		NCOPC		NCOPC		NCOPC	--	NCOPC	2 80E 06	NC		NCOPC
Pentachlorophenol	NC		NCOPC	-	NCOPC		NCOPC	3 92E 06	NC	9 76E 08	NC	2 14E-06	NC	-	NCOPC	6 88E 06	NC

TABLE
POTENTIAL HAZARD QUOTIENT
INHALATION OF
EXCAVATION AIR FROM SOIL
CONSTRUCTION/UTILITY WORKER - MLE

	Reference	O		O North		P		Q North		Q Central		Q South		R		S	
Constituent	HQ (per mg/m³)	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ	EPC (mg/m³)	HQ
PCBs (b)																	
Total PCBs	NC	4 18E-06	NC	1 07E-04	NC	2 67E-07	NC	1 76E-06	NC	1 14E-07	NC	3 39E-07	NC	2 47E-06	NC	1 05E-05	NC
Dioxin (b)																	
2 3,7,8-TCDD-TEQ	NC	3 85E-10	NC	1 95E-08	NC	1 70E-11	NC	3 14E-10	NC	1 15E-10	NC	1 29E-10	NC	7 89E-11	NC	2 80E-10	NC
Metals (b)																	
Antimony	NC	--	NCOPC	--	NCOPC	--	NCOPC	4 66E-07	NC	--	NCOPC	6 89E-07	NC	--	NCOPC	--	NCOPC
Arsenic	NC	--	NCOPC	1 20E-06	NC	7 75E-07	NC	7 07E-07	NC	8 33E-07	NC	7 68E-07	NC	3 67E-07	NC	--	NCOPC
Barium	6 71E+01	--	NCOPC	--	NCOPC	--	NCOPC	8 26E-05	5 54E-03	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Cadmium	NC	--	NCOPC	2 36E-06	NC	6 40E-07	NC	7 36E-07	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Chromium	3 28E+02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 29E-06	1 74E-03	--	NCOPC	1 08E-05	3 53E-03
Copper	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 37E-04	NC	--	NCOPC	--	NCOPC	--	NCOPC
Lead	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 17E-04	NC	--	NCOPC	4 97E-05	NC	--	NCOPC	5 03E-05	NC
Manganese	6 58E+02	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 35E-05	3 32E-02	4 21E-05	2 77E-02	--	NCOPC	--	NCOPC
Mercury	1 10E+02	--	NCOPC	9 90E-06	1 08E-03	--	NCOPC	--	NCOPC	--	NCOPC	1 55E-07	1 69E-05	1 50E-05	1 65E-03	--	NCOPC
Nickel	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 28E-05	NC	--	NCOPC	--	NCOPC
	Total HI:		**1.05E+00**		**1.02E+00**		**1.52E-02**		**1.68E-02**		**3.32E-02**		**6.67E-02**		**3.68E-02**		**3.09E-02**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
MLE - Most Likely Exposure
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor	MLE Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER-MLE INCIDENTAL INGESTION AND DERMAL CONTACT SHALLOW GROUNDWATER AND LEACHATE		Assumed Value	Units	Calculated Value
Water Ingestion Rate	MLE Construction/Utility Worker	0 005	(l/day)	
Skin Exposed	MLE Construction/Utility Worker	3339	(cm^2)	
Body Weight	MLE Construction/Utility Worker	70	(kg)	
Exposure Time (dermal route only)	MLE Construction/Utility Worker	1	(hr/day)	
Exposure Frequency	MLE Construction/Utility Worker	5	(days)/365 (days) =	1 37E 02
Exposure Duration (cancer)	MLE Construction/Utility Worker	1	(yrs)/ 70(yrs) =	1 43E 02
Exposure Duration (noncancer)	MLE Construction/Utility Worker	1	(yrs)/ 1(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor (dermal route only)		0 001	(l/cm^3)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER MLE

Constituent	Unit Concentration In Groundwater (mg/l)	Oral Water Absorption Adjustment Factor	Dermal Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose Ing (mg/kg-day)	ADDder MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose Der (mg/kg-day)	Excess Lifetime Cancer Risk Ingestion	Excess Lifetime Cancer Risk Dermal Contact	Total Excess Lifetime Cancer Risk
VOCs												
1 2 Dichloroethane	1 00E+00	1	1	5 30E 03	9 10E 02	1 40E 08	1 40E-08	4 95E-08	4 95E 08	1 27E 09	4 50E-09	5 77E 09
1 2 Dichloroethene (total)	1 00E+00	NA	NA	1 00E 02	NA	NA	NA	NA	NA	NA	NA	NC
2 Butanone (MEK)	1 00E+00	NA	NA	1 10E-03	NA	NA	NA	NA	NA	NA	NA	NC
4 Methyl 2 pentanone (MIBK)	1 00E+00	NA	NA	2 77E 03	NA	NA	NA	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	5 69E 04	NA	NA	NA	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	2 13	2 10E-02	1 50E 02	1 40E 08	1 40E-08	4 18E 07	4 18E 07	2 10E 10	6 26E-09	6 47E-09
Chlorobenzene	1 00E+00	NA	NA	4 10E 02	NA	NA	NA	NA	NA	NA	NA	NC
Chloroform	1 00E+00	NA	NA	8 90E 03	NA	NA	NA	NA	NA	NA	NA	NC
Chloromethane	1 00E+00	1	1	4 20E-03	1 30E 02	1 40E 08	1 40E-08	3 92E 08	3 92E 08	1 82E 10	5 10E 10	6 91E 10
Dichloromethane	1 00E+00	1	1 6	4 50E-03	7 50E-03	1 40E 08	1 40E-08	6 72E 08	6 72E-08	1 05E 10	5 04E 10	6 09E 10
Tetrachloroethene	1 00E+00	1	1	4 80E-02	5 40E 01	1 40E 08	1 40E-08	4 48E-07	4 48E-07	7 55E-09	2 42E-07	2 50E 07
Toluene	1 00E+00	NA	NA	4 50E-02	NA	NA	NA	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	1	1 60E-02	4 00E-01	1 40E 08	1 40E-08	1 49E 07	1 49E-07	5 59E-09	5 97E 08	6 53E-08
SVOCs												
2 4 6 Trichlorophenol	1 00E+00	1	1	5 00E 02	1 10E-02	1 40E 08	1 40E-08	4 67E-07	4 67E 07	1 54E 10	5 13E 09	5 29E 09
2 4 Dichlorophenol	1 00E+00	NA	NA	2 30E 02	NA	NA	NA	NA	NA	NA	NA	NC
2 4 Dimethylphenol	1 00E+00	NA	NA	1 50E 02	NA	NA	NA	NA	NA	NA	NA	NC
2 Chlorophenol	1 00E+00	NA	NA	1 10E 02	NA	NA	NA	NA	NA	NA	NA	NC
2 Nitroaniline	1 00E+00	NA	NA	5 45E 03	NA	NA	NA	NA	NA	NA	NA	NC
3 Methylphenol/4 Methylphenol	1 00E+00	NA	NA	1 00E 02	NA	NA	NA	NA	NA	NA	NA	NC
4 Chloroaniline	1 00E+00	NA	NA	6 33E 03	NA	NA	NA	NA	NA	NA	NA	NC
4 Nitroaniline	1 00E+00	NA	NA	2 66E 03	2 10E 02	NA	NA	NA	NC	NC	NC	NC
Benzo(a)pyrene	1 00E+00	1	1	1 20E+00	7 30E+00	1 40E 08	1 40E-08	1 12E-05	1 12E 05	1 02E 07	8 18E-05	8 19E 05
Benzo(b)fluoranthene	1 00E+00	1	1	1 20E+00	7 30E 01	1 40E 08	1 40E-08	1 12E 05	1 12E-05	1 02E 08	8 18E 06	8 19E 06
Benzo(g h i)perylene	1 00E+00	NA	NA	5 34E+00	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(k)fluoranthene	1 00E+00	1	1	1 20E+00	7 30E 02	1 40E 08	1 40E-08	1 12E 05	1 12E 05	1 02E 09	8 18E-07	8 19E 07
Dibenzo(a h)anthracene	1 00E+00	1	1	2 70E+00	7 30E+00	1 40E 08	1 40E-08	2 52E 05	2 52E 05	1 02E 07	1 84E 04	1 84E 04
Indeno(1 2 3 cd)pyrene	1 00E+00	1	1	1 90E+00	7 30E 01	1 40E 08	1 40E-08	1 77E 05	1 77E 05	1 02E 08	1 29E 05	1 30E 05
Naphthalene	1 00E+00	NA	NA	6 90E 02	NA	NA	NA	NA	NA	NA	NA	NC
Nitrobenzene	1 00E+00	NA	NA	6 96E-03	NA	NA	NA	NA	NA	NA	NA	NC
Phenol	1 00E+00	NA	NA	5 50E 03	NA	NA	NA	NA	NA	NA	NA	NC
Pesticides												
4 4 DDT	1 00E+00	1	1	4 30E 01	3 40E-01	1 40E 08	1 40E-08	4 01E 06	4 01E 06	4 75E 09	1 36E 06	1 37E 06
beta BHC	1 00E+00	1	1	1 60E 02	1 80E+00	1 40E 08	1 40E 08	1 49E 07	1 49E 07	2 52E 08	2 69E 07	2 94E 07
Dieldrin	1 00E+00	1	1	1 60E 02	1 60E+01	1 40E 08	1 40E-08	1 49E 07	1 49E-07	2 24E 07	2 39E 06	2 61E 06
Endrin Ketone	1 00E+00	NA	NA	1 60E 02	NA	NA	NA	NA	NA	NA	NA	NC
gamma BHC (Lindane)	1 00E+00	1	1	1 40E 02	1 30E+00	1 40E 08	1 40E-08	1 31E 07	1 31E 07	1 82E 08	1 70E 07	1 88E 07
Heptachlor	1 00E+00	1	1	1 10E-02	4 50E+00	1 40E 08	1 40E-08	1 03E 07	1 03E 07	6 29E 08	4 62E-07	5 25E 07
Herbicides												
2 4 5 T	1 00E+00	NA	NA	1 40E 04	NA	NA	NA	NA	NA	NA	NA	NC
2 4 D	1 00E+00	NA	NA	8 45E-03	NA	NA	NA	NA	NA	NA	NA	NC
Pentachlorophenol	1 00E+00	1	1	6 50E-01	1 20E 01	1 40E 08	1 40E-08	6 07E 06	6 07E 06	1 68E 09	7 28E 07	7 30E 07
PCBs												
Total PCBs	1 00E+00	1	1 1	7 10E 01	2 00E+00	1 40E 08	1 40E-08	7 28E 06	7 29E-06	2 80E 08	1 46E 05	1 46E 05

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Dioxin												
2,3,7,8-TCDD-TEQ	1.00E+00	1	1.8	1.40E+00	1.50E+05	1.40E-08	1.40E-08	2.35E-05	2.35E 05	2.10E-03	3.53E+00	3.53E+00
Metals												
Antimony	1.00E+00	NA	NA	1.60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Arsenic	1.00E+00	1	1	1.60E-04	1.50E+00	1.40E-08	1.40E-08	1.49E-09	1.49E-09	2.10E-08	2.24E-09	2.32E-08
Beryllium	1.00E+00	NA	NA	1.60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Chromium	1.00E+00	NA	NA	6.67E-04	NA	NA	NA	NA	NA	NA	NA	NC
Cobalt	1.00E+00	NA	NA	4.00E-04	NA	NA	NA	NA	NA	NA	NA	NC
Lead	1.00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1.00E+00	NA	NA	1.60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Mercury	1.00E+00	NA	NA	1.67E-03	NA	NA	NA	NA	NA	NA	NA	NC
Nickel	1.00E+00	NA	NA	5.45E-05	NA	NA	NA	NA	NA	NA	NA	NC
Thallium	1.00E+00	NA	NA	1.60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Vanadium	1.00E+00	NA	NA	1.60E-04	NA	NA	NA	NA	NA	NA	NA	NC
Zinc	1.00E+00	NA	NA	6.00E-04	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - MLE

	Reference	Shallow		Leachate					
	Risk	O - AA-O-1-16		O		Q		R	
Constituent	(per mg/L)	EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk
VOCs									
1,2-Dichloroethane	5 77E-09	--	NCOPC	--	NCOPC	2 15E+00	1 24E-08	5 00E+01	2 89E-07
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+01	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	7 90E+00	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	2 10E-01	NC	7 50E-01	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	1 40E+00	NC	3 20E+01	NC
Benzene	6 47E-09	--	NCOPC	9 20E-01	5 95E-09	4 25E-01	2 75E-09	6 80E+00	4 40E-08
Chlorobenzene	NC	--	NCOPC	1 70E+00	NC	1 15E+00	NC	1 30E+00	NC
Chloroform	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 00E+00	NC
Chloromethane	6 91E-10	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	6 09E-10		NCOPC	-	NCOPC	4 70E-02	2 86E-11	1 90E+00	1 16E-09
Tetrachloroethene	2 50E-07	-	NCOPC	-	NCOPC	8 25E-02	2 06E-08	3 30E+01	8 23E 06
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 10E+01	NC
Trichloroethylene	6 53E-08	--	NCOPC	--	NCOPC	2 00E-02	1 31E-09	1 50E+02	9 80E-06
SVOCs									
2,4,6-Trichlorophenol	5 29E-09	--	NCOPC	3 80E-01	2 01E-09	1 25E+01	6 61E-08	--	NCOPC
2 4-Dichlorophenol	NC	--	NCOPC	3 20E-01	NC	1 70E+02	NC	--	NCOPC
2,4-Dimethylphenol	NC	--	NCOPC	--	NCOPC	2 40E-01	NC	-	NCOPC
2-Chlorophenol	NC	--	NCOPC	3 30E-01	NC	7 90E+00	NC	1 10E+01	NC
2-Nitroaniline	NC	--	NCOPC	2 60E-01	NC	1 55E+01	NC	--	NCOPC
3-Methylphenol/4 Methylphenol	NC	--	NCOPC	6 40E-01	NC	1 60E+00	NC	4 50E+00	NC
4-Chloroaniline	NC	--	NCOPC	4 20E+00	NC	9 30E+00	NC	4 70E+01	NC
4-Nitroaniline	NC	--	NCOPC	7 00E-01	NC	1 07E+00	NC	1 60E+01	NC
Benzo(a)pyrene	8 19E-05	1 60E-03	1 31E-07	--	NCOPC	-	NCOPC		NCOPC
Benzo(b)fluoranthene	8 19E-06	1 10E-03	9 01E-09	--	NCOPC	--	NCOPC	--	NCOPC
Benzo(g,h,i)perylene	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 70E+00	NC
Benzo(k)fluoranthene	8 19E-07	1 20E-03	9 82E-10	--	NCOPC	--	NCOPC	--	NCOPC
Dibenzo(a,h)anthracene	1 84E-04	2 70E-03	4 97E-07	--	NCOPC	--	NCOPC	--	NCOPC
Indeno(1,2,3-cd)pyrene	1 30E-05	3 00E-03	3 89E-08	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	NC	--	NCOPC	5 70E-01	NC	1 20E+00	NC		NCOPC
Nitrobenzene	NC	--	NCOPC	8 00E-02	NC	1 30E+00	NC	--	NCOPC
Phenol	NC	--	NCOPC	3 80E+00	NC	8 05E+00	NC	1 10E+03	NC
Pesticides									
4,4'-DDT	1 37E-06	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	2 88E-07
beta-BHC	2 94E-07	--	NCOPC	2 50E-03	7 35E-10	1 35E-02	3 97E-09	2 00E-01	5 88E-08
Dieldrin	2 61E-06	--	NCOPC	--	NCOPC	--	NCOPC	1 90E-01	4 97E-07
Endrin Ketone	NC	--	NCOPC	--	NCOPC	3 20E-03	NC	--	NCOPC
gamma-BHC (Lindane)	1 88E-07	--	NCOPC	-	NCOPC	-	NCOPC	2 80E-02	5 27E-09
Heptachlor	5 25E-07	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	1 10E-07

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Reference Risk (per mg/L)	Shallow		Leachate					
		O - AA-O-1-16		O		Q		R	
		EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk	EPC (mg/L)	Risk
Herbicides									
2,4,5-T	NC	--	NCOPC	4 80E-01	NC	--	NCOPC	--	NCOPC
2,4-D	NC	--	NCOPC	9 30E-01	NC	9 65E+01	NC	3 80E+00	NC
Pentachlorophenol	7 30E-07	-	NCOPC	7 80E-01	5 69E-07	4 60E+00	3 36E-06	--	NCOPC
PCBs									
Total PCBs	1 46E 05	-	NCOPC	5 49E-02	8 02E-07	1 04E-03	1 52E-08	3 98E+00	5 82E-05
Dioxin									
2,3,7,8-TCDD-TEQ	3 53E+00	--	NCOPC	6 87E-07	2 43E-06	--	NCOPC	3 14E-06	1 11E-05
Metals									
Antimony	NC	--	NCOPC	-	NCOPC	1 60E-02	NC	--	NCOPC
Arsenic	2 32E-08	7 00E-02	1 62E-09	-	NCOPC	--	NCOPC	--	NCOPC
Beryllium	NC	--	NCOPC	-	NCOPC	--	NCOPC	3 10E-02	NC
Chromium	NC	--	NCOPC	--	NCOPC	--	NCOPC	6 00E-01	NC
Cobalt	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 60E+00	NC
Lead	NC	1 90E-02	NC	-	NCOPC	--	NCOPC	--	NCOPC
Manganese	NC	4 10E+00	NC	1 80E+01	NC	1 80E+00	NC	2 50E+02	NC
Mercury	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 30E 02	NC
Nickel	NC	--	NCOPC	--	NCOPC	3 10E-01	NC	1 80E+00	NC
Thallium	NC	--	NCOPC	3 70E-03	NC	--	NCOPC	1 20E-01	NC
Vanadium	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 30E-01	NC
Zinc	NC	--	NCOPC	--	NCOPC	7 45E+00	NC	9 90E+01	NC
	Total:		**6.79E-07**		**3.81E-06**		**3.48E-06**		**8.86E-05**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg-day)	ADDing MLE Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
VOCs												
1 2-Dichloroethane	1 00E+00	1	1	5 30E-03	2 00E-02	9 78E-07	9 78E-07	3 46E-06	3 46E-06	4 89E-05	1 73E-04	2 22E-04
1,2-Dichloroethene (total)	1 00E+00	1	1	1 00E-02	2 00E-02	9 78E-07	9 78E-07	6 53E-06	6 53E-06	4 89E-05	3 27E-04	3 76E-04
2-Butanone (MEK)	1 00E+00	1	1	1 10E-03	6 00E-01	9 78E-07	9 78E-07	7 19E-07	7 19E-07	1 63E-06	1 20E-06	2 83E-06
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	1	2 77E-03	8 00E 02	9 78E-07	9 78E-07	1 81E-06	1 81E-06	1 22E-05	2 26E-05	3 49E-05
Acetone	1 00E+00	1	1	5 69E-04	1 00E-01	9 78E-07	9 78E-07	3 72E-07	3 72E-07	9 78E-06	3 72E-06	1 35E-05
Benzene	1 00E+00	1	2 13	2 10E-02	4 00E-03	9 78E-07	9 78E-07	2 92E-05	2 92E-05	2 45E-04	7 31E-03	7 55E-03
Chlorobenzene	1 00E+00	1	1	4 10E-02	2 00E-02	9 78E-07	9 78E-07	2 68E-05	2 68E-05	4 89E-05	1 34E-03	1 39E-03
Chloroform	1 00E+00	1	1	8 90E-03	1 00E-02	9 78E-07	9 78E-07	5 82E-06	5 82E-06	9 78E-05	5 82E-04	6 79E-04
Chloromethane	1 00E+00	NA	NA	4 20E-03	NA	NA	NA	NA	NA	NA	NA	NC
Dichloromethane	1 00E+00	1	1 6	4 50E-03	6 00E-02	9 78E-07	9 78E-07	4 70E-06	4 70E-06	1 63E-05	7 84E-05	9 47E-05
Tetrachloroethene	1 00E+00	1	1	4 80E-02	1 00E-02	9 78E-07	9 78E-07	3 14E-05	3 14E-05	9 78E-05	3 14E-03	3 23E-03
Toluene	1 00E+00	1	1	4 50E-02	2 00E-01	9 78E-07	9 78E-07	2 94E-05	2 94E-05	4 89E-06	1 47E-04	1 52E-04
Trichloroethylene	1 00E+00	1	1	1 60E-02	3 00E-04	9 78E-07	9 78E 07	1 05E-05	1 05E-05	3 26E-03	3 48E-02	3 81E-02
SVOCs												
2,4,6-Trichlorophenol	1 00E+00	1	1	5 00E-02	1 00E-04	9 78E 07	9 78E-07	3 27E-05	3 27E-05	9 78E-03	3 27E-01	3 36E-01
2,4-Dichlorophenol	1 00E+00	1	1	2 30E-02	3 00E-03	9 78E-07	9 78E-07	1 50E-05	1 50E-05	3 26E-04	5 01E-03	5 34E-03
2 4-Dimethylphenol	1 00E+00	1	1	1 50E 02	2 00E-02	9 78E-07	9 78E-07	9 80E-06	9 80E-06	4 89E-05	4 90E-04	5 39E-04
2-Chlorophenol	1 00E+00	1	1	1 10E-02	5 00E-03	9 78E-07	9 78E-07	7 19E-06	7 19E-06	1 96E-04	1 44E-03	1 63E-03
2-Nitroaniline	1 00E+00	NA	NA	5 45E-03	NA	NA	NA	NA	NA	NA	NA	NC
3 Methylphenol/4-Methylphenol	1 00E+00	1	1	1 00E-02	5 00E-02	9 78E 07	9 78E-07	6 53E-06	6 53E-06	1 96E-05	1 31E-04	1 50E-04
4-Chloroaniline	1 00E+00	1	1	6 33E-03	4 00E-03	9 78E 07	9 78E-07	4 13E 06	4 13E-06	2 45E-04	1 03E-03	1 28E 03
4 Nitroaniline	1 00E+00	1	1	2 66E-03	3 00E 03	9 78E 07	9 78E-07	1 74E-06	1 74E-06	3 26E 04	5 79E-04	9 05E 04
Benzo(a)pyrene	1 00E+00	NA	NA	1 20E+00	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(b)fluoranthene	1 00E+00	NA	NA	1 20E+00	NA	NA	NA	NA	NA	NA	NA	NC
Benzo(g h,i)perylene	1 00E+00	1	1	5 34E+00	3 00E 02	9 78E-07	9 78E-07	3 49E-03	3 49E-03	3 26E-05	1 16E-01	1 16E-01
Benzo(k)fluoranthene	1 00E+00	NA	NA	1 20E+00	NA	NA	NA	NA	NA	NA	NA	NC
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	2 70E+00	NA	NA	NA	NA	NA	NA	NA	NC
Indeno(1,2,3-cd)pyrene	1 00E+00	NA	NA	1 90E+00	NA	NA	NA	NA	NA	NA	NA	NC
Naphthalene	1 00E+00	1	1	6 90E-02	2 00E-02	9 78E-07	9 78E-07	4 51E 05	4 51E-05	4 89E-05	2 25E-03	2 30E-03
Nitrobenzene	1 00E+00	1	1	6 96E 03	5 00E 04	9 78E-07	9 78E-07	4 55E-06	4 55E-06	1 96E-03	9 10E-03	1 11E-02
Phenol	1 00E+00	1	1	5 50E-03	3 00E-01	9 78E-07	9 78E-07	3 59E-06	3 59E-06	3 26E-06	1 20E-05	1 52E 05
Pesticides												
4 4'-DDT	1 00E+00	1	1	4 30E-01	5 00E 04	9 78L 07	9 78E 07	2 81E 04	2 81E-04	1 96E-03	5 62E-01	5 64E 01
beta-BHC	1 00E+00	1	1	1 60E-02	3 00E 04	9 78E-07	9 78E-07	1 05E 05	1 05E-05	3 26E-03	3 48E-02	3 81E-02
Dieldrin	1 00E+00	1	1	1 60E-02	5 00E-05	9 78E-07	9 78E-07	1 05E-05	1 05E-05	1 96E-02	2 09E-01	2 29E-01
Endrin Ketone	1 00E+00	1	1	1 60E-02	3 00E-04	9 78E-07	9 78E-07	1 05E-05	1 05E-05	3 26E-03	3 48E-02	3 81E-02
gamma-BHC (Lindane)	1 00E+00	1	1	1 40E-02	3 00E-04	9 78E-07	9 78E 07	9 15E-06	9 15E-06	3 26E-03	3 05E-02	3 38E-02
Heptachlor	1 00E+00	1	1	1 10E-02	5 00E 04	9 78E-07	9 78E-07	7 19E-06	7 19E-06	1 96E-03	1 44E-02	1 63E-02
Herbicides												
2 4,5-T	1 00E+00	1	1	1 40E-04	1 00E-02	9 78E-07	9 78E-07	9 18E-08	9 18E-08	9 78E-05	9 18E-06	1 07E-04
2 4-D	1 00E+00	1	1	8 45E-03	1 00E-02	9 78E-07	9 78E-07	5 52E-06	5 52E-06	9 78E-05	5 52E-04	6 50E-04
Pentachlorophenol	1 00E+00	1	1	6 50E-01	3 00E-02	9 78E-07	9 78E 07	4 25E-04	4 25E-04	3 26E-05	1 42E-02	1 42E-02

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg-day)	MLE Construction/Utility Worker ADDing (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg day)	MLE Construction/Utility Worker ADDder (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
PCBs												
Total PCBs	1 00E+00	1	1 1	7 10E-01	2 00E-05	9 78E-07	9 78E-07	5 10E-04	5 10E-04	4 89E-02	2 55E+01	2 56E+01
Dioxin												
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	1 40E+00	NA	NA	NA	NA	NA	NA	NA	NC
Metals												
Antimony	1 00E+00	1	6 7	1 60E-04	4 00E-04	9 78E-07	9 78E-07	7 00E-07	7 00E-07	2 45E-03	1 75E-03	4 20E-03
Arsenic	1 00E+00	1	1	1 60E-04	3 00E-04	9 78E 07	9 78E-07	1 05E-07	1 05E-07	3 26E-03	3 46E-04	3 61E-03
Beryllium	1 00E+00	1	100	1 60E-04	2 00E-03	9 78E-07	9 78E-07	1 05E-05	1 05E-05	4 89E-04	5 23E-03	5 72E 03
Chromium	1 00E+00	1	40	6 67E-04	3 00E 03	9 78E-07	9 78E-07	1 74E-05	1 74E-05	3 26E-04	5 81E-03	6 14E-03
Cobalt	1 00E+00	1	1	4 00E-04	2 00E-02	9 78E-07	9 78E-07	2 61E-07	2 61E-07	4 89E-05	1 31E-05	6 20E-05
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	10	1 60E-04	2 40E-02	9 78E-07	9 78E-07	1 05E-06	1 05E-06	4 08E-05	4 36E-05	8 43E-05
Mercury	1 00E+00	2	13 7	1 67E-03	3 00E-04	1 96E-06	1 96E-06	1 49E-05	1 49E-05	6 52E-03	4 98E-02	5 64E 02
Nickel	1 00E+00	1	77	5 45E-05	2 00E-02	9 78E 07	9 78E-07	2 74E-06	2 74E-06	4 89E-05	1 37E-04	1 86E-04
Thallium	1 00E+00	1	1	1 60E-04	6 67E-05	9 78E-07	9 78E-07	1 05E-07	1 05E-07	1 47E-02	1 57E-03	1 62E-02
Vanadium	1 00E+00	1	10	1 60E-04	7 00E-03	9 78E-07	9 78E-07	1 05E-06	1 05E-06	1 40E 04	1 49E-04	2 89E-04
Zinc	1 00E+00	1 6	3 03	6 00E-04	3 00E-01	1 57E-06	1 57E-06	1 19E-06	1 19E-06	5 22E-06	3 96E-06	9 18E-06

TABLE
POTENTIAL HAZARD INDEX
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - MLE

	Reference	Shallow		Leachate					
	HQ	O - AA-O-1-16		O		Q		R	
Constituent	(per mg/L)	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ
VOCs									
1,2-Dichloroethane	2 22E-04	--	NCOPC	-	NCOPC	2 15E+00	4 77E-04	5 00E+01	1 11E-02
1,2-Dichloroethene (total)	3 76E-04	--	NCOPC	--	NCOPC	--	NCOPC	1 30E+01	4.88E-03
2-Butanone (MEK)	2 83E-06	--	NCOPC	--	NCOPC	--	NCOPC	7 90E+00	2 23E-05
4-Methyl-2-pentanone (MIBK)	3 49E-05	--	NCOPC	2 10E-01	7 32E-06	7 50E-01	2 61E-05	--	NCOPC
Acetone	1 35E-05	--	NCOPC	--	NCOPC	1 40E+00	1 89E-05	3 20E+01	4 32E-04
Benzene	7 55E-03	--	NCOPC	9 20E-01	6 95E-03	4 25E-01	3 21E-03	6 30E+00	5 14E-02
Chlorobenzene	1 39E-03	--	NCOPC	1 70E+00	2 36E-03	1 15E+00	1.60E-03	1 30E+00	1 80E-03
Chloroform	6 79E-04	--	NCOPC	--	NCOPC	--	NCOPC	2 00E+00	1 36E-03
Chloromethane	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	9 47E-05	--	NCOPC		NCOPC	4 70E-02	4 45E-06	1 30E+00	1 80E-04
Tetrachloroethene	3 23E-03		NCOPC	-	NCOPC	8 25E-02	2 67E-04	3 30E+01	1 07E-01
Toluene	1 52E-04	--	NCOPC	--	NCOPC	--	NCOPC	2 10E+01	3 19E-03
Trichloroethylene	3 81E-02	--	NCOPC	--	NCOPC	2 00E-02	7 62E-04	1 50E+02	5 72E+00
SVOCs									
2,4,6-Trichlorophenol	3 36E-01	--	NCOPC	3 80E-01	1 28E 01	1 25E+01	4 21E+00	--	NCOPC
2,4 Dichlorophenol	5 34E-03	--	NCOPC	3 20E 01	1 71E-03	1 70E+02	9 07E-01	-	NCOPC
2,4 Dimethylphenol	5 39E-04	--	NCOPC	--	NCOPC	2 40E 01	1 29E-04		NCOPC
2-Chlorophenol	1 63E-03	--	NCOPC	3 30E-01	5 39E-04	7 90E+00	1 29E-02	1 10E+01	1 80E-02
2-Nitroaniline	NC		NCOPC	2 60E-01	NC	1 55E+01	NC	-	NCOPC
3-Methylphenol/4-Methylphenol	1 50E-04		NCOPC	6 40E-01	9 62E 05	1 60E+00	2 40E-04	4 50E+00	6 76E-04
4-Chloroaniline	1 28E-03	-	NCOPC	4 20E+00	5 37E-03	9 30E+00	1 19E-02	4 20E+01	5 37E-02
4-Nitroaniline	9 05E-04	--	NCOPC	7 00E 01	6 33E-04	1 07E+00	9 68E-04	1 30E+01	1 63E-02
Benzo(a)pyrene	NC	1 60E-03	NC	--	NCOPC	-	NCOPC	-	NCOPC
Benzo(b)fluoranthene	NC	1 10E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Benzo(g,h,i)perylene	1 16E-01	--	NCOPC	--	NCOPC	--	NCOPC	1 10E+00	1 63E-01
Benzo(k)fluoranthene	NC	1 20E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Dibenzo(a,h)anthracene	NC	2 70E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Indeno(1,2,3-cd)pyrene	NC	3 00E-03	NC	--	NCOPC	--	NCOPC	--	NCOPC
Naphthalene	2 30E-03	--	NCOPC	5 70E-01	1 31E-03	1 20E+00	2 76E-03	--	NCOPC
Nitrobenzene	1 11E-02	--	NCOPC	8 00E-02	8 84E-04	1 30E+00	1 44E-02	--	NCOPC
Phenol	1 52E-05	--	NCOPC	3 80E+00	5 79E-05	8 05E+00	1 23E-04	1 10E+03	1 68E-02
Pesticides									
4,4'-DDT	5 64E-01	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	1 18E-01
beta-BHC	3 81E-02	--	NCOPC	2 50E-03	9 53E-05	1 35E-02	5 14E-04	2 00E-01	7 62E-03
Dieldrin	2 29E-01	--	NCOPC	--	NCOPC	--	NCOPC	1 90E 01	4 34E-02
Endrin Ketone	3 81E 02	--	NCOPC	--	NCOPC	3 20E-03	1 22E-04	--	NCOPC
gamma-BHC (Lindane)	3 38E-02	--	NCOPC	--	NCOPC	--	NCOPC	2 80E-02	9 45E-04
Heptachlor	1 63E-02	--	NCOPC	--	NCOPC	--	NCOPC	2 10E-01	3 43E-03

TABLE
POTENTIAL HAZARD INDEX
INCIDENTAL INGESTION AND DERMAL CONTACT
SHALLOW GROUNDWATER AND LEACHATE
CONSTRUCTION/UTILITY WORKER - MLE

	Reference	Shallow		Leachate					
	HQ	O - AA-O-1-16		O		Q		R	
Constituent	(per mg/L)	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ	EPC (mg/L)	HQ
Herbicides									
2,4,5-T	1 07E-04	--	NCOPC	4 80E-01	5 14E-05	--	NCOPC	--	NCOPC
2,4-D	6 50E 04	--	NCOPC	9 30E-01	6 04E-04	9 65E+01	6 27E-02	3 80E+00	2 47E-03
Pentachlorophenol	1 42E-02	--	NCOPC	7 80E-01	1 11E-02	4 60E+00	6 53E-02	--	NCOPC
PCBs									
Total PCBs	2 56E+01	--	NCOPC	5 49E-02	1 40E+00	1 04E-03	2 67E-02	3 98E+00	1 02E+02
Dioxin									
2,3,7,8-TCDD-TEQ	NC	--	NCOPC	6 87E-07	NC		NCOPC	3 14E-06	NC
Metals									
Antimony	4 20E-03	--	NCOPC	--	NCOPC	1 60E-02	6 72E-05	--	NCOPC
Arsenic	3 61E-03	7 00E-02	2 53E-04	-	NCOPC	--	NCOPC	--	NCOPC
Beryllium	5 72E-03	--	NCOPC	--	NCOPC	--	NCOPC	3 10E 02	1 77E-04
Chromium	6 14E 03	--	NCOPC	--	NCOPC	-	NCOPC	6 30E-01	3 68E-03
Cobalt	6 20E-05	--	NCOPC	--	NCOPC	--	NCOPC	2 60E+00	1 61E-04
Lead	NC	1 90E-02	NC	--	NCOPC	--	NCOPC	--	NCOPC
Manganese	8 43E-05	4 10E+00	3 46E-04	1 80E+01	1 52E-03	1 80E+00	1 52E-04	2 50E+02	2 11E-02
Mercury	5 64E-02	--	NCOPC	--	NCOPC	-	NCOPC	1 30E-02	7 33E-04
Nickel	1 86E-04	--	NCOPC	--	NCOPC	3 10E-01	5 77E-05	1 80E+00	3 35E-04
Thallium	1 62E-02	--	NCOPC	3 70E-03	6 01E-05	--	NCOPC	1 20E-01	1 95E-03
Vanadium	2 89E-04	--	NCOPC	--	NCOPC	--	NCOPC	3 30E-01	1 04E-04
Zinc	9 18E-06	--	NCOPC	--	NCOPC	7 45E+00	6 84E-05	9 90E+01	9 09E-04
	Total HI.		5.98E-04		1.56E+00		5.32E+00		1.08E+02

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor	MLE Construction/Utility Worker

ASSUMPTIONS FOR CONSTRUCTION/UTILITY WORKER - MLE INHALATION OF VOCs IN EXCAVATION TRENCH AIR		Assumed Value	Units	Calculated Value
Inhalation Rate	MLE Construction/Utility Worker	1 5	(m^3 air/hour)	
Body Weight	MLE Construction/Utility Worker	70	(kg)	
Exposure Time	MLE Construction/Utility Worker	8	(hrs/day) =	8 00E+00
Exposure Frequency	MLE Construction/Utility Worker	20	(days)/365 (days) =	5 48E 02
Exposure Duration (cancer)	MLE Construction/Utility Worker	1	(yrs)/70(yrs) =	1 43E 02
Exposure Duration (noncancer)	MLE Construction/Utility Worker	1	(yrs)/1(yrs) =	1 00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INHALATION OF VOCs IN
EXCAVATION TRENCH AIR
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Cancer Slope Factor (mg/kg-day) [1]	ADDinh MLE Construction/Utility Worker (mg/kg-day)	Lifetime Average Daily Dose - Inh (mg/kg-day)	Excess Lifetime Cancer Risk - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	9 10E-02	1 34E-04	1 34E-04	1 22E-05
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	NA	NA	NA	NA	NC
4-Methyl-2-pentanone (MIBK)	1 00E+00	NA	NA	NA	NA	NC
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	7 70E-03	1 34E-04	1 34E-04	1 03E-06
Chlorobenzene	1 00E+00	NA	NA	NA	NA	NC
Chloroform	1 00E+00	0 66	8 05E-02	8 86E-05	8 86E-05	7 13E-06
Chloromethane	1 00E+00	1	6 30E-03	1 34E-04	1 34E-04	8 45E-07
Dichloromethane	1 00E+00	1	1 65E-03	1 34E-04	1 34E-04	2 21E-07
Tetrachloroethene	1 00E+00	1	2 10E-02	1 34E-04	1 34E-04	2 82E-06
Toluene	1 00E+00	NA	NA	NA	NA	NC
Trichloroethylene	1 00E+00	1	4 00E-01	1 34E-04	1 34E-04	5 37E-05

TABLE
POTENTIAL CARCINOGENIC RISK
CONSTRUCTION/UTILITY WORKER - MLE
EXCAVATION TRENCH AIR

Constituent	Reference Risk (per mg/m^3)	Shallow		Leachate					
		O - AA-O-1-16		O		Q		R	
		EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk	EPC (mg/m^3)	Risk
VOCs									
1,2-Dichloroethane	1 22E-05	--	NCOPC	--	NCOPC	5 78E-02	7 06E-07	1 35E+00	1 64E-05
1,2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 86E-01	NC
2-Butanone (MEK)	NC	--	NCOPC	--	NCOPC	--	NCOPC	1 69E-01	NC
4-Methyl-2-pentanone (MIBK)	NC	--	NCOPC	4 51E-03	NC	1 31E-02	NC	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	2 38E-02	NC	6 81E-01	NC
Benzene	1 03E-06	--	NCOPC	2 49E-02	2 57E-08	1 15E-02	1 19E-08	1 84E-01	1 90E-07
Chlorobenzene	NC	--	NCOPC	4 24E-02	NC	2 37E-02	NC	3 25E-02	NC
Chloroform	7 13E-06	--	NCOPC	--	NCOPC	--	NCOPC	5 48E-02	3 91E-07
Chloromethane	8 45E-07	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	2 21E-07	--	NCOPC	--	NCOPC	1 42E-03	3 15E-10	5 76E-02	1 27E-08
Tetrachloroethene	2 82E-06		NCOPC	--	NCOPC	1 39E 03	5 60E-09	7 95E-01	2 24E-06
Toluene	NC	--	NCOPC	--	NCOPC	--	NCOPC	5 22E-01	NC
Trichloroethylene	5 37E-05	--	NCOPC	--	NCOPC	5 16E-04	2 77E-08	3 87E+00	2 08E-04
	Total:		NCOPC		2.57E-08		7.52E-07		2.27E-04

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INHALATION OF VOCs IN
EXCAVATION TRENCH AIR
CONSTRUCTION/UTILITY WORKER - MLE

Constituent	Unit Concentration In Air (mg/m^3 air)	Inhalation Absorption Adjustment Factor	Inhalation Reference Dose (mg/kg-day)	ADDInh MLE Construction/Utility Worker (mg/kg-day)	Chronic Average Daily Dose-Inh (mg/kg-day)	Hazard Index - Inhalation
VOCs						
1,2-Dichloroethane	1 00E+00	1	5 00E-03	9 39E-03	9 39E-03	1 88E+00
1,2-Dichloroethene (total)	1 00E+00	NA	NA	NA	NA	NC
2-Butanone (MEK)	1 00E+00	1	1 00E+00	9 39E-03	9 39E-03	9 39E-03
4-Methyl-2-pentanone (MIBK)	1 00E+00	1	3 00E+00	9 39E-03	9 39E-03	3 13E-03
Acetone	1 00E+00	NA	NA	NA	NA	NC
Benzene	1 00E+00	1	3 00E-02	9 39E-03	9 39E-03	3 13E-01
Chlorobenzene	1 00E+00	1	6 00E-02	9 39E-03	9 39E-03	1 57E-01
Chloroform	1 00E+00	1	5 00E-02	9 39E-03	9 39E-03	1 88E-01
Chloromethane	1 00E+00	1	9 00E-02	9 39E-03	9 39E-03	1 04E-01
Dichloromethane	1 00E+00	1	3 00E+00	9 39E-03	9 39E-03	3 13E-03
Tetrachloroethene	1 00E+00	1	6 00E-01	9 39E-03	9 39E-03	1 57E-02
Toluene	1 00E+00	1	4 00E-01	9 39E-03	9 39E-03	2 35E-02
Trichloroethylene	1 00E+00	1	4 00E-02	9 39E-03	9 39E-03	2 35E-01

TABLE
POTENTIAL HAZARD QUOTIENT
CONSTRUCTION/UTILITY WORKER - MLE
EXCAVATION TRENCH AIR

Constituent	Reference HQ (per mg/m^3)	Shallow		Leachate					
		O - AA-O-1-16		O		Q		R	
		EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ	EPC (mg/m^3)	HQ
VOCs									
1,2-Dichloroethane	1 88E+00	--	NCOPC	-	NCOPC	5 78E-02	1 09E-01	1 35E+00	2 53E+00
1 2-Dichloroethene (total)	NC	--	NCOPC	--	NCOPC	--	NCOPC	3 86E-01	NC
2-Butanone (MEK)	9 39E-03	--	NCOPC	--	NCOPC	--	NCOPC	1 69E-01	1 59E-03
4-Methyl-2-pentanone (MIBK)	3 13E-03	--	NCOPC	4 51E-03	1 41E-05	1 61E-02	5 04E-05	--	NCOPC
Acetone	NC	--	NCOPC	--	NCOPC	2 98E-02	NC	6 81E-01	NC
Benzene	3 13E-01	--	NCOPC	2 49E-02	7 80E-03	1 15E-02	3 60E-03	1 84E-01	5 77E-02
Chlorobenzene	1 57E-01	--	NCOPC	4 24E-02	6 65E-03	2 87E-02	4 50E-03	3 25E-02	5 08E-03
Chloroform	1 88E-01	--	NCOPC	--	NCOPC	--	NCOPC	5 48E-02	1 03E-02
Chloromethane	1 04E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC
Dichloromethane	3 13E-03	--	NCOPC		NCOPC	1 42E-03	4 46E-06	5 76E-02	1 80E-04
Tetrachloroethene	1 57E-02	--	NCOPC	--	NCOPC	1 99E-03	3 11E-05	7 95E-01	1 25E-02
Toluene	2 35E-02	--	NCOPC	--	NCOPC	--	NCOPC	5 22E-01	1 23E-02
Trichloroethylene	2 35E-01	--	NCOPC	--	NCOPC	5 16E-04	1 21E-04	3 87E+00	9 09E-01
	Total HI:		**NCOPC**		**1.45E-02**		**1.17E-01**		**3.54E+00**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
VOCs - Volatile Organic Compounds

Recreational Fisher

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated	
Receptor:	RME Recreational Fisher

ASSUMPTIONS FOR RECREATIONAL FISHER - RME INCIDENTIAL INGESTION AND DERMAL CONTACT SEDIMENT		Assumed Value	Units	Calculated Value
Sediment Ingestion Rate	RME Recreational Fisher	100	(mg soil/day)	
Sediment on Skin	RME Recreational Fisher	1	(mg/cm^2)	
Skin Exposed	RME Recreational Fisher	6934	(cm^2)	
Body Weight	RME Recreational Fisher	70	(kg)	
Exposure Frequency	RME Recreational Fisher	22	(days)/365(days) =	6.03E-02
Exposure Duration (cancer)	RME Recreational Fisher	30	(years)/70(years) =	4.29E-01
Exposure Duration (noncancer)	RME Recreational Fisher	30	(yrs)/30(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1.00E-06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
RECREATIONAL FISHER - RME

Constituent	Concentration in Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg day)[1]	ADDing RME Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder RME Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Metals											
Arsenic	3 41E+00	0 3	0 001	1 50E+00	3 78E-08	3 78E-08	8 73E-09	8 73E-09	5 66E-08	1 31E-08	6 97E-08
								Total	5 66E-08	1 31E-08	6 97E-08

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
RECREATIONAL FISHER - RME

Constituent	Concentration In Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing RME Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	ADDder RME Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
Metals											
Arsenic	3 41E+00	0 3	0 001	3 00E-04	8 81E-08	8 81E-08	2 04E-08	2 04E-08	2 94E-04	6 79E-05	3 62E-04
								Total	2 94E-04	6 79E-05	3 62E-04

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated:	
Receptor:	RME Recreational Fisher

ASSUMPTIONS FOR RECREATIONAL FISHER - RME INCIDENTAL INGESTION AND DERMAL CONTACT OF SURFACE WATER		Assumed Value	Units	Calculated Value
Water Ingestion Rate	RME Recreational Fisher	0.01	(l/day)	
Skin Exposed	RME Recreational Fisher	6934	(cm^2)	
Body Weight	RME Recreational Fisher	70	(kg)	
Exposure Time (dermal route only)	RME Recreational Fisher	1	(hr/day)	
Exposure Frequency	RME Recreational Fisher	22	(days)/365 (days) =	6.03E-02
Exposure Duration (cancer)	RME Recreational Fisher	30	(yrs)/ 70(yrs) =	4.29E-01
Exposure Duration (noncancer)	RME Recreational Fisher	30	(yrs)/ 30(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor (dermal route only)		0.001	(l/cm^3)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
RECREATIONAL FISHER - RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing RME Recreational Fisher (mg/kg day)	Lifetime Average Daily Dose-ing (mg/kg day)	ADDder RME Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs												
2,4-Dichlorophenol	1 00E+00	NA	NA	2 30E-02	NA	NA	NA	NA	NA	NA	NA	NC
4 Chloroaniline	1 00E+00	NA	NA	6 33E-03	NA	NA	NA	NA	NA	NA	NA	NC
Herbicides												
MCPA	1 00E+00	NA	NA	2 31E-02	NA	NA	NA	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	1 56E-02	NA	NA	NA	NA	NA	NA	NA	NC
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	1 60E 04	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
RECREATIONAL FISHER - RME

Constituent	Reference Risk (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	Risk	EPC (mg/L)	Risk
SVOCs					
2,4-Dichlorophenol	NC	--	NCOPC	8 95E-03	NC
4-Chloroaniline	NC	--	NCOPC	1 90E-02	NC
Herbicides					
MCPA	NC	--	NCOPC	3 10E-02	NC
MCPP	NC	--	NCOPC	5 30E-02	NC
Metals					
Lead	NC	1 40E-02	NC		NCOPC
Manganese	NC	4 60E-01	NC	--	NCOPC
	Total:		**NC**		**NC**

Notes
- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
RECREATIONAL FISHER - RME

Constituent	Unit Concentration In Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg-day)	ADDing RME Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	ADDder RME Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs												
2,4-Dichlorophenol	1 00E+00	1	1	2 30E-02	3 00E-03	8 61E-06	8 61E-06	1 37E-04	1 37E-04	2 87E-03	4 58E-02	4 86E-02
4 Chloroaniline	1 00E+00	1	1	6 33E-03	4 00E 03	8 61E 06	8 61E 06	3 78E-05	3 78E-05	2 15E 03	9 44E-03	1 16E 02
Herbicides												
MCPA	1 00E+00	1	1	2 31E-02	5 00E-04	8 61E-06	8 61E 06	1 38E-04	1 38E-04	1 72E-02	2 76E-01	2 93E-01
MCPP	1 00E+00	1	1	1 56E 02	1 00E 03	8 61E 06	8 61E-06	9 31F-05	9 31E-05	8 61E-03	9 31E-02	1 02E-01
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	10	1 60E-04	2 40E-02	8 61E-06	8 61E 06	9 55E-06	9 55E-06	3 59E-04	3 98E-04	7 57E 04

TABLE
POTENTIAL HAZARD INDEX
INCIDENTAL INGESTION AND DERMAL CONTACT OF
SURFACE WATER
RECREATIONAL FISHER - RME

Constituent	Reference HQ (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	HQ	EPC (mg/L)	HQ
SVOCs					
2 4-Dichlorophenol	4 86E-02	--	NCOPC	8 95E-03	4 35E-04
4 Chloroaniline	1 16E-02	--	NCOPC	1 90E-02	2 21E-04
Herbicides					
MCPA	2 93E-01	--	NCOPC	3 10E 02	9 09E-03
MCPP	1 02E-01	--	NCOPC	5 30E 02	5 39E-03
Metals					
Lead	NC	1 40E-02	NC		NCOPC
Manganese	7 57E 04	4 60E 01	3 48E 04		NCOPC
	Total HI:		**3 48E-04**		**1.51E-02**

Notes
- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ Hazard Quotient
NC - No dose response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds

SAUGET AREA 2 RI/FS
RME

Receptors Evaluated:	
Receptor:	RME Recreational Fisher

ASSUMPTIONS FOR RECREATIONAL FISHER - RME INGESTION OF FISH		Assumed Value	Units	Calculated Value
Fish Ingestion Rate	RME Recreational Fisher	0.003	(kg fish/day)	
Body Weight	RME Recreational Fisher	70	(kg)	
Exposure Frequency	RME Recreational Fisher	365	(days)/ 365 (days) =	1.00E+00
Exposure Duration (cancer)	RME Recreational Fisher	30	(yrs)/ 70 (yrs) =	4.29E-01
Exposure Duration (noncancer)	RME Recreational Fisher	30	(yrs)/ 30 (yrs) =	1.00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INGESTION OF FISH
RECREATIONAL FISHER - RME

Constituent	Fish Fillet Concentration (mg/kg)	Oral - Diet Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing RME Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose (mg/kg-day)	Excess Lifetime Cancer Risk
SVOCs						
Benzo(a)anthracene	1 00E+00	1	7 30E-01	4 90E-05	4 90E-05	3 58E-05
Benzo(a)pyrene	1 00E+00	1	7 30E+00	4 90E-05	4 90E-05	3 58E-04
bis(2-Ethylhexyl)phthalate	1 00E+00	1	1 40E-02	4 90E-05	4 90E-05	6 86E-07
Dibenzo(a,h)anthracene	1 00E+00	1	7 30E+00	4 90E-05	4 90E-05	3 58E-04
Pesticides						
4,4'-DDE	1 00E+00	1	3 40E-01	4 90E-05	4 90E-05	1 67E-05
4,4'-DDT	1 00E+00	1	3 40E-01	4 90E-05	4 90E-05	1 67E-05
alpha-Chlordane	1 00E+00	1	3 50E-01	4 90E-05	4 90E-05	1 71E-05
beta-BHC	1 00E+00	1	1 80E+00	4 90E-05	4 90E-05	8 82E-05
Dieldrin	1 00E+00	1	1 60E+01	4 90E-05	4 90E-05	7 84E-04
PCBs						
Total PCBs	1 00E+00	1	2 00E+00	4 90E-05	4 90E-05	9 80E-05
Dioxin						
2,3,7,8-TCDD-TEQ	1 00E+00	1	1 50E+05	4 90E-05	4 90E-05	7 35E+00
Metals						
Arsenic	1 00E+00	1	1 50E+00	4 90E-05	4 90E-05	7 35E-05
Mercury	1 00E+00	NA	NA	NA	NC	NC

TABLE
POTENTIAL CARCINOGENIC RISK
SAUGET AREA 2 RI/FS
RECREATIONAL FISHER - RME
INGESTION OF FISH

Constituent	Reference Risk (per mg/kg)	DDA Buffalo Fillet		PDA Buffalo Fillet		UDA Buffalo Fillet		Pond (Site Q) Black Bullhead Fillet		Pond (Site Q) Carp Fillet	
		EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
SVOCs											
Benzo(a)anthracene	3 58E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-01	5 01E-06
Benzo(a)pyrene	3 58E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 80E-01	6 44E-05
bis(2-Ethylhexyl)phthalate	6 86E-07	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 00E-01	3 43E-07
Dibenzo(a,h)anthracene	3 58E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-01	5 01E-05
Pesticides											
4,4'-DDE	1 67E-05	--	NCOPC	--	NCOPC	1 70E-02	2 83E-07	--	NCOPC	--	NCOPC
4,4'-DDT	1 67E-05	--	NCOPC	--	NCOPC	--	NCOPC	3 60E-01	6 00E-06	3 30E-01	5 50E-06
alpha-Chlordane	1 71E-05	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-02	1 71E-07	1 60E-02	2 74E-07
beta-BHC	8 82E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 70E-02	1 50E-06
Dieldrin	7 84E-04	--	NCOPC	--	NCOPC	8 10E-03	6 35E-06	1 00E-01	7 84E-05	1 90E-01	1 49E-04
PCBs											
Total PCBs	9 80E-05	--	NCOPC	--	NCOPC	-	NCOPC	3 87E+00	3 79E-04	1 00E+01	9 80E-04
Dioxin											
2,3,7,8-TCDD-TEQ	7 35E+00	7 39E-07	5 43E-06	6 25E-07	4 59E-06	4 57E-06	3 36E-05	3 84E-06	2 82E-05	1 84E-05	1 35E-04
Metals											
Arsenic	7 35E-05	--	NCOPC	--	NCOPC	--	NCOPC	7 80E-01	5 73E-05	8 20E-01	6 02E-05
Mercury	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 50E-01	NC	7 10E-02	NC
	Total:		**5.43E-06**		**4 59E-06**		**4.02E-05**		**5.49E-04**		**1.45E-03**

Notes
-- Not a constituent of potential concern in this area/medium
DDA - Downstream Discharge Area (Mississippi River)
EPC - Exposure Point Concentration
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
PDA - Plume Discharge Area (Mississippi River)
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
UDA - Upstream Discharge Area (Mississippi River)

SAUGET AREA 2 RI/FS
POTENTIAL HAZARD INDEX
INGESTION OF FISH
RECREATIONAL FISHER - RME

Constituent	Fish Fillet Concentration (mg/kg)	Oral - Diet Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing RME Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose (mg/kg-day)	Excess Lifetime Hazard Index
SVOCs						
Benzo(a)anthracene	1.00E+00	NA	NA	NA	NC	NC
Benzo(a)pyrene	1.00E+00	NA	NA	NA	NC	NC
bis(2-Ethylhexyl)phthalate	1.00E+00	1	2.00E-02	1.14E-04	1.14E-04	5.71E-03
Dibenzo(a,h)anthracene	1.00E+00	NA	NA	NA	NC	NC
Pesticides						
4,4'-DDE	1.00E+00	1	5.00E-04	1.14E-04	1.14E-04	2.29E-01
4,4'-DDT	1.00E+00	1	5.00E-04	1 14E-04	1.14E-04	2 29E-01
alpha-Chlordane	1.00E+00	1	5.00E-04	1.14E-04	1.14E-04	2.29E-01
beta-BHC	1.00E+00	1	3.00E-04	1.14E-04	1.14E-04	3.81E-01
Dieldrin	1.00E+00	1	5.00E-05	1.14E-04	1.14E-04	2 29E+00
PCBs						
Total PCBs	1.00E+00	1	2.00E-05	1 14E-04	1.14E-04	5 71E+00
Dioxin						
2,3,7,8-TCDD-TEQ	1.00E+00	NA	NA	NA	NC	NC
Metals						
Arsenic	1.00E+00	1	3.00E-04	1 14E-04	1.14E-04	3.81E-01
Mercury	1.00E+00	2	3.00E-04	2 29E-04	2.29E-04	7 62E-01

TABLE
POTENTIAL HAZARD INDEX
SAUGET AREA 2 RI/FS
RECREATIONAL FISHER - RME
INGESTION OF FISH

Constituent	Reference HQ (per mg/kg)	DDA Buffalo Fillet		PDA Buffalo Fillet		UDA Buffalo Fillet		Pond (Site Q) Black Bullhead Fillet		Pond (Site Q) Carp Fillet	
		EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
SVOCs											
Benzo(a)anthracene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-01	NC
Benzo(a)pyrene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 80E-01	NC
bis(2-Ethylhexyl)phthalate	5 71E-03	--	NCOPC	-	NCOPC	--	NCOPC	--	NCOPC	5 00E-01	2 86E-03
Dibenzo(a,h)anthracene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-01	NC
Pesticides											
4,4'-DDE	2 29E-01	--	NCOPC	--	NCOPC	1 70E-02	3 89E 03	--	NCOPC	--	NCOPC
4 4'-DDT	2 29E-01	--	NCOPC	--	NCOPC	--	NCOPC	3 60E-01	8 23E-02	3 30E-01	7 54E-02
alpha-Chlordane	2 29E-01	--	NCOPC	-	NCOPC	--	NCOPC	1 00E-02	2 29E-03	1 60E-02	3 66E-03
beta-BHC	3 81E-01	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 70E-02	6 48E-03
Dieldrin	2 29E+00	--	NCOPC	--	NCOPC	8 10E-03	1 85E 02	1 00E-01	2 29E-01	1 90E-01	4 34E-01
PCBs											
Total PCBs	5 71E+00	--	NCOPC	-	NCOPC	--	NCOPC	3 87E+00	2 21E+01	1 00E+01	5 71E+01
Dioxin											
2,3,7,8-TCDD-TEQ	NC	7 39E-07	NC	6 25E-07	NC	4 57E-06	NC	3 84E-06	NC	1 84E-05	NC
Metals											
Arsenic	3 81E-01	--	NCOPC	--	NCOPC	--	NCOPC	7 80E-01	2 97E-01	8 20E-01	3 12E-01
Mercury	7 62E-01	--	NCOPC	--	NCOPC	--	NCOPC	2 50E-01	1 90E-01	7 10E-02	5 41E-02
	Total HI.		**NC**		**NC**		**2.24E 02**		**2.29E+01**		**5.80E+01**

Notes
-- Not a constituent of potential concern in this area/medium
DDA - Downstream Discharge Area (Mississippi River)
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
PDA - Plume Discharge Area (Mississippi River)
RME - Reasonable Maximum Exposure
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
UDA - Upstream Discharge Area (Mississippi River)

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated	
Receptor:	MLE Recreational Fisher

ASSUMPTIONS FOR RECREATIONAL FISHER - MLE INCIDENTIAL INGESTION AND DERMAL CONTACT SEDIMENT		Assumed Value	Units	Calculated Value
Sediment Ingestion Rate	MLE Recreational Fisher	50	(mg soil/day)	
Sediment on Skin	MLE Recreational Fisher	1	(mg/cm^2)	
Skin Exposed	MLE Recreational Fisher	6934	(cm^2)	
Body Weight	MLE Recreational Fisher	70	(kg)	
Exposure Frequency	MLE Recreational Fisher	3	(days)/365(days) =	8.22E-03
Exposure Duration (cancer)	MLE Recreational Fisher	9	(years)/70(years) =	1.29E-01
Exposure Duration (noncancer)	MLE Recreational Fisher	9	(yrs)/9(yrs) =	1.00E+00
Lifetime		70	(years)	
Unit Conversion Factor		1.00E-06	(kg/mg)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
RECREATIONAL FISHER - MLE

Constituent	Concentration In Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose-Der (mg/kg-day)	Excess Lifetime Cancer Risk - Ingestion	Excess Lifetime Cancer Risk - Dermal Contact	Total Excess Lifetime Cancer Risk
Metals											
Arsenic	2 90E+00	0 3	0 001	1 50E+00	6 58E-10	6 58E-10	3 04E-10	3 04E-10	9 87E-10	4 56E-10	1 44E-09
								Total	9 87E-10	4 56E-10	1 44E-09

SAUGET AREA 2 RI/FS
NONCARCINOGENIC HAZARD INDEX
INCIDENTIAL INGESTION AND DERMAL CONTACT
SEDIMENT
RECREATIONAL FISHER - MLE

Constituent	Concentration In Sediment (mg/kg)	Oral - Soil Absorption Adjustment Factor	Dermal - Soil Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing MLE Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose-Ing (mg/kg-day)	ADDder MLE Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
Metals											
Arsenic	2 90E+00	0 3	0 001	3 00E-04	5 12E-09	5 12E-09	2 :6E-09	2 36E-09	1 71E-05	7 88E-06	2 49E-05
								Total	1 71E-05	7 88E-06	2 49E-05

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated:	
Receptor	MLE Recreational Fisher

ASSUMPTIONS FOR RECREATIONAL FISHER - MLE INCIDENTAL INGESTION AND DERMAL CONTACT SURFACE WATER		Assumed Value	Units	Calculated Value
Water Ingestion Rate	MLE Recreational Fisher	0 005	(l/day)	
Skin Exposed	MLE Recreational Fisher	6934	(cm^2)	
Body Weight	MLE Recreational Fisher	70	(kg)	
Exposure Time (dermal route only)	MLE Recreational Fisher	1	(hr/day)	
Exposure Frequency	MLE Recreational Fisher	3	(days)/365 (days) =	8 22E-03
Exposure Duration (cancer)	MLE Recreational Fisher	9	(yrs)/ 70(yrs) =	1 29E-01
Exposure Duration (noncancer)	MLE Recreational Fisher	9	(yrs)/ 9(yrs) =	1 00E+00
Lifetime		70	(years)	
Unit Conversion Factor (dermal route only)		0 001	(l/cm^3)	

SAUGET AREA 2 RI/FS
CARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
RECREATIONAL FISHER MLE

Constituent	Unit Concentration In Groundwater (mg/l)	Oral Water Absorption Adjustment Factor	Dermal Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Recreational Fisher (mg/kg day)	Lifetime Average Daily Dose Ing (mg/kg-day)	ADDder MLE Recreational Fisher (mg/kg day)	Lifetime Average Daily Dose Der (mg/kg-day)	Excess Lifetime Cancer Risk Ingestion	Excess Lifetime Cancer Risk Dermal Contact	Total Excess Lifetime Cancer Risk
SVOCs												
2 4 Dichlorophenol	1 00E+00	NA	NA	2 30E 02	NA	NA	NA	NA	NA	NA	NA	NC
4 Chloroaniline	1 00E+00	NA	NA	6 33E 03	NA	NA	NA	NA	NA	NA	NA	NC
Herbicides												
MCPA	1 00E+00	NA	NA	2 31E 02	NA	NA	NA	NA	NA	NA	NA	NC
MCPP	1 00E+00	NA	NA	1 56E 02	NA	NA	NA	NA	NA	NA	NA	NC
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	NA	NA	1 60E 04	NA	NA	NA	NA	NA	NA	NA	NC

TABLE
POTENTIAL CARCINOGENIC RISK
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
RECREATIONAL FISHER - MLE

Constituent	Reference Risk (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	Risk	EPC (mg/L)	Risk
SVOCs					
2,4-Dichlorophenol	NC	--	NCOPC	6 01E-03	NC
4-Chloroaniline	NC	--	NCOPC	1 22E-02	NC
Herbicides					
MCPA	NC	--	NCOPC	3 10E-02	NC
MCPP	NC	--	NCOPC	5 30E-02	NC
Metals					
Lead	NC	1 40E-02	NC	--	NCOPC
Manganese	NC	4 60E-01	NC	--	NCOPC
	Total:		**NC**		**NC**

Notes
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
SVOCs - Semi Volatile Organic Compounds

SAUGET AREA 2 RI/FS
NONCARCINOGENIC ASSESSMENT
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
RECREATIONAL FISHER - MLE

Constituent	Unit Concentration in Groundwater (mg/l)	Oral - Water Absorption Adjustment Factor	Dermal - Water Absorption Adjustment Factor	Dermal Permeability Constant (cm/hr)	Oral Reference Dose (mg/kg day)	ADDing MLE Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose Ing (mg/kg-day)	ADDder MLE Recreational Fisher (mg/kg-day)	Chronic Average Daily Dose-Der (mg/kg-day)	Hazard Index - Ingestion	Hazard Index - Dermal Contact	Total Hazard Index
SVOCs												
2,4-Dichlorophenol	1 00E+00	1	1	2 30E-02	3 00E-03	5 87E 07	5 87E-07	1 87E-05	1 87E-05	1 96E-04	6 24E-03	6 44E-03
4-Chloroaniline	1 00E+00	1	1	6 33E-03	4 00E-03	5 87E-07	5 87E-07	5 15E-06	5 15E-06	1 47E-04	1 29E-03	1 43E-03
Herbicides												
MCPA	1 00E+00	1	1	2 31E-02	5 00E-04	5 87E-07	5 87E-07	1 88E-05	1 88E-05	1 17E-03	3 76E-02	3 88E-02
MCPP	1 00E+00	1	1	1 56E-02	1 00E-03	5 87E-07	5 87E-07	1 27E-05	1 27E-05	5 87E-04	1 27E-02	1 33E-02
Metals												
Lead	1 00E+00	NA	NA	(j)	NA	NA	NA	NA	NA	NA	NA	NC
Manganese	1 00E+00	1	10	1 60E-04	2 40E-02	5 87E 07	5 87E-07	1 30E-06	1 30E-06	2 45E-05	5 43E-05	7 87E-05

TABLE
POTENTIAL HAZARD INDEX
INCIDENTAL INGESTION AND DERMAL CONTACT
SURFACE WATER
RECREATIONAL FISHER - MLE

Constituent	Reference HQ (per mg/L)	Pond (Site Q)		River	
		EPC (mg/L)	HQ	EPC (mg/L)	HQ
SVOCs					
2,4-Dichlorophenol	6.44E-03	--	NCOPC	6 01E-03	3 87E-05
4-Chloroaniline	1 43E-03	--	NCOPC	1 22E-02	1 75E-05
Herbicides					
MCPA	3 88E-02	--	NCOPC	3 10E-02	1 20E-03
MCPP	1 33E-02	--	NCOPC	5 30E-02	7 04E-04
Metals					
Lead	NC	1 40E-02	NC	--	NCOPC
Manganese	7 87E-05	4 60E-01	3 62E-05	--	NCOPC
	Total HI:		**3.62E-05**		**1.96E-03**

Notes:
-- Not a constituent of potential concern in this area/medium
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient.
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
SVOCs - Semi Volatile Organic Compounds

SAUGET AREA 2 RI/FS
MLE

Receptors Evaluated:	
Receptor:	MLE Recreational Fisher

ASSUMPTIONS FOR RECREATIONAL FISHER -MLE INGESTION OF FISH		Assumed Value	Units	Calculated Value
Fish Ingestion Rate	MLE Recreational Fisher	0.001	(kg fish/day)	
Body Weight	MLE Recreational Fisher	70	(kg)	
Exposure Frequency	MLE Recreational Fisher	365	(days)/ 365 (days) =	1.00E+00
Exposure Duration (cancer)	MLE Recreational Fisher	9	(yrs)/ 70 (yrs) =	1.29E-01
Exposure Duration (noncancer)	MLE Recreational Fisher	9	(yrs)/ 9 (yrs) =	1.00E+00
Lifetime		70	(years)	

SAUGET AREA 2 RI/FS
POTENTIAL CARCINOGENIC RISK
INGESTION OF FISH
RECREATIONAL FISHER -MLE

Constituent	Fish Fillet Concentration (mg/kg)	Oral - Diet Absorption Adjustment Factor	Oral Cancer Slope Factor (mg/kg-day)[1]	ADDing MLE Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose (mg/kg-day)	Excess Lifetime Cancer Risk
SVOCs						
Benzo(a)anthracene	1 00E+00	1	7 30E-01	1 84E-06	1 84E-06	1 34E-06
Benzo(a)pyrene	1 00E+00	1	7 30E+00	1 84E-06	1 84E-06	1 34E-05
bis(2-Ethylhexyl)phthalate	1 00E+00	1	1 40E-02	1 84E-06	1 84E-06	2 57E-08
Dibenzo(a,h)anthracene	1 00E+00	1	7 30E+00	1 84E-06	1 84E-06	1 34E-05
Pesticides						
4,4'-DDE	1 00E+00	1	3 40E-01	1 84E-06	1 84E-06	6 24E-07
4,4'-DDT	1 00E+00	1	3 40E-01	1 84E-06	1 84E-06	6 24E-07
alpha-Chlordane	1 00E+00	1	3 50E-01	1 84E-06	1 84E-06	6 43E-07
beta-BHC	1 00E+00	1	1 80E+00	1 84E-06	1 84E-06	3 31E-06
Dieldrin	1 00E+00	1	1 60E+01	1 84E-06	1 84E-06	2 94E-05
PCBs						
Total PCBs	1 00E+00	1	2 00E+00	1 84E-06	1 84E-06	3 67E-06
Dioxin						
2,3,7,8-TCDD-TEQ	1 00E+00	1	1 50E+05	1 84E-06	1 84E-06	2 76E-01
Metals						
Arsenic	1 00E+00	1	1 50E+00	1 84E-06	1 84E-06	2 76E-06
Mercury	1 00E+00	NA	NA	NA	NC	NC

TABLE
POTENTIAL CARCINOGENIC RISK
SAUGET AREA 2 RI/FS
RECREATIONAL FISHER -MLE
INGESTION OF FISH

Constituent	Reference Risk (per mg/kg)	DDA Buffalo Fillet		PDA Buffalo Fillet		UDA Buffalo Fillet		Pond (Site Q) Black Bullhead Fillet		Pond (Site Q) Carp Fillet	
		EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk	EPC (mg/kg)	Risk
SVOCs											
Benzo(a)anthracene	1 34E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-01	1 88E-07
Benzo(a)pyrene	1 34E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 80E-01	2 41E-06
bis(2-Ethylhexyl)phthalate	2 57E-08	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 00E-01	1 29E-08
Dibenzo(a,h)anthracene	1 34E-05	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 40E-01	1 88E-06
Pesticides											
4,4'-DDE	6 24E-07	--	NCOPC	--	NCOPC	1 70E-02	1 06E-08	--	NCOPC	--	NCOPC
4,4'-DDT	6 24E-07	--	NCOPC	--	NCOPC	--	NCOPC	3 60E-01	2 25E-07	3 30E-01	2 06E-07
alpha-Chlordane	6 43E-07	--	NCOPC	--	NCOPC	--	NCOPC	1 00E-02	6 43E-09	1 60E-02	1 03E-08
beta-BHC	3 31E-06	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 70E-02	5 62E-08
Dieldrin	2 94E-05	--	NCOPC	--	NCOPC	8 10E-03	2 38E 07	1 00E-01	2 94E-06	1 90E-01	5 58E-06
PCBs											
Total PCBs	3 67E-06	--	NCOPC		NCOPC		NCOPC	3 87E+00	1 42E-05	1 00E+01	3 67E-05
Dioxin											
2,3,7,8-TCDD-TEQ	2 76E-01	7 39E-07	2 04E-07	5 25E-07	1 45E 07	4 57E-06	1 26E-06	3 84E-06	1 06E-06	1 84E-05	5 07E-06
Metals											
Arsenic	2 76E-06	--	NCOPC	-	NCOPC	--	NCOPC	7 80E-01	2 15E-06	8 20E 01	2 26E-06
Mercury	NC	--	NCOPC	--	NCOPC	--	NCOPC	2 50E-01	NC	7 10E-02	NC
	Total:		**2.04E-07**		**1.45E-07**		**1.51E-06**		**2.06E-05**		**5.44E-05**

Notes
-- Not a constituent of potential concern in this area/medium
DDA - Downstream Discharge Area (Mississippi River)
EPC - Exposure Point Concentration
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
PDA - Plume Discharge Area (Mississippi River)
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
UDA - Upstream Discharge Area (Mississippi River)

SAUGET AREA 2 RI/FS
POTENTIAL HAZARD INDEX
INGESTION OF FISH
RECREATIONAL FISHER -MLE

Constituent	Fish Fillet Concentration (mg/kg)	Oral - Diet Absorption Adjustment Factor	Oral Reference Dose (mg/kg-day)	ADDing MLE Recreational Fisher (mg/kg-day)	Lifetime Average Daily Dose (mg/kg-day)	Excess Lifetime Hazard Index
SVOCs						
Benzo(a)anthracene	1 00E+00	NA	NA	NA	NC	NC
Benzo(a)pyrene	1 00E+00	NA	NA	NA	NC	NC
bis(2-Ethylhexyl)phthalate	1 00E+00	1	2 00E-02	1 43E-05	1 43E 05	7 14E-04
Dibenzo(a,h)anthracene	1 00E+00	NA	NA	NA	NC	NC
Pesticides						
4,4'-DDE	1 00E+00	1	5 00E-04	1 43E-05	1 43E 05	2 86E-02
4,4'-DDT	1 00E+00	1	5 00E-04	1 43E-05	1 43E 05	2 86E-02
alpha-Chlordane	1 00E+00	1	5 00E-04	1 43E-05	1 43E 05	2 86E-02
beta-BHC	1 00E+00	1	3 00E-04	1 43E-05	1 43E 05	4 76E-02
Dieldrin	1 00E+00	1	5 00E-05	1 43E-05	1 43E 05	2 86E-01
PCBs						
Total PCBs	1 00E+00	1	2 00E-05	1 43E-05	1 43E 05	7 14E-01
Dioxin						
2,3,7,8-TCDD-TEQ	1 00E+00	NA	NA	NA	NC	NC
Metals						
Arsenic	1 00E+00	1	3 00E-04	1 43E-05	1 43E 05	4 76E-02
Mercury	1 00E+00	2	3 00E-04	2 86E-05	2 86E 05	9 52E-02

TABLE
POTENTIAL HAZARD INDEX
SAUGET AREA 2 RI/FS
RECREATIONAL FISHER -MLE
INGESTION OF FISH

Constituent	Reference HQ (per mg/kg)	DDA Buffalo Fillet		PDA Buffalo Fillet		UDA Buffalo Fillet		Pond (Site Q) Black Bullhead Fillet		Pond (Site Q) Carp Fillet	
		EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ	EPC (mg/kg)	HQ
SVOCs											
Benzo(a)anthracene	NC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	1 40E-01	NC
Benzo(a)pyrene	NC	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	1 80E-01	NC
bis(2-Ethylhexyl)phthalate	7 14E-04	--	NCOPC	--	NCOPC	--	NCOPC	--	NCOPC	5 00E-01	3 57E-04
Dibenzo(a,h)anthracene	NC	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	1 40E-01	NC
Pesticides											
4,4'-DDE	2 86E-02	--	NCOPC	--	NCOPC	1 70E-02	4 86E-04	--	NCOPC	--	NCOPC
4,4'-DDT	2 86E-02	--	NCOPC	--	NCOPC	--	NCOPC	3 60E-01	1 03E-02	3 30E-01	9 43E-03
alpha-Chlordane	2 86E-02	--	NCOPC		NCOPC		NCOPC	1 00E-02	2 86E-04	1 60E 02	4 57E-04
beta-BHC	4 76E-02	--	NCOPC	--	NCOPC	-	NCOPC	--	NCOPC	1 70E-02	8 10E-04
Dieldrin	2 86E-01		NCOPC		NCOPC	8 10E 03	2 31E-03	1 00E 01	2 86E-02	1 90E 01	5 43E-02
PCBs											
Total PCBs	7 14E-01	-	NCOPC		NCOPC		NCOPC	3 87E+00	2 76E+00	1 00E+01	7 14E+00
Dioxin											
2 3 7 8 TCDD-TEQ	NC	7 39E-07	NC	5 25E-07	NC	4 57E-06	NC	3 84E-06	NC	1 84E-05	NC
Metals											
Arsenic	4 76E-02	--	NCOPC	--	NCOPC		NCOPC	7 80E-01	3 71E-02	8 20E-01	3 90E-02
Mercury	9 52E-02	-	NCOPC	--	NCOPC	--	NCOPC	2 50E-01	2 38E-02	7 10E-02	6 76E-03
	Total HI:		**NC**		**NC**		**2.80E-03**		**2.86E+00**		**7.25E+00**

Notes
-- Not a constituent of potential concern in this area/medium
DDA - Downstream Discharge Area (Mississippi River)
EPC - Exposure Point Concentration
HI - Hazard Index
HQ - Hazard Quotient
MLE - Most Likely Exposure
NC - No dose-response value
NCOPC - Not calculated because not a constituent of potential concern in this area/medium
PCBs - Polychlorinated Biphenyls
PDA - Plume Discharge Area (Mississippi River)
SVOCs - Semi Volatile Organic Compounds
TCDD - TEQ - Tetrachlorodibenzo-p-dioxin Toxic Equivalents Concentration
UDA - Upstream Discharge Area (Mississippi River)

N

APPENDIX N

TOXIC ENDPOINT ANALYSIS

APPENDIX N
TOXIC ENDPOINT ANALYSIS

This appendix presents the toxic endpoint analysis for the evaluation of noncarcinogenic total hazard indices for receptors whose total site hazard index exceeded the target value of 1.

In the report, a hazard quotient (HQ) is calculated for each constituent of potential concern (COPC) for each receptor at each exposure point. When the HQ is less than one, the reference dose (RfD) has not been exceeded, and no adverse noncarcinogenic health effects are expected. Notice that this is not a calculation of risk, per se. That is, the hazard quotient does not predict the probability of health effect. It simply indicates whether an exposure estimate is above or below a dose assumed to be unlikely to produce an effect. However, because the RfD has the connotation of being "acceptable" (i.e., unlikely to result in effects) risk management decisions may be made based on whether the HQ is above or below one. A total receptor-specific Hazard Index (HI) is calculated for each exposure pathway by summing the HQ for each individual constituent for that receptor. This approach accounts for the possibility that the toxicity of all COPCs are additive and should be regarded only as a screening assessment because additive toxicity may not be correct. Again, if the total HI is below one, a remedial response would not normally be required. If the HI is greater than one, further evaluation to identify COPCs that may be additive (or otherwise interactive) in their toxicity should be conducted before making decisions. Such an evaluation is termed a toxic endpoint analysis. Toxicologically, only the HQs of chemicals having similar toxic endpoints can be added together to provide an HI for a given effect.

The toxic endpoints based on oral and inhalation exposures to COPCs are presented in Table N-1. The toxic endpoint information in this table was identified either from the Integrated Risk Information System (IRIS), the Health Effects Assessment Summary Tables (HEAST) or the National Center for Environmental Assessment (NCEA) using the information on the dose-response tables (Table 4-1 for oral endpoints and Table 4-2 for inhalation endpoints) presented in Section 4.0 of the text. A single COPC can have more than one toxic endpoint. For example, the HQ for ethylbenzene is appropriately additive with other COPCs that have "liver effects" identified as a toxic endpoint. However, because the toxic endpoint for ethylbenzene is identified as liver and kidney toxicity, the HQ for ethylbenzene is also added with the HQ for other COPCs exhibiting kidney effects.

The following table lists the table number of the target endpoint analysis performed for each receptor scenario identified as having total HI greater than 1. Target endpoint

analyses were performed for both reasonable maximum exposure (RME) and most likely exposure (MLE) scenarios where both had a total HI greater than 1.

Table	Site	Receptor	Scenario
N-2	O	Outdoor industrial worker	RME
N-3	O	Construction/utility worker	RME
N-4	O	Construction/utility worker	MLE
N-5	O North	Outdoor industrial worker	RME
N-6	O North	Outdoor industrial worker	MLE
N-7	O North	Construction/utility worker	RME
N-8	O North	Construction/utility worker	MLE
N-9	O North	Trespassing teenager	RME
N-10	O North	Trespassing teenager	MLE
N-11	R	Outdoor industrial worker	RME
N-12	R	Construction/utility worker	RME
N-13	R	Construction/utility worker	MLE
N-14	S	Outdoor industrial worker	RME
N-15	S	Outdoor industrial worker	MLE
N-16	S	Construction/utility worker	RME
N-17	S	Trespassing teenager	RME
N-18	Q Pond (Carp)	Recreational fisher	RME
N-19	Q Pond (Carp)	Recreational fisher	MLE
N-20	Q Pond (Black Bullhead)	Recreational fisher	RME
N-21	Q Pond (Black Bullhead)	Recreational fisher	MLE
N-22	Q North	Construction/utility worker	RME
N-23	Q North	Construction/utility worker	MLE

The results are discussed in the text in Section 6.0.

TABLE N 1
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

Constituent	Dec. Body Weight		Develop Effects		Blood Effects		Liver Effects		Kidney Effects		Neuro Effects		GI Effects		Reproductive Effects		Vascular Effects		Dec Longevity		Nasal Effects		Immune Effects		Spleen Effects		Skin Effects		Eye Effects		Thyroid Effects		Adrenal Effects		Skeletal Effects		Respiratory Effects		None Reported		No DR Available	
	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh
VOCs																																										
1,1,2-Trichloroethane					X																																					X
1,2-Dichloroethane								X	X	X				X														X														
1,2-Dichloroethane (total)					X																																					X
2-Butanone (MEK)			X	X																																						
4-Methyl-2-pentanone (MIBK)				X			X		X		X																								X							
Acetone							X		X																																	X
Benzene																							X	X																		
Chlorobenzene							X	X																																		
Chloroform					X		X	X		X		X																														
Chloromethane												X																													X	
Dichloromethane							X	X																																		
Ethylbenzene				X			X		X																																	
Tetrachloroethene	X						X	X		X																																
Toluene							X		X			X																														
Trichloroethylene							X					X																														
Xylenes, Total	X											X							X																							
SVOCs																																										
1,2-Dichlorobenzene		X																																					X			
1,3-Dichlorobenzene					X			X																							X											
1,4-Dichlorobenzene			X				X	X																																		
2,4,6-Trichlorophenol															X																											X
2,4-Dichlorophenol																							X																			X
2,4-Dimethylphenol					X				X																																	X
2-Chlorophenol															X																											X
2-Methylnaphthalene	X																					X																				
2-Nitroaniline						X																																			X	
3-Methylphenol/4-Methylphenol	X										X																															X
4-Chloroaniline																									X																	X
4-Nitroaniline					X	X																																				
Benzo(a)anthracene																																									X	X
Benzo(a)pyrene																																									X	X
Benzo(b)fluoranthene																																									X	X
Benzo(g,h,i)perylene									X																																	X
Benzo(k)fluoranthene																																									X	X
bis(2-Chloroethyl)ether																																									X	X
bis(2-Ethylhexyl)phthalate							X																																			X
Dibenzo(a,h)anthracene																																									X	X
Hexachlorobenzene							X																																			X
Indeno(1,2,3-cd)pyrene																																									X	X
Naphthalene	X																					X																				
Nitrobenzene					X	X	X	X	X	X																							X	X								
Phenol	X																																									X

TABLE N 1
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

Constituent	Dec Body Weight		Develop Effects		Blood Effects		Liver Effects		Kidney Effects		Neuro. Effects		GI Effects		Reproductive Effects		Vascular Effects		Dec Longevity		Nasal Effects		Immune Effects		Spleen Effects		Skin Effects		Eye Effects		Thyroid Effects		Adrenal Effects		Skeletal Effects		Respiratory Effects		None Reported		No D/R Available	
	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh	Ing	Inh
Pesticides																																										
4 4 DDE							X																																			X
4 4 DDT							X																																			X
Aldrin							X																																			X
alpha-BHC							X		X																																	X
alpha-Chlordane							X	X																																		
beta-BHC							X		X																																	X
delta-BHC							X		X																																	X
Dieldrin							X																																			X
Endrin Ketone							X				X																															X
gamma-BHC (Lindane)							X		X																																	X
Heptachlor							X																																			X
Heptachlor epoxide							X																																			X
Herbicides																																										
2 4 5-T									X																																	X
2 4-D					X		X		X																																	X
MCPA							X		X																																	X
MCPP									X																																	X
Pentachlorophenol							X		X																																	X
PCBs																																										
Total PCBs																							X				X		X													X
Dioxin																																										
2 3 7 8-TCDD-TEQ																																									X	X
Metals																																										
Antimony					X														X																							X
Arsenic																	X										X															X
Barium				X					X																																	
Beryllium													X																								X					
Cadmium									X																																	X
Chromium																																						X	X			
Cobalt					X																																	X				
Copper													X																													X
Lead																																									X	X
Manganese											X	X																														
Mercury												X											X																			
Nickel	X																																									X
Thallium					X																																					X
Vanadium																																							X			X
Zinc					X																																					X

Notes
Dec Decreased
Develop Developmental
D/R Dose-Response
GI Gastrointestinal
Ing Ingestion
Inh Inhalation
Neuro Neurological
X The endpoint was identified for the exposure route for this constituent

TABLE N 2
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS OUTDOOR INDUSTRIAL WORKER RME SCENARIO SITE O
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop Effects			Liver Effects			Neuro Effects			Immune Effects			Skin Effects			Eye Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
Benzene											3 89E 01	3 89E 01						
Chlorobenzene					2 91E-01	2 91E 01												
Ethylbenzene		6 32E 02	6 32E-02															
Toluene								2 25E 02	2 25E 02									
Xylenes Total								**3 23E+00**	**3 23E+00**									
Pesticides																		
Dieldrin				1 36E-03		1 36E 03												
PCBs																		
Total PCBs										1 77E 0		1 77E 01	1 77E-01		1 77E-01	1 77E-01		1 77E-01
		6 32E-02	6 32E-02	1 36E-03	2 91E 01	2 93E 01		**3 25E+00**	**3 25E+00**	1 77E-0	3 89E-01	5 66E-01	1 77E-01		1 77E-01	1 77E-01		1 77E-01

Notes
Develop - Developmental
D/R Dose Response
Ing Ingestion
Inh - Inhalation
NA Effect not additive
Neuro - Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-3
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - CONSTRUCTION/UTILITY WORKER - RME SCENARIO - SITE O
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec. Body Weight			Develop. Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro. Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
Benzene																		
Chlorobenzene										6.33E-03	9.95E-01	**1.00E+00**						
Ethylbenzene					2.52E-01	2.52E-01				4.66E-03		4.66E-03	4.66E-03		4.66E-03			
Toluene										3.25E-04		3.25E-04	3.25E-04		3.25E-04		1.35E-01	1.35E-01
Xylenes, Total	1.17E-02		1.17E-02														**1.42E+01**	**1.42E+01**
SVOCs																		
1,4-Dichlorobenzene				2.61E-04		2.61E-04				2.61E-04	3.86E-07	2.61E-04						
2,4,6-Trichlorophenol																		
2-Nitroaniline								8.22E-05	8.22E-05									
Pesticides																		
Aldrin										4.00E-03		4.00E-03						
delta-BHC										1.58E-03		1.58E-03	1.58E-03		1.58E-03			
Dieldrin										1.27E-02		1.27E-02						
gamma-BHC (Lindane)										1.60E-03		1.60E-03	1.60E-03		1.60E-03			
Heptachlor										9.26E-04		9.26E-04						
Heptachlor epoxide										6.02E-03		6.02E-03						
PCBs																		
Total PCBs																		
Metals																		
Arsenic																		
Manganese																6.92E-04		6.92E-04
	1.17E-02		1.17E-02	2.61E-04	2.52E-01	2.52E-01		8.22E-05	8.22E-05	3.83E-02	9.95E-01	**1.03E+00**	8.17E-03		8.17E-03	6.92E-04	**1.44E+01**	**1.44E+01**

Notes:
Dec. - Decreased.
Develop. - Developmental.
D/R - Dose-Response.
Ing - Ingestion.
Inh - Inhalation.
NA - Effect not additive.
Neuro. - Neurological.
PCBs - Polychlorinated Biphenyls.
RME - Reasonable Maximum Exposure.
SVOCs - Semivolatile Organic Compounds.
VOCs - Volatile Organic Compounds.
Bold values indicate an exceedence of the target hazard index of 1, or values that significantly contribute to an exceedence.

TABLE N 3
TOXIC ENDPOINTS FOR POTENTIAL NONC
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Reproductive Effects			Vascular Effects			Dec Longevity			Immune Effects			Skin Effects			Eye Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
Benzene										2 1E-02	3 14E+00	3 16E+00						
Chlorobenzene																		
Ethylbenzene																		
Toluene																		
Xylenes Total							1 17E 02		1 17E-02									
SVOCs																		
1 4 Dichlorobenzene																		
2 4 6 Trichlorophenol	1 15E-02		1 15E 02															
2 Nitroaniline																		
Pesticides																		
Aldrin																		
delta BHC																		
Dieldrin																		
gamma BHC (Lindane)																		
Heptachlor																		
Heptachlor epoxide																		
PCBs																		
Total PCBs										2 53E+00		2 53E+00	2 53E+00		2 53E+00	2 53E+00		2 53E+00
Metals																		
Arsenic				5 05E 04		5 05E 04							5 05E-04		5 05E-04			
Manganese																		
	1 15E-02		1 15E 02	5 05E 04		5 05E 04	1 17E-02		1 17E-02	2 55E+00	3 14E+00	5 69E+00	2 53E+00		2 53E+00	2 53E+00		2 53E+00

Notes
Dec Decreased
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the targ

TABLE N 4
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS CONSTRUCTION/UTILITY WORKER MLE SCENARIO SITE O
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects			Reproductive Effects			Vascular Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																								
Benzene																								
Chlorobenzene										6 06E 04	8 84E 02	8 90E 02												
Ethylbenzene					1 28E-02	1 28E 02				2 67E 04		2 67E 04	2 67E 04		2 67E 04									
Toluene										1 91E 05		1 91E 05	1 91E 05		1 91E 05		7 17E 03	7 17E 03						
Xylenes Total	6 84E 04		6 84E-04														7 56E 01	7 56E 01						
SVOCs																								
1 4 Dichlorobenzene				3 44E 05		3 44E 05				3 44E 05	4 62E 08	3 44E-05												
2 4 6 Trichlorophenol																			1 42E 03		1 42E-03			
2 Nitroaniline								1 11E 05	1 11E 05															
Pesticides																								
Aldrin										2 67E 04		2 67E 04												
delta BHC										1 68E 04		1 68E 04	1 68E 04		1 68E 04									
Dieldrin										1 39E 03		1 39E 03												
gamma BHC (Lindane)										9 29E 05		9 29E 05	9 29E 05		9 29E 05									
Heptachlor										8 66E 05		8 66E 05												
Heptachlor epoxide										6 19E 04		6 19E 04												
PCBs																								
Total PCBs																								
Metals																								
Arsenic																						2 53E 04		2 53E 04
Manganese																3 46E 04		3 46E 04						
Total	6 84E 04		6 84E-04	3 44E 05	1 28E-02	1 28E 02		1 11E 05	1 11E 05	3 56E-03	8 84E 02	9 20E-02	5 47E 04		5 47E 04	3 46E 04	7 63E-01	7 64E 01	1 42E-03		1 42E-03	2 53E 04		2 53E-04

Notes
Dec Decreased
Develop Developmental
D/R Dose-Response
Ing Ingestion
Inh Inhalation
NA Effect Not Additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N 4
TOXIC ENDPOINTS FOR POTENTIAL NONC
HUMAN HEALTH RISK ASSESSMENT
SAUGE T AREA 2 RI/FS

Constituent	Dec Longevity			Immune Effects			Skin Effects			Eye Effects		
	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs												
Benzene				1 45E 03	1 86E-01	1 88E 01						
Chlorobenzene												
Ethylbenzene												
Toluene												
Xylenes Total	6 84E 04		6 84E 04									
SVOCs												
1 4 Dichlorobenzene												
2 4 6 Trichlorophenol												
2 Nitroaniline												
Pesticides												
Aldrin												
delta BHC												
Dieldrin												
gamma-BHC (Lindane)												
Heptachlor												
Heptachlor epoxide												
PCBs												
Total PCBs				2 14E 01		2 14E 01	2 14E-01		2 14E 01	2 14E 01		2 14E 01
Metals												
Arsenic							2 53E-04		2 53E 04			
Manganese												
Total	6 84E 04		6 84E-04	2 16E 01	1 86E-01	4 02E 01	2 15E 01		2 15E 01	2 14E-01		2 14E 01

Notes
Dec Decreased
Develop Developmental
D/R Dose-Response
Ing Ingestion
Inh Inhalation
NA Effect Not Additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the tar

TABLE N-5
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - OUTDOOR INDUSTRIAL WORKER - RME SCENARIO - SITE O NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop. Effects			Liver Effects			Kidney Effects			Neuro. Effects			Immune Effects			Skin Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
4-Methyl-2-pentanone (MIBK)		4.11E-06	4.11E-06															
Benzene														7.43E-02	7.43E-02			
Chlorobenzene					2.58E-01	2.58E-01												
Dichloromethane					9.19E-04	9.19E-04												
Ethylbenzene		2.40E-02	2.40E-02															
Tetrachloroethene					3.64E-04	3.64E-04		3.64E-04	3.64E-04									
Xylenes, Total											1.23E+00	1.23E+00						
PCBs																		
Total PCBs													1.16E+01		1.16E+01	1.16E+01		1.16E+01
Metals																		
Mercury											4.33E-05	4.33E-05	1.07E-01		1.07E-01			
		2.40E-02	2.40E-02		2.60E-01	2.60E-01		3.64E-04	3.64E-04		1.23E+00	1.23E+00	1.18E+01	7.43E-02	1.18E+01	1.16E+01		1.16E+01

Notes:
Develop. - Developmental.
D/R - Dose-Response
Ing - Ingestion.
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure.
VOCs - Volatile Organic Compounds.
Bold values indicate an exceedence of the target hazard index of 1, or values that significantly contribute to an exceedence

TABLE N 5
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

Constituent	Eye Effects			Skeletal Effects		
	Ing	Inh	Total	Ing	Inh	Total
VOCs						
4-Methyl-2-pentanone (MIBK)					4 11E-06	4 11E 06
Benzene						
Chlorobenzene						
Dichloromethane						
Ethylbenzene						
Tetrachloroethene						
Xylenes, Total						
PCBs						
Total PCBs	1 16E+01		1 16E+01			
Metals						
Mercury						
	1.16E+01		1.16E+01		4 11E-06	4 11E-06

Notes
Develop - Developmental
D/R - Dose Response
Ing - Ingestion
Inh Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of th

TABLE N 6
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - OUTDOOR INDUSTRIAL WORKER MLE SCENARIO SITE O NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop Effects			Liver Effects			Kidney Effects			Neuro Effects			Immune Effects		
Constituent	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**
VOCs															
4-Methyl-2 pentanone (MIBK)		2 57E 06	2 57E-06												
Benzene														2 91E-02	2 91E-02
Chlorobenzene					1 09E 01	1 09E 01									
Dichloromethane					2 42E 04	2 42E-04									
Ethylbenzene		9 98E 03	9 98E 03												
Tetrachloroethene					1 19E 04	1 19E-04		1 19E 04	1 19E 04						
Xylenes, Total											5 21E-01	5 21E-01			
PCBs															
Total PCBs													**7 27E+00**		**7 27E+00**
Metals															
Mercury											2 71E 05	2 71E 05	6 45E 02		6 45E 02
		9 99E 03	9 99E 03		1 09E 01	1 09E 01		1 19E 04	1 19E 04		5 21E 01	5 21E-01	**7.33E+00**	2 91E 02	**7.36E+00**

Notes
Develop - Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
MLE Most Likely Exposure
NA Effect not additive
Neuro - Neurological
PCBs Polychlorinated Biphenyls
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N 6
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Skin Effects			Eye Effects			Skeletal Effects		
Constituent	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**
VOCs									
4-Methyl-2-pentanone (MIBK)								2 57E 06	2 57E 06
Benzene									
Chlorobenzene									
Dichloromethane									
Ethylbenzene									
Tetrachloroethene									
Xylenes, Total									
PCBs									
Total PCBs	**7.27E+00**		**7.27E+00**	**7.27E+00**		**7.27E+00**			
Metals									
Mercury									
	7.27E+00		**7.27E+00**	**7.27E+00**		**7.27E+00**		2 57E-06	2 57E-06

Notes
Develop - Developmental
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
MLE Most Likely Exposure
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of thı

TABLE N 7
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - CONSTRUCTION/UTILITY WORKER - RME SCENARIO SITE O NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
4-Methyl-2-pentanone (MIBK)					4 70E-05	4 70E-05				1 46E-05		1 46E-05	1 46E-05		1 46E-05	1 46E-05		1 46E-05
Benzene																		
Chlorobenzene										8 72E-03	6 48E-01	6 57E-01						
Dichloromethane										2 50E-04	7 28E-03	7 53E-03						
Ethylbenzene					6 79E-02	6 79E-02				1 27E-03		1 27E-03	1 27E-03		1 27E-03			
Tetrachloroethene	1 13E-04		1 13E-04							1 13E-04	2 21E 03	2 32E-03		2 21E-03	2 21E-03			
Xylenes Total	3 27E-03		3 27E-03														3.95E+00	3.95E+00
SVOCs																		
1,2-Dichlorobenzene		1 71E-05	1 71E-05															
1 3-Dichlorobenzene							2.22E-03		2.22E-03		9 86E-08	9 86E-08						
1 4-Dichlorobenzene				6 66E-04		6 66E-04				6 66E-04	9 86E-07	6 67E-04						
2 4 6-Trichlorophenol																		
2 4-Dichlorophenol																		
2-Chlorophenol																		
2-Methylnaphthalene	1 45E-03		1 45E-03															
2-Nitroaniline								2 04E-03	2 04E-03									
3-Methylphenol/4-Methylphenol	1 92E-04		1 92E-04													1 92E-04		1 92E-04
4-Chloroaniline																		
4-Nitroaniline							5 68E-02	1 65E-03	5 84E-02									
Hexachlorobenzene										9 54E-04		9 54E-04						
Naphthalene	2 92E-03		2 92E-03															
Nitrobenzene							3 43E-03	3 63E-03	3 47E-03	3 43E-03	3 63E-03	3 47E-03	3 43E-03	3 63E-03	3 47E-03			
Phenol	1 16E-04		1 16E-04															
Pesticides																		
4 4-DDE										1 10E-02		1 10E-02						
4 4-DDT										1 93E-02		1 93E-02						
Aldrin										2 50E-02		2 50E-02						
alpha-BHC										8 32E-04		8 32E-04	8 32E-04		8 32E-04			
beta-BHC													1 18E-02		1 18E-02			
Dieldrin										1 66E-01		1 66E-01						
Heptachlor										3 30E-03		3 30E-03						
Heptachlor epoxide										3 46E-02		3 46E-02						
Herbicides																		
2 4 5-T													1 03E-04		1 03E-04			
2 4 D							1 21E-03		1 21E-03	1 21E-03		1 21E-03	1 21E-03		1 21E-03			
Pentachlorophenol										2 21E-02		2 21E-02	2 21E-02		2 21E-02			
PCBs																		
Total PCBs																		
Metals																		
Arsenic																		
Cadmium													1 69E-02		1 69E-02			
Manganese																3 04E-03		3 04E-03
Mercury																	7 89E-03	7 89E-03
Thallium							1.20E-04		1 20E-04									
Total	8 06E-03	1 71E-05	8 07E-03	6 66E-04	6 79E-02	6 86E-02	6 57E-02	3 72E-03	6 95E-02	3 01E-01	6 58E-01	9 59E-01	5 97E-02	2 25E-03	6 20E-02	3 24E-03	3.95E+00	3.96E+00

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-7
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Reproductive Effects			Vascular Effects			Dec. Longevity			Nasal Effects			Immune Effects			Spleen Effects			Skin Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																					
4-Methyl-2-pentanone (MIBK)																					
Benzene													1.69E-02	4.64E-01	4.81E-01						
Chlorobenzene																					
Dichloromethane																					
Ethylbenzene																					
Tetrachloroethene																					
Xylenes, Total							3.27E-03		3.27E-03												
SVOCs																					
1,2-Dichlorobenzene																					
1,3-Dichlorobenzene																					
1,4-Dichlorobenzene																					
2,4,6-Trichlorophenol	3.57E-01		3.57E-01																		
2,4-Dichlorophenol													3.41E-03		3.41E-03						
2-Chlorophenol	1.08E-03		1.08E-03																		
2-Methylnaphthalene											4.38E-04	4.38E-04									
2-Nitroaniline																					
3-Methylphenol/4-Methylphenol																					
4-Chloroaniline																1.07E-02		1.07E-02			
4-Nitroaniline																					
Hexachlorobenzene																					
Naphthalene											8.99E-05	8.99E-05									
Nitrobenzene																					
Phenol																					
Pesticides																					
4,4'-DDE																					
4,4'-DDT																					
Aldrin																					
alpha-BHC																					
beta-BHC																					
Dieldrin																					
Heptachlor																					
Heptachlor epoxide																					
Herbicides																					
2,4,5-T																					
2,4-D																					
Pentachlorophenol																					
PCBs																					
Total PCBs													**2.85E+01**		**2.85E+01**				**2.85E+01**		**2.85E+01**
Metals																					
Arsenic				5.92E-03		5.92E-03													5.92E-03		5.92E-03
Cadmium																					
Manganese																					
Mercury													3.84E-01		3.84E-01						
Thallium																					
Total	3.58E-01		3.58E-01	5.92E-03		5.92E-03	3.27E-03		3.27E-03		5.28E-04	5.28E-04	**2.89E+01**	4.64E-01	**2.94E+01**	1.07E-02		1.07E-02	**2.85E+01**		**2.85E+01**

Notes
Dec. - Decreased
Develop - Developmental
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compound
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the

TABLE N-7
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Eye Effects			Thyroid Effects			Adrenal Effects			Skeletal Effects			None Reported		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs															
4-Methyl-2-pentanone (MIBK)											4 70E-05	4 70E-05			
Benzene															
Chlorobenzene															
Dichloromethane															
Ethylbenzene															
Tetrachloroethene															
Xylenes Total															
SVOCs															
1 2-Dichlorobenzene													9 62E-04		9 62E-04
1 3-Dichlorobenzene				2.22E-03		2 22E-03									
1 4-Dichlorobenzene															
2 4 6-Trichlorophenol															
2 4-Dichlorophenol															
2-Chlorophenol															
2-Methylnaphthalene															
2-Nitroaniline															
3-Methylphenol/4-Methylphenol															
4-Chloroaniline															
4-Nitroaniline															
Hexachlorobenzene															
Naphthalene															
Nitrobenzene							5 43E-03	3 63E-05	5 47E-03						
Phenol															
Pesticides															
4,4-DDE															
4 4'-DDT															
Aldrin															
alpha-BHC															
beta-BHC															
Dieldrin															
Heptachlor															
Heptachlor epoxide															
Herbicides															
2 4 5-T															
2 4-D															
Pentachlorophenol															
PCBs															
Total PCBs	**2.85E+01**		**2.85E+01**												
Metals															
Arsenic															
Cadmium															
Manganese															
Mercury															
Thallium															
Total	**2.85E+01**		**2.85E+01**	2.22E-03		2 22E-03	5 43E-03	3 63E-05	5 47E-03		4 70E-05	4 70E-05	NA		NA

Notes
Dec. - Decreased
Develop - Developmental
D/R - Dose-Response
Ing - Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compound
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the

TABLE N 8
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS CONSTRUCTION/UTILITY WORKER MLE SCENARIO SITE O NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
4-Methyl-2 pentanone (MIBK)					1 41E 05	1 41E-05				7 32E-06		7 32E-06	7 32E-06		7 32E-06	7 32E-06		7 32E-06
Benzene																		
Chlorobenzene										3 25E-03	1 34E 01	1 37E-01						
Dichloromethane										3 55E 05	9 07E 04	9 42E-04						
Ethylbenzene					1 35E-02	1 35E 02				2 78E 04		2 78E-04	2 78E-04		2 78E-04			
Tetrachloroethene	1 95E-05		1 95E-05							1 95E-05	3 48E-04	3 68E-04		3 48E-04	3 48E 04			
Xylenes Total	7 20E-04		7 20E-04														7 89E-01	7 89E-01
SVOCs																		
1,2 Dichlorobenzene		2 44E-06	2 44E-06															
1 3-Dichlorobenzene							3 63E-04		3 63E-04		1 46E 08	1 46E-08						
1 4-Dichlorobenzene				1 17E-04		1 17E 04				1 17E-04	1 57E 07	1 17E-04						
2 4 6-Trichlorophenol																		
2 4-Dichlorophenol																		
2-Chlorophenol																		
2-Methylnaphthalene	2 66E-04		2 66E-04															
2 Nitroaniline								2.27E-04	2 27E-04									
3-Methylphenol/4-Methylphenol	9 62E-05		9 62E-05													9 62E-05		9 62E-05
4-Chloroaniline																		
4-Nitroaniline							6 93E-03	1 70E-04	7 10E-03									
Hexachlorobenzene										1 49E-04		1 49E 04						
Naphthalene	1 37E-03		1 37E-03															
Nitrobenzene							1 34E-03	4 00E-06	3 4E 03	3 4E-03	4 00E-06	3 4E-03	3 4E-03	4 00E-06	3 4E 03			
Phenol	5 79E-05		5 79E 05															
Pesticides																		
4 4 DDE										1 87E-03		1 87E 03						
4 4 -DDT										2.25E-03		2.25E 03						
Aldrin										4 04E-03		4 04E-03						
alpha-BHC										1 10E-04		* 10E-04	1 10E-04		1 10E 04			
beta-BHC													1 43E-03		1 43E-03			
Dieldrin										2 14E-02		2 14E 02						
Heptachlor										3 74E-04		3 74E 04						
Heptachlor epoxide										5 30E-03		5 30E 03						
Herbicides																		
2 4 5-T													5 14E 05		5 14E-05			
2 4-D							6 04E-04		6 04E-04	6 04E-04		6.04E-04	6 04E-04		6 04E-04			
Pentachlorophenol										1 11E-02		1 11E 02	1 11E-02		1 11E 02			
PCBs																		
Total PCBs																		
Metals																		
Arsenic																		
Cadmium													2 75E-03		2 75E-03			
Manganese																1 52E-03		1 52E-03
Mercury																	1 08E-03	1 08E-03
Thallium							6 01E-05		6 01E-05									
Total	2 53E-03	2 44E-06	2 53E-03	1 17E 04	1 35E-02	1 36E-02	9 30E-03	4 00E-04	9 70E-03	5.22E-02	1 35E-01	1 87E-01	1 76E-02	3 52E-04	1 80E 02	1 62E-03	7 90E-01	7 92E 01

Notes
Dec Decreased
Develop Developmental
D/R Dose-Response
Ing Ingestion
Inh Inhalation
MLE Most Likely Exposure
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-8
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Reproductive Effects			Vascular Effects			Dec Longevity			Nasal Effects			Immune Effects			Spleen Effects			Skin Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																					
4-Methyl-2-pentanone (MIBK)																					
Benzene													7 60E-03	9 11E-02	9 87E-02						
Chlorobenzene																					
Dichloromethane																					
Ethylbenzene																					
Tetrachloroethene																					
Xylenes Total							7.20E-04		7 20E 04												
SVOCs																					
1 2-Dichlorobenzene																					
1 3-Dichlorobenzene																					
1 4-Dichlorobenzene																					
2 4 6-Trichlorophenol	1 41E-01		1 41E-01																		
2 4-Dichlorophenol													1 71E-03		1 71E-03						
2-Chlorophenol	5 39E-04		5.39E-04																		
2-Methylnaphthalene											5 44E-05	5 44E-05									
2-Nitroaniline																					
3-Methylphenol/4-Methylphenol																					
4-Chloroaniline																5 37E-03		5 37E-03			
4-Nitroaniline																					
Hexachlorobenzene																					
Naphthalene											1 21E-05	1 21E-05									
Nitrobenzene																					
Phenol																					
Pesticides																					
4 4 -DDE																					
4 4 -DDT																					
Aldrin																					
alpha-BHC																					
beta-BHC																					
Dieldrin																					
Heptachlor																					
Heptachlor epoxide																					
Herbicides																					
2 4 5-T																					
2 4-D																					
Pentachlorophenol																					
PCBs																					
Total PCBs													**6.89E+00**		**6 89E+00**				**6 89E+00**		**6 89E+00**
Metals																					
Arsenic				1 04E-03		1 04E-03													1 04E-03		1 04E-03
Cadmium																					
Manganese																					
Mercury													5 70E-02		5 70E-02						
Thallium																					
Total	1 42E-01		1 42E-01	1 04E-03		1 04E-03	7 20E-04		7 20E-04		6 65E 05	6 65E-05	**6.95E+00**	9 1 E-02	**7.04E+00**	5 37E-03		5 37E-03	**6 89E+00**		**6.89E+00**

Notes
Dec. - Decreased
Develop Developmental
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
SVOCs - Semivolatile Organic Compound
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the

TABLE N 8
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Eye Effects			Thyroid Effects			Adrenal Effects			Skeletal Effects			None Reported		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs															
4-Methyl-2-pentanone (MIBK)											1 41E-05	1 41E-05			
Benzene															
Chlorobenzene															
Dichloromethane															
Ethylbenzene															
Tetrachloroethene															
Xylenes Total															
SVOCs															
1,2-Dichlorobenzene													1 51E-04		1 51E-04
1 3-Dichlorobenzene				3 63E-04		3 63E-04									
1 4-Dichlorobenzene															
2 4 6-Trichlorophenol															
2 4-Dichlorophenol															
2-Chlorophenol															
2-Methylnaphthalene															
2-Nitroaniline															
3-Methylphenol/4-Methylphenol															
4-Chloroaniline															
4-Nitroaniline															
Hexachlorobenzene															
Naphthalene															
Nitrobenzene							3[illegible]E-03	4 06E-06	1 3[illegible]E-03						
Phenol															
Pesticides															
4 4-DDE															
4 4 DDT															
Aldrin															
alpha-BHC															
beta-BHC															
Dieldrin															
Heptachlor															
Heptachlor epoxide															
Herbicides															
2 4 5-T															
2 4-D															
Pentachlorophenol															
PCBs															
Total PCBs	**6 89E+00**		**6 89E+00**												
Metals															
Arsenic															
Cadmium															
Manganese															
Mercury															
Thallium															
Total	**6.89E+00**		**6 89E+00**	3 63E-04		3 63E-04	1 34E-03	4 06E-06	1 34E-03		1 41E-05	1 41E-05	NA		NA

Notes
Dec Decreased
Develop Developmental
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
SVOCs - Semivolatile Organic Compound
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the

TABLE N 9
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - TRESPASSING TEENAGER - RME SCENARIO SITE O NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop Effects			Liver Effects			Kidney Effects			Neuro Effects			Immune Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs															
4-Methyl-2-pentanone (MIBK)		1 57E-07	1 57E-07												
Benzene														2 84E-03	2 84E 03
Chlorobenzene					9 87E-03	9 87E 03									
Dichloromethane					3 51E 05	3 51E 05									
Ethylbenzene		9 16E-04	9 16E-04												
Tetrachloroethene					1 39E-05	1 39E-05		1 39E 05	1 39E-05						
Xylenes, Total											4 71E-02	4 71E-02			
PCBs															
Total PCBs													**4 86E+00**		**4 86E+00**
Metals															
Mercury											1 65E 06	1 65E-06	4 37E-02		4 37E-02
		9 16E-04	9 16E-04		9 92E-03	9 92E-03		1 39E-05	1 39E-05		4 71E-02	4 71E-02	**4.90E+00**	2 84E 03	**4.91E+00**

Notes
Develop - Developmental
D/R - Dose Response
Ing Ingestion
Inh Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1, or values that significantly contribute to an exceedence

TABLE N-9
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

Constituent	Skin Effects			Eye Effects			Skeletal Effects		
	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs									
4-Methyl-2 pentanone (MIBK)								1 57E-07	1 57E-07
Benzene									
Chlorobenzene									
Dichloromethane									
Ethylbenzene									
Tetrachloroethene									
Xylenes, Total									
PCBs									
Total PCBs	**4.86E+00**		**4.86E+00**	**4.86E+00**		**4.86E+00**			
Metals									
Mercury									
	4.86E+00		**4.86E+00**	**4.86E+00**		**4.86E+00**		1 57E-07	1 57E-07

Notes
Develop - Developmental
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of th

TABLE N 10
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - TRESPASSING TEENAGER - MLE SCENARIO SITE O NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop. Effects			Liver Effects			Kidney Effects			Neuro Effects			Immune Effects		
Constituent	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**
VOCs															
4-Methyl 2-pentanone (MIBK)		6 54E-08	6 54E 08												
Benzene														7 41E-04	7 41E-04
Chlorobenzene					2 77E-03	2 77E-03									
Dichloromethane					6 17E-06	6 17E-06									
Ethylbenzene		2 54E-04	2 54E-04												
Tetrachloroethene					3 03E 06	3 03E-06		3 03E-06	3 03E-06						
Xylenes, Total											1 33E 02	1 33E-02			
PCBs															
Total PCBs													1 32E+00		1.32E+00
Metals															
Mercury											6 89E-07	6 89E 07	1 10E-02		1 10E-02
		2 54E-04	2 54E-04		2 78E-03	2 78E-03		3 03E-06	3 03E-06		1 33E-02	1 33E-02	**1 33E+00**	7 41E-04	**1.33E+00**

Notes
Develop - Developmental
D/R - Dose Response
Ing Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1, or values that significantly contribute to an exceedence

TABLE N 10
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

Constituent	Skin Effects			Eye Effects			Skeletal Effects		
	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs									
4-Methyl-2-pentanone (MIBK)								6 54E-08	6 54E-08
Benzene									
Chlorobenzene									
Dichloromethane									
Ethylbenzene									
Tetrachloroethene									
Xylenes, Total									
PCBs									
Total PCBs	**1.32E+00**		**1.32E+00**	**1.32E+00**		**1 32E+00**			
Metals									
Mercury									
	1.32E+00		**1.32E+00**	**1.32E+00**		**1.32E+00**		6 54E-08	6 54E-08

Notes
Develop - Developmental
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of th

TABLE N 11
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS OUTDOOR INDUSTRIAL WORKER RME SCENARIO SITE R
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop Effects			Liver Effects			Kidney Effects			Neuro Effects			GI Effects			Immune Effects			Skin Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																					
1 2 Dichloroethane					1 56E-01	1 56E-01		1 56E-01	1 56E-01					1 56E-01	1 56E-01					1 56E-01	1 56E-01
2 Butanone (MEK)		2 43E-05	2 43E-05																		
Benzene																	1 17E-02	1 17E-02			
Chlorobenzene					1 61E-02	1 61E-02															
Chloroform					1 19E-03	1 19E-03		1 19E-03	1 19E-03		1 19E-03	1 19E 03									
Chloromethane											6 29E-08	6 29E-08									
Dichloromethane					1 22E-05	1 22E-05															
Ethylbenzene		2 06E-05	2 06E-05																		
Tetrachloroethene					4 76E 03	4 76E-03		4 76E-03	4 76E-03												
Toluene											3 26E-03	3 26E-03									
Trichloroethylene											9 14E-01	9 14E-01									
Xylenes Total											1 40E-04	1 40E 04									
		4 50E-05	4 50E-05		1 78E-01	1 78E-01		1 62E-01	1 62E-01		9 18E-01	9 18E 01		1 56E-01	1 56E 01		1 17E 02	1 17E-02		1 56E 01	1 56E-01

Notes
Develop - Developmental
D/R Dose Response
GI Gastrointestinal
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
RME Reasonable Maximum Exposure
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-12
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - CONSTRUCTION/UTILITY WORKER - RME SCENARIO SITE R
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec. Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1 1,2 Trichloroethane							1 32E-04		1 32E-04									
1,2-Dichloroethane											**8.46E+00**	**8 46E+00**	2.25E-02	**8.46E+00**	**8.48E+00**			
1 2-Dichloroethene (total)							9 88E-03		9 88E-03									
2-Butanone (MEK)				4 47E-05	5 30E-03	5 35E-03												
Acetone										8 64E-04		8 64E-04	8 64E-04		8 64E-04			
Benzene																		
Chlorobenzene										8 51E-03	4 27E-02	5 12E-02						
Chloroform							2 80E-03		2 80E-03	2 80E-03	3 48E-02	3 76E-02		3 48E-02	3 48E-02		3 48E 02	3 48E-02
Dichloromethane										3 60E-04	6.01E-04	9 61E-04						
Ethylbenzene					3 39E-05	3 39E-05				2 70E-05		2 70E-05	2 70E-05		2 70E-05			
Tetrachloroethene	2 21E-01		2 21E-01							2 21E-01	4 41E-02	2 65E-01		4 41E-02	4 41E-02			
Toluene										6 64E-03		6 64E-03	6 64E-03		6 64E-03		4 36E-02	4 36E 02
Trichloroethylene										**1.27E+01**		**1.27E+01**					**3 75E+00**	**3 75E+00**
Xylenes Total	7 44E-05		7 44E-05														2 30E-03	2 30E-03
SVOCs																		
1 4-Dichlorobenzene				3 56E-05		3 56E-05				3 56E-05	5 28E-08	3 57E-05						
2 4 6-Trichlorophenol																		
2 4-Dichlorophenol																		
2-Chlorophenol																		
2-Nitroaniline								9 24E-05	9.24E-05									
3-Methylphenol/4-Methylphenol	1 35E-03		1 35E-03													1 35E-03		1 35E-03
4-Chloroaniline																		
4-Nitroaniline							3 30E-02	1 37E-05	3 30E-02									
Benzo(g,h,i)perylene													3.26E-01		3 26E-01			
Naphthalene	2 13E-04		2 13E-04															
Nitrobenzene							4 83E-03	4 78E-05	4 88E-03	4 83E-03	4 78E-05	4 88E-03	4 83E-03	4 78E-05	4 88E-03			
Phenol	3 35E-02		3 35E-02															
Pesticides																		
4 4-DDT										2 37E 01		2 37E-01						
beta-BHC										1 57E-02		1 57E-02	1 57E-02		1 57E-02			
Dieldrin										9 10E-02		9 10E-02						
gamma-BHC (Lindane)										1 89E-03		1 89E-03	1 89E-03		1 89E-03			
Heptachlor										7 01E-03		7 01E-03						
Herbicides																		
2 4-D							4 94E-03		4 94E-03	4 94E-03		4 94E-03	4 94E-03		4 94E-03			
MCPP													1 03E-02		1 03E-02			
PCBs																		
Total PCBs																		
Metals																		
Arsenic																		
Beryllium																		
Chromium																		
Cobalt							3.22E-04		3.22E-04									
Manganese																4 22E-02		4.22E-02
Mercury																	1 53E 02	1 53E-02
Nickel	6 70E-04		6 70E-04															
Thallium							3 90E-03		3 90E-03									
Vanadium																		
Zinc							1 82E-03		1 82E-03									
Total	2.57E-01		2 57E-01	8 03E-05	5 34E-03	5 42E-03	6 17E-02	1 54E-04	6 18E-02	**1.33E+01**	**8.58E+00**	**2.18E+01**	3 93E-01	**8.53E+00**	**8.93E+00**	4 35E-02	**3 85E+00**	**3.89E+00**

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-12
TOXIC ENDPOINTS FOR POTEN
HUMAN HEALTH RISK ASSESSM
SAUGET AREA 2 RI/FS

	GI Effects			Reproductive Effects			Vascular Effects			Dec. Longevity			Nasal Effects			Immune Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1 1,2 Trichloroethane																		
1,2 Dichloroethane		**8.46E+00**	**8 46E+00**															
1,2-Dichloroethene (total)																		
2 Butanone (MEK)																		
Acetone																		
Benzene																1 05E-01	2 01E-01	3 06E-01
Chlorobenzene																		
Chloroform																		
Dichloromethane																		
Ethylbenzene																		
Tetrachloroethene																		
Toluene																		
Trichloroethylene																		
Xylenes Total										7 44E 05		7 44E-05						
SVOCs																		
1 4-Dichlorobenzene																		
2 4 6-Trichlorophenol				2.83E-01		2 83E-01												
2 4-Dichlorophenol																4 70E-02		4 70E-02
2 Chlorophenol				3 91E-02		3 91E-02												
2 Nitroaniline																		
3-Methylphenol/4-Methylphenol																		
4-Chloroaniline																		
4 Nitroaniline																		
Benzo(g h)perylene																		
Naphthalene														6 44E 05	6 44E-05			
Nitrobenzene																		
Phenol																		
Pesticides																		
4 4 DDT																		
beta-BHC																		
Dieldrin																		
gamma-BHC (Lindane																		
Heptachlor																		
Herbicides																		
2 4-D																		
MCPP																		
PCBs																		
Total PCBs																**2.04E+02**		**2 04E+02**
Metals																		
Arsenic							1 17E 03		1 17E-03									
Beryllium	3 54E-04		3 54E-04															
Chromium																		
Cobalt																		
Manganese																		
Mercury																7 47E 01		7 47E-01
Nickel																		
Thallium																		
Vanadium																		
Zinc																		
Total	3 54E-04	**8.46E+00**	**8.46E+00**	3.22E-01		3 22E 01	1 17E-03		1 17E 03	7 44E 05		7 44E-05		6 44E 05	6 44E-05	**2.05E+02**	2 01E 01	**2.05E+02**

Notes
Dec. Decreased
Develop Developmenta
D/R Dose-Response
GI Gastrointestinal
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Expo
SVOCs Semi volatile Organic Co
VOCs Volatile Organic Compoun
Bold values indicate an exceedenc

TABLE N-12
TOXIC ENDPOINTS FOR POTEN
HUMAN HEALTH RISK ASSESSM
SAUGET AREA 2 RI/FS

	Spleen Effects			Skin Effects			Eye Effects			Adrenal Effects			Respiratory Effects			None Reported		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1 1,2-Trichloroethane																		
1,2-Dichloroethane					**8.46E+00**	**8.46E+00**												
1,2-Dichloroethene (total)																		
2-Butanone (MEK)																		
Acetone																		
Benzene																		
Chlorobenzene																		
Chloroform																		
Dichloromethane																		
Ethylbenzene																		
Tetrachloroethene																		
Toluene																		
Trichloroethylene																		
Xylenes, Total																		
SVOCs																		
1 4-Dichlorobenzene																		
2 4 6-Trichlorophenol																		
2 4-Dichlorophenol																		
2 Chlorophenol																		
2-Nitroaniline																		
3-Methylphenol/4-Methylphenol																		
4-Chloroaniline	1 07E-01		1 07E-01															
4-Nitroaniline																		
Benzo(g h i)perylene																		
Naphthalene																		
Nitrobenzene										4 83E-03	4 78E-05	4 88E-03						
Phenol																		
Pesticides																		
4 4'-DDT																		
beta-BHC																		
Dieldrin																		
gamma-BHC (Lindane)																		
Heptachlor																		
Herbicides																		
2 4-D																		
MCPP																		
PCBs																		
Total PCBs				**2 04E+02**		**2.04E+02**	**2 04E+02**		**2.04E+02**									
Metals																		
Arsenic				1 17E-03		1 17E-03												
Beryllium													3 54E-04		3 54E-04			
Chromium																7 36E-03		7 36E-03
Cobalt																		
Manganese																		
Mercury																		
Nickel																		
Thallium																		
Vanadium																2 08E-04		2 08E-04
Zinc																		
Total	1 07E-01		1 07E-01	**2 04E+02**	**8.46E+00**	**2.13E+02**	**2.04E+02**		**2.04E+02**	4 83E-03	4 78E-05	4 88E-03	3 54E-04		3 54E-04	**NA**		**NA**

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exp
SVOCs - Semivolatile Organic Co
VOCs - Volatile Organic Compoun
Bold values indicate an exceedenc

TAABLE N 13
TOX C ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS CONSTRUCTION/UTILITY WORKER MLE SCENARIO S TE R
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec. Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1 1,2 Trichloroethane							2 33E-05		2 33E-05									
1 2-Dichloroethane											**2.53E+00**	**2.53E+00**	1 12E-02	**2.53E+00**	**2.54E+00**			
1 2-Dichloroethene (total)							4 90E-03		4 90E-03									
2-Butanone (MEK)				2.23E-05	1 59E-03	1 61E-03												
Acetone										4 32E-04		4 32E-04	4 32E-04		4 32E 04			
Benzene																		
Chlorobenzene										2 45E-03	8 18E-03	1 06E-02						
Chloroform							1 37E-03		1 37E-03	1 37E-03	1 04E-02	1 7E-02		1 04E-02	1 04E-02		1 04E-02	1 04E-02
Dichloromethane										1.80E-04	1 80E-04	3 60E-04						
Ethylbenzene					5 58E-06	5 58E-06				**4 98E-06**		**4 98E-06**	**4 98E-06**		**4 98E-06**			
Tetrachloroethene	1 08E-01		1 08E-01							1 08E-01	1.28E-02	1 21E-01		1 28E-02	1 28E-02			
Toluene										3.24E-03		3.24E-03	3.24E-03		3 24E-03		1.27E-02	1.27E-02
Trichloroethylene										**5 76E+00**		**5 76E+00**					9 34E-01	9 34E-01
Xylenes Total	1.26E-05		1.26E-05														3 62E-04	3.62E-04
SVOCs																		
1 4-Dichlorobenzene				4 62E-06		4 62E-06				4 62E-06	6 20E-09	4 62E-06						
2 4 6-Trichlorophenol																		
2 4-Dichlorophenol																		
2-Chlorophenol																		
2-Nitroaniline								1 50E-05	1 50E-05									
3-Methylphenol/4-Methylphenol	6 76E-04		6 76E-04													6 76E-04		6 76E-04
4-Chloroaniline																		
4-Nitroaniline							1 64E-02	2 03E-06	1 64E-02									
Benzo(g h)perylene													1 63E-01		1 63E-01			
Naphthalene	3 75E-05		3 75E-05															
Nitrobenzene							7 30E 04	6 56E-06	7 37E-04	7 30E-04	6 56E-06	7 37E-04	7 30E-04	6 56E 06	7 37E-04			
Phenol	1 68E-02		1 68E-02															
Pesticides																		
4 4 -DDT										1 18E-01		1 18E-01						
beta-BHC										7 69E-03		7 69E-03	7 69E-03		7 69E-03			
Dieldrin										4 38E-02		4 38E-02						
gamma-BHC (Lindane)										9 45E-04		9 45E-04	9 45E-04		9 45E-04			
Heptachlor										3 45E-03		3 45E-03						
Herbicides																		
2 4-D							2 47E-03		2 47E-03	2 47E-03		2 47E-03	2 47E-03		2 47E-03			
MCPP													2 57E-03		2 57E-03			
PCBs																		
Total PCBs																		
Metals																		
Arsenic																		
Beryllium																		
Chromium																		
Cobalt							1 61E-04		1 61E-04									
Manganese																2 11E-02		2 1E-02
Mercury																	1 65E-03	1 65E-03
Nickel	3 35E-04		3 35E-04															
Thallium							1 95E-03		1 95E-03									
Vanadium																		
Zinc							9 09E-04		9 09E-04									
Total	1 26E-01		1 26E-01	2 70E-05	1 60E-03	1 62E-03	2 89E-02	2 36E-05	2 89E-02	**6 06E+00**	**2.56E+00**	**8.62E+00**	1 92E-01	**2.56E+00**	**2 75E+00**	2 18E-02	9 59E-01	9 81E-01

Notes
Dec. Decreased
Develop Developmental
D/R Dose-Response
GI Gastrointestinal
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
MLE Most Likely Exposure
PCBs Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compounds.
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TAABLE N-13
TOXIC ENDPOINTS FOR PO"ENTIAL NONC
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	GI Effects			Reproductive Effects			Vascular Effects			Dec. Longevity			Nasal Effects			Immune Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1 1,2-Trichloroethane																		
1,2-Dichloroethane		2.53E+00	2.53E+00															
1,2-Dichloroethene (total)																		
2-Butanone (MEK)																		
Acetone																		
Benzene																5 17E-02	5 90E-02	1 11E-01
Chlorobenzene																		
Chloroform																		
Dichloromethane																		
Ethylbenzene																		
Tetrachloroethene																		
Toluene																		
Trichloroethylene																		
Xylenes, Total										1 26E-05		1.26E-05						
SVOCs																		
1 4-Dichlorobenzene																		
2 4 6-Trichlorophenol				4 04E-02		4 04E-02												
2 4-Dichlorophenol																6 01E-03		6 01E-03
2-Chlorophenol				1 84E-02		1 84E-02												
2-Nitroaniline																		
3-Methylphenol/4-Methylphenol																		
4-Chloroaniline																		
4 Nitroaniline																		
Benzo(g h i)perylene																		
Naphthalene														7 69E-06	7 69E-06			
Nitrobenzene																		
Phenol																		
Pesticides																		
4 4 -DDT																		
beta-BHC																		
Dieldrin																		
gamma-BHC (Lindane)																		
Heptachlor																		
Herbicides																		
2 4-D																		
MCPP																		
PCBs																		
Total PCBs																1 02E+02		1 02E+02
Metals																		
Arsenic							3 17E-04		3 17E-04									
Beryllium	1 77E-04		1 77E-04															
Chromium																		
Cobalt																		
Manganese																		
Mercury																8.73E-02		8 73E-02
Nickel																		
Thallium																		
Vanadium																		
Zinc																		
Total	1 77E-04	2.53E+00	2.53E+00	5 88E-02		5 88E-02	3 17E-04		3 17E-04	1 26E-05		1.26E-05		7 69E-06	7 69E-06	1.02E+02	5 90E-02	1 02E+02

Notes
Dec. - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
MLE - Most Likely Exposure
PCBs - Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the targ

TAABLE N 13
TOXIC ENDPOINTS FOR POTENTIAL NONC
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Spleen Effects			Skin Effects			Eye Effects			Adrenal Effects			Respiratory Effects			None Reported		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1 1,2 Trichloroethane																		
1 2-Dichloroethane					**2.53E+00**	**2.53E+00**												
1 2-Dichloroethene (total)																		
2-Butanone (MEK)																		
Acetone																		
Benzene																		
Chlorobenzene																		
Chloroform																		
Dichloromethane																		
Ethylbenzene																		
Tetrachloroethene																		
Toluene																		
Trichloroethylene																		
Xylenes Total																		
SVOCs																		
1 4-Dichlorobenzene																		
2 4 6-Trichlorophenol																		
2 4-Dichlorophenol																		
2 Chlorophenol																		
2-Nitroaniline																		
3-Methylphenol/4-Methylphenol																		
4-Chloroaniline	5 37E-02		5 37E-02															
4-Nitroaniline																		
Benzo(g h i)perylene																		
Naphthalene																		
Nitrobenzene										7 30E-04	6 56E-06	7 37E-04						
Phenol																		
Pesticides																		
4 4 DDT																		
beta-BHC																		
Dieldrin																		
gamma-BHC (Lindane)																		
Heptachlor																		
Herbicides																		
2 4-D																		
MCPP																		
PCBs																		
Total PCBs				**1 02E+02**		**1 02E+02**	**1 02E+02**		**1 02E+02**									
Metals																		
Arsenic				3 17E-04		3 17E-04												
Beryllium													1 77E-04		1 77E-04			
Chromium																3 68E-03		3 68E-03
Cobalt																		
Manganese																		
Mercury																		
Nickel																		
Thallium																		
Vanadium																1 04E-04		1 04E-04
Zinc																		
Total	5 37E-02		5 37E-02	**1 02E+02**	**2.53E+00**	**1 04E+02**	**1 02E+02**		**1 02E+02**	7 30E-04	6 56E-06	7 37E-04	1 77E-04		1 77E-04	NA		NA

Notes
Dec. Decreased
Develop Developmental
D/R Dose-Response
GI Gastrointestinal
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
MLE Most Likely Exposure
PCBs Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the targ

TABLE N 14
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS OUTDOOR INDUSTRIAL WORKER RME SCENARIO SITE S
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

Constituent	Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects			Reproductive Effects		
	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
4 Methyl 2 pentanone (MIBK)		2 22E 03	2 22E 03															
Benzene																		
Chlorobenzene								3 25E 02	3 25E 02									
Dichloromethane								9 52E 05	9 52E 05									
Ethylbenzene		1 40E-03	1 40E-03															
Tetrachloroethene								1 18E 04	1 18E 04		1 18E 04	1 18E-04						
Toluene														3 26E-02	3 26E 02			
Trichloroethylene														4 76E-02	4 76E 02			
Xylenes Total														1 17E-01	1 17E-01			
SVOCs																		
2 4 6 Trichlorophenol																3 09E 02		3 09E-02
2 Nitroaniline					1 04E 05	1 04E 05												
4 Nitroaniline				7 16E-03	6 49E 06	7 17E 03												
Pesticides																		
4 4 DDT							1 21E 02		1 21E 02									
beta BHC							3 27E 02		3 27E 02	3 27E 0?		3 27E-02						
gamma BHC (Lindane)							9 42E 03		9 42E 03	9 42E 0?		9 42E-03						
Heptachlor							1 13E 03		1 13E 03									
Herbicides																		
Pentachlorophenol							5 53E 03		5 53E 03	5 53E 0?		5 53E 03						
PCBs																		
Total PCBs																		
		3 62E-03	3 62E-03	7 16E 03	1 69E 05	7 18E 03	6 08E 02	3 27E 02	9 35E 02	4 76E-0?	1 18E-04	4 77E-02		1 97E-01	1 97E-01	3 09E-02		3 09E-02

Notes
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA *Effect not additive*
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 *or values that significantly contribute to an exceedence*

TABLE N 14
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Immune Effects			Skin Effects			Eye Effects			Skeletal Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs												
4 Methyl 2 pentanone (MIBK)											2 22E 03	2 22E 03
Benzene		3 55E-03	3 55E-03									
Chlorobenzene												
Dichloromethane												
Ethylbenzene												
Tetrachloroethene												
Toluene												
Trichloroethylene												
Xylenes Total												
SVOCs												
2 4 6 Trichlorophenol												
2 Nitroaniline												
4 Nitroaniline												
Pesticides												
4 4' DDT												
beta BHC												
gamma BHC (Lindane)												
Heptachlor												
Herbicides												
Pentachlorophenol												
PCBs												
Total PCBs	1 66E+01		1 66E+01	1 66E+01		1 66E+01	1 66E+01		1 66E+01			
	1 66E+01	3 55E-03	1 66E+01	1 66E+01		1 66E+01	1 66E+01		1 66E+01		2 22E 03	2 22E 03

Notes
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro - Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compoun
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of th

TABLE N 15
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - OUTDOOR INDUSTRIAL WORKER MLE SCENARIO SITE S
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects			Reproductive Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
4 Methyl-2-pentanone (MIBK)		3 54E-04	3 54E 04															
Benzene																		
Chlorobenzene								4 55E-03	4 55E-03									
Dichloromethane								1 73E 05	1 73E 05									
Ethylbenzene		2 50E-04	2 50E 04															
Tetrachloroethene								2 94E-05	2 94E-05		2 94E-05	2 94E-05						
Toluene														4 54E-03	4 54E 03			
Trichloroethylene														6 54E-03	6 54E-03			
Xylenes Total														1 75E-02	1 75E-02			
SVOCs																		
2 4,6 Trichlorophenol																9 56E 03		9 56E-03
2 Nitroaniline					3 94E-06	3 94E-06												
4-Nitroaniline				2 20E 03	2 06E-06	2 20E 03												
Pesticides																		
4,4'-DDT							3 65E-03		3 65E-03									
beta BHC							9 88E-03		9 88E-03	9 88E 03		9 88E-03						
gamma BHC (Lindane)							2 85E-03		2 85E-03	2 85E-03		2 85E 03						
Heptachlor							3 42E-04		3 42E-04									
Herbicides																		
Pentachlorophenol							1 67E-03		1 67E 03	1 67E 03		1 67E 03						
PCBs																		
Total PCBs																		
		6 04E-04	6 04E-04	2 20E-03	6 00E-06	2 21E-03	1 84E-02	4 60E-03	2 30E-02	1 44E 02	2 94E-05	1 44E-02		2 86E 02	2 86E-02	9 56E-03		9 56E-03

Notes
Develop Developmental
D/R Dose Response
Ing - Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA - Effect not additive
Neuro Neurological
PCBs - Polychlorinated Biphenyls
SVOCs - Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N 15
TOXIC ENDPOINTS FOR POTENTIAL I
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Immune Effects			Skin Effects			Eye Effects			Skeletal Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs												
4 Methyl 2 pentanone (MIBK)											3 54E-04	3 54E-04
Benzene		7 63E-04	7 63E-04									
Chlorobenzene												
Dichloromethane												
Ethylbenzene												
Tetrachloroethene												
Toluene												
Trichloroethylene												
Xylenes Total												
SVOCs												
2 4 6 Trichlorophenol												
2 Nitroaniline												
4 Nitroaniline												
Pesticides												
4 4 DDT												
beta BHC												
gamma-BHC (Lindane)												
Heptachlor												
Herbicides												
Pentachlorophenol												
PCBs												
Total PCBs	5 17E+00		5 17E+00	5 17E+00		5 17E+00	5 17E+00		5 17E+00			
	5 17E+00	**7 63E-04**	**5 17E+00**	**5 17E+00**		**5 17E+00**	**5 17E+00**		**5 17E+00**		**3 54E-04**	**3 54E-04**

Notes
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
MLE Most Likely Exposure
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compoun
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of tl

TABLE N 16
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS CONSTRUCTION/UTILITY WORKER RME SCENARIO SITE S
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
4 Methyl 2 pentanone (MIBK)					3 62E-03	3 62E 03				8 32E-04		8 32E 04	8 32E-04		8 32E-04	8 32E 04		8 32E 04
Benzene																		
Chlorobenzene										9 99E-03	5 34E 02	6 34E 02						
Dichloromethane										1 64E 04	1 57E 04	3 20E 04						
Ethylbenzene					2 30E-03	2 30E-03				1 83E-03		1 83E 03	1 83E-03		1 83E 03			
Tetrachloroethene	5 49E 04		5 49E-04							5 49E-04	2 03E 04	7 52E 04		2 03E-04	2 03E 04			
Toluene										4 99E-03		4 99E 03	4 99E 03		4 99E 03		5 22E-02	5 22E-02
Trichloroethylene										1 33E-01		1 33E 01					7 83E 02	7 83E 02
Xylenes Total	6 11E 03		6 11E-03														1 86E-01	1 86E-01
SVOCs																		
1 3 Dichlorobenzene							2 22E 03		2 22E-03		9 86E 08	9 86E 08						
1 4 Dichlorobenzene				1 11E 03		1 11E 03				1 11E-03	1 64E 06	1 11E 03						
2 4 6 Trichlorophenol																		
2 Nitroaniline								1 51E 04	1 51E-04									
4 Nitroaniline							3 16E 03	9 39E 05	3 26E 03									
bis(2 Ethylhexyl)phthalate										1 04E 03		1 04E 03						
Naphthalene	3 47E 04		3 47E-04															
Pesticides																		
4 4 DDT										5 33E-03		5 33E 03						
Aldrin										1 05E 03		1 05E 03						
beta BHC										1 44E 02		1 44E 02	1 44E-02		1 44E 02			
Dieldrin										1 27E-03		1 27E 03						
gamma BHC (Lindane)										4 16E-03		4 16E 03	4 16E-03		4 16E 03			
Heptachlor										4 99E-04		4 99E 04						
Herbicides																		
Pentachlorophenol										2 44E 03		2 44E 03	2 44E-03		2 44E 03			
PCBs																		
Total PCBs																		
Metals																		
Chromium																		
	7 01E 03		7 01E-03	1 11E 03	5 92E-03	7 03E-03	5 38E-03	2 45E 04	5 63E-03	1 83E-01	5 38E-02	2 37E 01	2 87E 02	2 03E-04	2 89E-02	8 32E 04	3 17E 01	3 18E 01

Notes
Dec Decreased
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N 16
TOXIC ENDPOINTS FOR POTENTIAL N(
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Reproductive Effects			Dec Longevity			Nasal Effects			Immune Effects			Skin Effects			Eye Effects			Thyroid Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																					
4 Methyl 2 pentanone (MIBK)																					
Benzene										1 54E 03	5 84E-03	7 39E 03									
Chlorobenzene																					
Dichloromethane																					
Ethylbenzene																					
Tetrachloroethene																					
Toluene																					
Trichloroethylene																					
Xylenes Total				6 11E 03		6 11E 03															
SVOCs																					
1 3 Dichlorobenzene																			2 22E-03		2 22E 03
1 4 Dichlorobenzene																					
2 4 6 Trichlorophenol	1 37E 02		1 37E-02																		
2 Nitroaniline																					
4 Nitroaniline																					
bis(2-Ethylhexyl)phthalate																					
Naphthalene								1 05E 04	1 05E 04												
Pesticides																					
4 4 DDT																					
Aldrin																					
beta BHC																					
Dieldrin																					
gamma BHC (Lindane)																					
Heptachlor																					
Herbicides																					
Pentachlorophenol																					
PCBs																					
Total PCBs										8 56E+00		8 56E+00	8 56E+00		8 56E+00	8 56E+00		8 56E+00			
Metals																					
Chromium																					
	1 37E 02		1 37E-02	6 11E-03		6 11E 03		1 05E-04	1 05E-04	8 56E+00	5 84E-03	8 56E+00	8 56E+00		8 56E+00	8 56E+00		8 56E+00	2 22E-03		2 22E 03

Notes
Dec Decreased
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compound
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the

TABLE N 16
TOXIC ENDPOINTS FOR POTENTIAL N(
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Skeletal Effects			Respiratory Effects			None Reported		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs									
4 Methyl 2 pentanone (MIBK)		3 62E 03	3 62E 03						
Benzene									
Chlorobenzene									
Dichloromethane									
Ethylbenzene									
Tetrachloroethene									
Toluene									
Trichloroethylene									
Xylenes Total									
SVOCs									
1 3 Dichlorobenzene									
1 4 Dichlorobenzene									
2 4 6-Trichlorophenol									
2 Nitroaniline									
4 Nitroaniline									
bis(2 Ethylhexyl)phthalate									
Naphthalene									
Pesticides									
4 4 DDT									
Aldrin									
beta BHC									
Dieldrin									
gamma BHC (Lindane)									
Heptachlor									
Herbicides									
Pentachlorophenol									
PCBs									
Total PCBs									
Metals									
Chromium					3 15E-02	3 15E 02	7 51E-03		7 51E-03
		3 62E-03	3 62E-03		3 15E-02	3 15E 02	NA		NA

Notes
Dec Decreased
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compound
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the

TABLE N 17
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS TRESPASSING TEENAGER RME SCENARIO SITE S
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Develop Effects			Blood Effects			Liver Effects			Kidney Effects			Neuro Effects			Reproductive Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
4 Methyl 2 pentanone (MIBK)		8 49E-05	8 49E-05															
Benzene																		
Chlorobenzene								1 24E 03	1 24E 03									
Dichloromethane								3 64E 06	3 64E 06									
Ethylbenzene		5 34E-05	5 34E-05															
Tetrachloroethene								4 49E 06	4 49E 06		4 49E 06	4 49E-06						
Toluene														1 24E-03	1 24E-03			
Trichloroethylene														1 82E-03	1 82E-03			
Xylenes Total														4 46E-03	4 46E-03			
SVOCs																		
2 4 6 Trichlorophenol																1 27E 02		1 27E 02
2 Nitroaniline					3 99E 07	3 99E 07												
4 Nitroaniline				2 93E-03	2 48E 07	2 93E 03												
Pesticides																		
4 4 DDT							4 94E 03		4 94E 03									
beta BHC							1 34E 02		1 34E 02	1 34E 0[illegible]		1 34E-02						
gamma BHC (Lindane)							3 86E 03		3 86E 03	3 86E 0[illegible]		3 86E-03						
Heptachlor							4 63E 04		4 63E 04									
Herbicides																		
Pentachlorophenol							2 26E 03		2 26E 03	2 26E 0[illegible]		2 26E-03						
PCBs																		
Total PCBs																		
		1 38E-04	1 38E-04	2 93E-03	6 47E 07	2 93E 03	2 49E 02	1 25E 03	2 62E 02	1 95E 0[illegible]	4 49E-06	1 95E-02		7 52E-03	7 52E-03	1 27E-02		1 27E-02

Notes
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N 17
TOXIC ENDPOINTS FOR POTENTIAL N
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

Constituent	Immune Effects			Skin Effects			Eye Effects			Skeletal Effects		
	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs												
4 Methyl 2 pentanone (MIBK)											8 49E 05	8 49E 05
Benzene		1 36E 04	1 36E-04									
Chlorobenzene												
Dichloromethane												
Ethylbenzene												
Tetrachloroethene												
Toluene												
Trichloroethylene												
Xylenes Total												
SVOCs												
2 4 6 Trichlorophenol												
2 Nitroaniline												
4 Nitroaniline												
Pesticides												
4 4 DDT												
beta BHC												
gamma BHC (Lindane)												
Heptachlor												
Herbicides												
Pentachlorophenol												
PCBs												
Total PCBs	**6 91E+00**		**6 91E+00**	**6 91E+00**		**6 91E+00**	**6 91E+00**		**6 91E+00**			
	6 91E+00	**1 36E-04**	**6 91E+00**	**6 91E+00**		**6 91E+00**	**6 91E+00**		**6 91E+00**		**8 49E 05**	**8 49E 05**

Notes
Develop Developmental
D/R Dose Response
Ing Ingestion
Inh Inhalation
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
RME Reasonable Maximum Exposure
SVOCs Semivolatile Organic Compoun
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of th

TABLE N-18
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - RECREATIONAL FISHER - CARP FILLET - RME SCENARIO - SITE Q POND
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Liver Effects			Kidney Effects			Neuro. Effects			Vascular Effects			Immune Effects			Skin Effects			Eye Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
SVOCs																					
bis(2-Ethylhexyl)phthalate	2 86E-03		2 86E-03																		
Pesticides																					
4,4'-DDT	7 54E-02		7 54E-02																		
alpha-Chlordane	3 66E-03		3 66E-03																		
beta-BHC	6 48E-03		6 48E-03	6 48E-03		6 48E-03															
Dieldrin	4 34E-01		4 34E-01																		
PCBs																					
Total PCBs													5.71E+01		5.71E+01	5.71E+01		5.71E+01	5.71E+01		5.71E+01
Metals																					
Arsenic										3 12E-01		3 12E-01				3 12E-01		3 12E-01			
Manganese							3 48E-04		3 48E-04												
Mercury													5 41E-02		5 41E-02						
	5 23E-01		5 23E-01	6 48E-03		6 48E-03	3 48E-04		3 48E-04	3 12E-01		3 12E-01	5.72E+01		5.72E+01	5.75E+01		5.75E+01	5.71E+01		5.71E+01

Notes
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1, or values that significantly contribute to an exceedence

TABLE N 19
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS RECREATIONAL FISHER CARP FILLET MLE SCENARIO SITE Q POND
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Liver Effects			Kidney Effects			Neuro Effects			Vascular Effects			Immune Effects			Skin Effects			Eye Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
SVOCs																					
bis(2 Ethylhexyl)phthalate	3 57E 04		3 57E 04																		
Pesticides																					
4 4 DDT	9 43E 03		9 43E 03																		
alpha Chlordane	4 57E 04		4 57E 04																		
beta BHC	8 10E 04		8 10E-04	8 10E 04		8 10E 04															
Dieldrin	5 43E 02		5 43E 02																		
PCBs																					
Total PCBs													7 14E+00		7 14E+00	7 14E+00		7 14E+00	7 14E+00		7 14E+00
Metals																					
Arsenic										3 90E 02		90E 02				3 90E 02		3 90E-02			
Manganese							3 62E 05		3 62E-05												
Mercury													6 76E 03		6 76E 03						
	6 53E 02		6 53E 02	8 10E 04		8 10E 04	3 62E-05		3 62E 05	3 90E 02		90E 02	7 15E+00		7 15E+00	7 18E+00		7 18E+00	7 14E+00		7 14E+00

Notes
D/R Dose Response
Ing Ingestion
Inh Inhalation
MLE Most Likely Exposure
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
SVOCs Semivolatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N 20
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - RECREATIONAL FISHER BLACK BULLHEAD FILLET RME SCENARIO SITE Q POND
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Liver Effects			Neuro Effects			Vascular Effects			Immune Effects			Skin Effects			Eye Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
Pesticides																		
4,4'-DDT	8 23E-02		8 23E-02															
alpha-Chlordane	2 29E-03		2 29E-03															
Dieldrin	2 29E-01		2 29E-01															
PCBs																		
Total PCBs										**2.21E+01**		**2 21E+01**	**2.21E+01**		**2 21E+01**	**2.21E+01**		**2 21E+01**
Metals																		
Arsenic							2 97E-01		2 97E-01				2 97E-01		2 97E-01			
Manganese				3 48E-04		3 48E-04												
Mercury										1 90E-01		1 90E-01						
	3 13E-01		3 13E-01	3 48E-04		3 48E-04	2 97E-01		2 97E-01	**2.23E+01**		**2 23E+01**	**2.24E+01**		**2 24E+01**	**2.21E+01**		**2 21E+01**

Notes
D/R - Dose-Response
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
Bold values indicate an exceedence of the target hazard index of 1, or values that significantly contribute to an exceedence

TABLE N 21
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS RECREATIONAL FISHER BLACK BULLHEAD FILLET MLE SCENARIO SITE Q POND
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Liver Effects			Neuro Effects			Vascular Effects			Immune Effects			Skin Effects			Eye Effects		
Constituent	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**	**Ing**	**Inh**	**Total**
Pesticides																		
4 4' DDT	1 03E-02		1 03E-02															
alpha Chlordane	2 86E-04		2 86E-04															
Dieldrin	2 86E-02		2 86E-02															
PCBs																		
Total PCBs										2 76E+0)		2 76E+00	2 76E+00		2 76E+00	2 76E+00		2 76E+00
Metals																		
Arsenic							3 71E 02		3 71E 02				3 71E-02		3 71E-02			
Manganese				3 62E 05		3 62E 05												
Mercury										2 38E 0,'		2 38E-02						
	3 91E-02		3 91E-02	3 62E-05		3 62E 05	3 71E 02		3 71E 02	2 79E+0)		2 79E+00	2 80E+00		2 80E+00	2 76E+00		2 76E+00

Notes
D/R Dose-Response
Ing Ingestion
Inh Inhalation
MLE - Most Likely Exposure
NA Effect not additive
Neuro Neurological
PCBs Polychlorinated Biphenyls
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-22
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - CONSTRUCTION/UTILITY WORKER - RME SCENARIO - SITE Q NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec. Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs															
1 2-Dichloroethane											3 77E-01	3 77E-01	9 61E-04	3 77E-01	3 78E-01
4-Methyl-2 pentanone (MIBK)					1 68E-04	1 68E-04				5 23E-05		5 23E-05	5.23E-05		5 23E-05
Acetone										3 78E-05		3 78E-05	3 78E-05		3 78E-05
Benzene															
Chlorobenzene										3 19E-03	1 50E-02	1 82E-02			
Dichloromethane										8 90E-06	1 49E-05	2 38E-05			
Ethylbenzene					6 90E-04	6 90E-04				1.30E-05		1 30E-05	1 30E-05		1 30E-05
Tetrachloroethene	6 15E-04		6 15E-04							6 15E-04	1 72E-03	2 34E-03		1 72E-03	1 72E-03
Trichloroethylene										1 64E-03		1 64E-03			
Xylenes Total	4 85E-05		4 85E-05												
SVOCs															
2 4 6-Trichlorophenol															
2 4-Dichlorophenol															
2 4-Dimethylphenol							2 59E-04		2 59E-04						
2-Chlorophenol															
2-Nitroaniline								2 03E-04	2 03E-04						
3-Methylphenol/4-Methylphenol	4 81E-04		4 81E-04												
4-Chloroaniline															
4-Nitroaniline							1 94E-03		1 94E-03						
Naphthalene	5 53E-03		5 53E-03												
Nitrobenzene							2 87E-02		2 87E-02	2 87E-02		2 87E-02	2 87E-02		2 87E-02
Phenol	2 45E-04		2 45E-04												
Pesticides															
beta-BHC										1 03E-03		1 03E-03	1 03E-03		1 03E-03
Dieldrin										1 94E-03		1 94E-03			
Endrin Ketone										2 44E-04		2 44E-04			
Herbicides															
2 4-D							1 25E-01		1 25E-01	1.25E-01		1 25E-01	1.25E-01		1 25E-01
Pentachlorophenol										1 31E-01		1 31E-01	1 31E-01		1 31E-01
PCBs															
Total PCBs															
Metals															
Antimony							6 92E-03		6 92E-03						
Arsenic															
Barium					4 07E-02	4 07E-02							6 82E-03		6 82E-03
Cadmium													3 71E-03		3 71E-03
Manganese															
Nickel	1 15E-04		1 15E-04												
Zinc							1 37E-04		1 37E-04						
Total	7 03E-03		7 03E-03		4 15E-02	4 15E-02	1 63E 01	2 03E-04	1 64E-01	2 94E-01	3 94E-01	6 89E-01	2 98E-01	3 79E-01	6 77E-01

Notes
Dec Decreased
Develop - Developmental
D/R Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
NA Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-22
TOXIC ENDPOINTS FOR POTENTIAL NON
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Neuro Effects			GI Effects			Reproductive Effects			Vascular Effects			Dec. Longevity			Immune Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1 2-Dichloroethane					3 77E-01	3 77E-01												
4-Methyl-2-pentanone (MIBK)	5.23E-05		5.23E-05															
Acetone																		
Benzene																6 49E-03	2 22E-02	2 87E-02
Chlorobenzene																		
Dichloromethane																		
Ethylbenzene																		
Tetrachloroethene																		
Trichloroethylene		1 41E-03	1 41E-03															
Xylenes Total		5 81E-02	5 81E-02										4 85E-05		4 85E-05			
SVOCs																		
2 4 6-Trichlorophenol							**8.43E+00**		**8.43E+00**									
2 4-Dichlorophenol																**1.82E+00**		**1.82E+00**
2 4-Dimethylphenol	2 59E-04		2 59E-04															
2-Chlorophenol							2 58E-02		2 58E-02									
2-Nitroaniline																		
3-Methylphenol/4-Methylphenol	4 81E-04		4 81E-04															
4-Chloroaniline																		
4-Nitroaniline																		
Naphthalene																		
Nitrobenzene																		
Phenol																		
Pesticides																		
beta-BHC																		
Dieldrin																		
Endrin Ketone	2 44E-04		2 44E-04															
Herbicides																		
2 4-D																		
Pentachlorophenol																		
PCBs																		
Total PCBs																5 11E-01		5 11E-01
Metals																		
Antimony													6 92E-03		6 92E-03			
Arsenic										2 46E-03		2 46E-03						
Barium																		
Cadmium																		
Manganese	3 04E-04		3 04E-04															
Nickel																		
Zinc																		
Total	1 34E-03	5 95E-02	6 08E-02		3 77E-01	3 77E-01	**8.45E+00**		**8.45E+00**	2.46E-03		2 46E-03	6 97E-03		6 97E-03	**2.33E+00**	2 22E-02	**2.36E+00**

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the t

TABLE N-22
TOXIC ENDPOINTS FOR POTENTIAL NON
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Spleen Effects			Skin Effects			Eye Effects			Adrenal Effects			Skeletal Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs															
1 2-Dichloroethane					3 77E-01	3 77E-01									
4-Methyl-2-pentanone (MIBK)														1 68E-04	1 68E-04
Acetone															
Benzene															
Chlorobenzene															
Dichloromethane															
Ethylbenzene															
Tetrachloroethene															
Trichloroethylene															
Xylenes Total															
SVOCs															
2 4 6-Trichlorophenol															
2 4-Dichlorophenol															
2 4-Dimethylphenol															
2-Chlorophenol															
2-Nitroaniline															
3-Methylphenol/4-Methylphenol															
4-Chloroaniline	2 38E-02		2 38E-02												
4-Nitroaniline															
Naphthalene															
Nitrobenzene										2 87E-02		2 87E-02			
Phenol															
Pesticides															
beta-BHC															
Dieldrin															
Endrin Ketone															
Herbicides															
2 4-D															
Pentachlorophenol															
PCBs															
Total PCBs				5 11E-01		5 11E-01	5 11E-01		5 11E-01						
Metals															
Antimony															
Arsenic				2 46E-03		2 46E-03									
Barium															
Cadmium															
Manganese															
Nickel															
Zinc															
Total	2 38E-02		2 38E-02	5 14E-01	3 77E-01	8 91E-01	5 11E-01		5 11E-01	2 87E-02		2 87E-02		1 68E-04	1 68E-04

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
RME - Reasonable Maximum Exposure
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the t

TABLE N-23
TOXIC ENDPOINTS FOR POTENTIAL NONCARCINOGENIC EFFECTS - CONSTRUCTION/UTILITY WORKER - MLE SCENARIO - SITE Q NORTH
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Dec. Body Weight			Develop Effects			Blood Effects			Liver Effects			Kidney Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs															
1,2-Dichloroethane											1 11E-01	1 11E-01	4 78E-04	1 11E-01	1 11E-01
4-Methyl-2-pentanone (MIBK)					5 04E-05	5 04E-05				2 61E-05		2 61E-05	2 61E-05		2 61E-05
Acetone										1 89E-05		1 89E-05	1 89E-05		1 89E-05
Benzene															
Chlorobenzene										1 60E-03	4 50E-03	6 09E-03			
Dichloromethane										4 45E-06	4 46E-06	8 91E-06			
Ethylbenzene					9 20E-05	9 20E-05				1 91E-06		1 91E-06	1 91E-06		1 91E-06
Tetrachloroethene	2 78E-04		2 78E-04							2 78E-04	2 25E-04	5 02E-04		2 25E-04	2 25E-04
Trichloroethylene										7 82E-04		7 82E-04			
Xylenes Total	7 07E-06		7 07E-06												
SVOCs															
2 4 6-Trichlorophenol															
2 4-Dichlorophenol															
2 4-Dimethylphenol							1 29E-04		1 29E-04						
2-Chlorophenol															
2-Nitroaniline								3 75E-05	3 75E-05						
3-Methylphenol/4-Methylphenol	2 40E-04		2 40E-04												
4-Chloroaniline															
4-Nitroaniline							9 68E-04		9 68E-04						
Naphthalene	2 76E-03		2 76E-03												
Nitrobenzene							1 44E-02		1 44E-02	1 44E-02		1 44E-02	1 44E-02		1 44E-02
Phenol	1 23E-04		1 23E-04												
Pesticides															
beta-BHC										5 14E-04		5 14E-04	5 14E-04		5 14E-04
Dieldrin										3 80E-04		3 80E-04			
Endrin Ketone										1.22E-04		1 22E-04			
Herbicides															
2 4-D							6 27E-02		6 27E-02	6 27E-02		6 27E-02	6 27E-02		6 27E-02
Pentachlorophenol										6 54E-02		6 54E-02	6 54E-02		6 54E-02
PCBs															
Total PCBs															
Metals															
Antimony							1 11E-03		1 11E-03						
Arsenic															
Barium					5 54E-03	5 54E-03							9 95E-04		9 95E-04
Cadmium													8 58E-04		8 58E-04
Manganese															
Nickel	5 77E-05		5 77E-05												
Zinc							6 84E-05		6 84E-05						
Total	3 47E-03		3 47E-03		5 69E-03	5 69E-03	7 94E-02	3 75E-05	7 94E-02	1 46E-01	1 15E-01	2 62E-01	1 45E-01	1 11E-01	2 56E-01

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
SVOCs - Semivolatile Organic Compounds
VOCs Volatile Organic Compounds
Bold values indicate an exceedence of the target hazard index of 1 or values that significantly contribute to an exceedence

TABLE N-23
TOXIC ENDPOINTS FOR POTENTIAL NON-
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Neuro Effects			GI Effects			Reproductive Effects			Vascular Effects			Dec. Longevity		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs															
1 2-Dichloroethane					1 11E-01	1 11E-01									
4-Methyl-2-pentanone (MIBK)	2 61E-05		2 61E-05												
Acetone															
Benzene															
Chlorobenzene															
Dichloromethane															
Ethylbenzene															
Tetrachloroethene															
Trichloroethylene		2 81E-04	2 81E-04												
Xylenes Total		7 56E-03	7 56E-03										7 07E-06		7 07E-06
SVOCs															
2 4 6-Trichlorophenol							**4.21E+00**		**4.21E+00**						
2 4-Dichlorophenol															
2 4-Dimethylphenol	1 29E-04		1 29E-04												
2-Chlorophenol							1 29E-02		1 29E-02						
2-Nitroaniline															
3-Methylphenol/4-Methylphenol	2 40E-04		2 40E-04												
4-Chloroaniline															
4-Nitroaniline															
Naphthalene															
Nitrobenzene															
Phenol															
Pesticides															
beta-BHC															
Dieldrin															
Endrin Ketone	1 22E-04		1 22E-04												
Herbicides															
2 4-D															
Pentachlorophenol															
PCBs															
Total PCBs															
Metals															
Antimony													1 11E-03		1 11E-03
Arsenic										6 10E-04		6 10E-04			
Barium															
Cadmium															
Manganese	1 52E-04		1 52E-04												
Nickel															
Zinc															
Total	6 70E-04	7 84E-03	8 51E-03		1 11E-01	1 11E-01	**4.22E+00**		**4.22E+00**	6 10E-04		6 10E-04	1 12E-03		1 12E-03

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the tar

TABLE N-23
TOXIC ENDPOINTS FOR POTENTIAL NON
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS

	Immune Effects			Spleen Effects			Skin Effects			Eye Effects			Adrenal Effects			Skelatal Effects		
Constituent	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total	Ing	Inh	Total
VOCs																		
1,2-Dichloroethane								1 11E-01	1 11E-01									
4-Methyl-2-pentanone (MIBK)																	5 04E-05	5 04E-05
Acetone																		
Benzene	3 22E-03	4 92E-03	8 14E-03															
Chlorobenzene																		
Dichloromethane																		
Ethylbenzene																		
Tetrachloroethene																		
Trichloroethylene																		
Xylenes Total																		
SVOCs																		
2 4 6-Trichlorophenol																		
2 4-Dichlorophenol	9 07E-01		9 07E-01															
2 4-Dimethylphenol																		
2-Chlorophenol																		
2-Nitroaniline																		
3-Methylphenol/4-Methylphenol																		
4-Chloroaniline				1 19E-02		1 19E-02												
4-Nitroaniline																		
Naphthalene																		
Nitrobenzene													1 44E-02		1 44E-02			
Phenol																		
Pesticides																		
beta-BHC																		
Dieldrin																		
Endrin Ketone																		
Herbicides																		
2 4-D																		
Pentachlorophenol																		
PCBs																		
Total PCBs	1 17E-01		1 17E-01				1 17E-01		1 17E-01	1 17E-01		1 17E-01						
Metals																		
Antimony																		
Arsenic							6 10E-04		6 10E-04									
Barium																		
Cadmium																		
Manganese																		
Nickel																		
Zinc																		
Total	**1.03E+00**	4 92E-03	**1.03E+00**	1 19E-02		1 19E-02	1 17E-01	1 11E-01	2.28E-01	1 17E-01		1 17E-01	1 44E-02		1 44E-02		5 04E-05	5 04E-05

Notes
Dec - Decreased
Develop - Developmental
D/R - Dose-Response
GI - Gastrointestinal
Ing - Ingestion
Inh - Inhalation
MLE - Most Likely Exposure
NA - Effect not additive
Neuro - Neurological
PCBs - Polychlorinated Biphenyls
SVOCs - Semivolatile Organic Compounds
VOCs - Volatile Organic Compounds
Bold values indicate an exceedence of the tar

O

APPENDIX O

ASSESSMENT OF POTENTIAL LEAD EXPOSURES

APPENDIX O

ASSESSMENT OF POTENTIAL LEAD EXPOSURES

This appendix presents the risk assessment for lead Section O 1 presents the hazard identification for lead, Section O 2 discusses the exposure assessment for lead, Section O 3 presents the dose-response assessment for lead, Section O 4 presents the model for assessing potential exposure to lead in soil, Section O 5 presents the model for assessing potential exposure to lead in water Section O 6 presents the risk characterization for lead, and Section O 7 presents the conclusions References sited in this appendix are presented in Section 8 of the main text of this report

O.1 Hazard Identification

Lead was identified as constituent of potential concern (COPC) in combined soils (Sites O North, Q South, and S), shallow groundwater (Site O), and in the Site Q South Pond surface water in Section 3 2 of the main text of this report

O.2 Exposure Assessment

Section 5 1 2 of the main text of this report selects the receptors and media to be evaluated in the risk assessment A construction/utility worker is assumed to be exposed to both combined soil and shallow groundwater A trespassing teenager and a recreational fisher are assumed to be exposed to surface water in the Site Q Pond, which is located in Site Q South Therefore, incidental ingestion of soil in Sites Q North, Q South, and S and shallow groundwater in Site O associated with potential construction and/or utility repair were evaluated in the lead risk assessment for the construction/utility worker Incidental ingestion of surface water in the Site Q Pond was evaluated in the lead risk assessment for the recreational fisher and trespassing teenager

Following the models available for lead evaluation, potential exposure to lead in soil, groundwater, and surface water via dermal contact was not evaluated in this risk assessment. Construction/utility worker direct contact with groundwater may occur during soil excavation The trespassing teenager and the recreational fisher are assumed to contact surface water This potential exposure pathway is not expected to contribute significantly to the future construction worker, because of the limited body surface area in contact with groundwater (i e , hands and forearms), and the short duration of contact In addition, the potential absorbed dermal dose from lead in groundwater and surface water is expected to be negligible due to the low skin permeability constant of lead constituents in water (Kp = $4x10^{-6}$ cm/hr) USEPA (1992b) states that constituents with Kps less than 0 1 cm/hr are probably not important to consider for the dermal exposure pathway

Exposure assumptions derived for the Reasonable Maximum Exposure Scenario (RME) in Section 5 of the main text of this report were used to evaluate each receptor's potential exposure to lead

O.3 Dose Response Assessment

For many constituents associated with known or potential noncarcinogenic health effects, it has been demonstrated that there is a threshold for these effects. It is conventionally assumed for all such constituents that there is a dose below which no adverse effect occurs or, conversely, above which an adverse effect may be seen. For constituents with known or suspected carcinogenic effects, the underlying default assumption for regulatory risk assessment is that there is no threshold for effects. Thus, every dose, no matter how small, is assumed to pose some finite level of risk.

Because of the uncertainties in the dose-response relationship between exposure to lead and biological effects, it is unclear whether the noncarcinogenic effects of lead exhibit a threshold response. Therefore, a reference dose (RfD) for lead is not available. Although USEPA has classified lead as a B2 (probable human) carcinogen, no cancer slope factor (CSF) has been developed. Therefore, potential exposures to lead cannot be evaluated using the traditional methods of risk assessment.

The Technical Review Workgroup (TRW), convened by USEPA to evaluate the risk assessment of lead, assumes that there is a baseline blood lead concentration in the adult population of the United States. The TRW selected baseline blood lead concentration represents the best estimate of a reasonable central tendency value for women of child-bearing age without previous excessive occupational exposures (USEPA, 1996d). The TRW has developed potential baseline blood lead levels which are dependent on race. The recommended range is 1.7- 2.2 ug/dL. The conservative estimate of a baseline blood lead concentration of 2.2 ug/dL has been employed in this risk assessment. This is the value selected by TRW in the version of the adult lead model model obtained from the USEPA web-site.

It is assumed that there is a relationship between uptake of lead into the body and blood lead levels. A numerical value, called a biokinetic slope factor (BKSF), was assigned to represent the relationship between uptake of lead into the body and blood levels. The TRW recommended BKSF of 0.4 ug Pb/dL blood per ug Pb absorbed/day (USEPA, 1996d) is utilized in this risk assessment.

The absorption fraction (AF) is the fraction of lead in soil ingested daily that is absorbed from the gastrointestinal tract. The TRW (USEPA, 1996d) recommended value of 0.12 for absorption from soil has been employed in this risk assessment. This value is based on the assumption that the absorption factor for soluble lead is 0.2, and that the relative bioavailability of lead in soil compared to soluble lead is 0.6. The air lead absorption factor for lead of 0.32 recommended by Bowers et al., (1994), was utilized in this risk assessment. The TRW assumption that the absorption factor for soluble lead in water is 0.2 (USEPA, 1996d), was utilized in this risk assessment.

O.4 Estimating Potential Exposure from Lead in Soil

Lead is identified as a COPC in soil for the construction/utility worker. Soil lead exposures are estimated using the USEPA (1996d) Adult Lead Model. The model assumes that there is a baseline blood lead level in the adult population of the United States. It is assumed that there is a relationship between uptake of lead into the body and blood lead levels. The BKSF was assigned to represent the relationship between uptake of lead into the body and blood levels. The model predicts the geometric mean blood lead level of adult workers potentially exposed to soil at the site, and also predicts the 95th percentile blood lead concentrations among fetuses of adult workers. The model was developed using a sensitive adult receptor, which is a woman of childbearing age. The target blood lead level of concern is 10 ug/dL.

The following equation was used to predict the average expected blood lead level for a hypothetical future worker:

$$PbB_{adult} = \frac{PbS \times BKSF \times IR_{S,D} \times AF_{S,D} \times EF_{S,D}}{AT_{S,D}} + PbB_0$$

The 95th percentile blood lead concentration among fetuses of adult workers is then predicted by:

$$PbB_{fetal,0.95} = PbB_{adult} \times \left(GSD_i^{1.645} \times R\right)$$

where:

PbB_{adult}	=	Geometric mean of adult blood lead concentration (ug/dL)
PbS	=	Soil lead concentration (mg/kg)
BKSF	=	Biokinetic Slope Factor [(ug/dL) per (ug/day)]
$IR_{S,D}$	=	Soil ingestion rate (including soil-derived indoor dust) (g/day)
$AF_{S,D}$	=	Absorption fraction (same for soil and dust) (dimensionless)
$EF_{S,D}$	=	Exposure frequency (same for soil and dust) (days/year)
$AT_{S,D}$	=	Averaging time (same for soil and dust) (days/year)
PbB_0	=	Baseline blood lead concentration (ug/dL)
$PbB_{fetal,0.95}$	=	95th percentile blood lead concentration among fetuses of adult workers (ug/dL)
R	=	Fetal/maternal blood lead ratio (dimensionless)
GSD_i	=	Geometric standard deviation of blood lead concentration (dimensionless)

PbS, IR, EF, and AT were derived in Section 5 of the main text of this report. BKSF and PbB_0 were described in Section O.3 of this appendix. The remaining parameters are discussed below.

The Fetal/Maternal blood lead concentration ratio (R) is 0.9, and is the recommended value of the TRW (USEPA, 1996d).

The TRW (USEPA, 1996d) recommends values for the individual blood lead concentration geometric standard deviation (GSD_i) ranging from 1.8 to 2.3. The use of higher values is recommended for heterogeneous populations. Therefore, the higher default value of 2.3 presented in the version of the model obtained from the USEPA web-site has been used in this risk assessment.

The adult lead model guidance (USEPA, 1996d) does not recommend using the adult lead model for scenarios with exposure frequencies less than 1 day per week. The elimination half-time of lead in the blood of adults is approximately 30 days, and short exposure frequencies are expected to produce oscillations in blood lead concentrations associated with absorption and clearance of lead from the blood between each exposure event. Therefore. the lead model was not conducted for the MLE scenario due to the low (20 days/year) exposure frequency.

O.5 Estimating Potential Exposure from Lead in Groundwater and Surface Water

Lead is identified as a COPC in the shallow groundwater in Site O and in the Site Q Pond surface water. The USEPA Adult Lead Model (1996d) does not evaluate potential exposures to lead in water. However, a model for evaluating adult exposure to elevated levels of lead in multiple environmental media (air, soil, and water) is available from peer reviewed literature (Bowers et al., 1994). The model of Bowers et al., (1994) is based upon a biokinetic slope factor approach conceptually similar to that upon which the USEPA (1996) model is based. Therefore, the Bowers Model (Bowers et al., 1994) is used to evaluate potential exposures to lead in surface water.

Lead was identified as a COPC in shallow groundwater in Site O, but not in soils in Site O. As a conservative measure, potential construction worker exposures to lead in soil and excavation air were evaluated in addition to exposure to lead in shallow groundwater. Lead was identified as a COPC in surface water in the Site Q Pond. As a conservative measure, potential trespassing teenager and recreational fisher exposures to lead in sediment were evaluated in addition to exposure to lead in surface water. Excavation air exposure is not applicable to these receptors.

The adult lead exposure model of Bowers et al. (1994) also assumes that there is a baseline blood lead level in the adult population of the United States. It is assumed that the baseline blood lead level reflects typical exposure arising primarily due to lead in the diet. The model also incorporates ingestion and absorption rates specific to each potential exposure pathway. It is assumed that there is a relationship between uptake of lead into the body and blood lead levels. The BKSF represents the relationship between uptake of lead into the body and blood levels.

The following equation was used to predict the average expected blood lead level for a hypothetical construction worker:

$$PbB(ug/dl) =$$

$$PbB_{baseline}(ug/dl) + BKSF\frac{(ug/dl)}{ug/day} * [Uptake_{air}(ug/day) + Uptake_{soil}(ug/day) + Uptake_{water}(ug/day)]$$

BKSF and $PbB_{baseline}$ were discussed in Section O.3 of this appendix. The equations used to calculate uptake from air, soil and water are presented below:

- $$Uptake_{air}(ug/day) = \frac{AF_a(unitless) * IR_a(m^3/day) * C_a(ug/m^3) * EF(days)}{AT(days)}$$

- $$Uptake_{soil}(ug/day) = \frac{AF_s(unitless) * IR_s(g/day) * C_s(ug/g) * EF(days)}{AT(days)}$$

- $$Uptake_{water}(ug/day) = \frac{AF_w(unitless) * IR_w(L/day) * C_w(ug/L) * EF(days)}{AT(days)}$$

Where:

AF_a	=	Air Absorption Factor (unitless)
AF_s	=	Soil Absorption Factor (unitless)
AF_w	=	Water Absorption Factor (unitless)
IR_a	=	Air Inhalation Rate (m^3/day)
IR_s	=	Soil Ingestion Rate (g/day)
IR_w	=	Water Ingestion Rate (L/day)
C_a	=	Air Concentration (ug/m^3)
C_s	=	Soil Concentration (ug/day)
C_w	=	Water Concentration (ug/L)
EF	=	Exposure Frequency (days/year
AT	=	Averaging Time (days per year) (same as Exposure Frequency)

Ingestion rates, exposure frequencies, and media concentrations were discussed in Section 5 of the main text of this report. Absorption factors were discussed in Section O.3 of this appendix.

O.6 Risk Characterization

The risk characterization for lead consists of comparing the predicted blood lead levels from the models discussed above to the target blood lead concentration of 10 ug/dl.

Table O-1 presents predicted blood lead levels for the construction/utility worker potential exposure to lead in combined soils in Q (North), Q (South), and Site S. Predicted geometric mean blood lead levels for adult workers are not significantly elevated above baseline (2.2 ug/dl) and are well below the target blood lead level of 10 ug/dl for all three areas. Predicted 95th percentile blood lead levels among fetuses of adult workers are equal to or below the target blood lead level of 10 ug/dl for all three areas. The calculated probability that fetal blood lead levels exceed the target blood lead level of 10 ug/dl is 5% for Q (North), and 2.7% for Q (South) and Site S.

Table O-2 presents the predicted blood lead concentration for the construction worker potential exposure to lead in shallow groundwater, soil, and excavation air in Site O. As indicated in the table, the predicted blood lead level is not significantly elevated above baseline (2.2 ug/dl) and is well below the target blood lead level of 10 ug/dl.

Table O-3 presents the predicted blood lead concentration for the trespassing teenager potential exposure to lead in surface water and sediment in the Site Q Pond. As indicated in the table, the predicted blood lead level is not significantly elevated above baseline (2.2 ug/dl) and is well below the target blood lead level of 10 ug/dl.

Table O-4 presents the predicted blood lead concentration for the recreational fisher potential exposure to lead in surface water and sediment in the Site Q Pond. As indicated in the table, the predicted blood lead level is not significantly elevated above baseline (2.2 ug/dl) and is well below the target blood lead level of 10 ug/dl.

O.7 Conclusions

Based on the evaluation presented above for lead, predicted blood levels are not expected to rise significantly above baseline for a construction/utility worker, trespassing teenager, or a recreational fisher exposed to lead at Sauget Area 2. Therefore, no further action is required for lead at Sauget Area 2.

TABLE O-1
CALCULATION OF BLOOD LEAD CONCENTRATIONS - COMBINED SOIL - CONSTRUCTION WORKER REASONABLE MAXIMUM EXPOSURI
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINOIS

Exposure Variable	Description of Exposure Variable	Units	Site		
			Q North	Q South	S
PbS	Combined Soil lead concentration (average)	ug/g or ppm	1956.80	827.85	838 00
$R_{fetal/maternal}$	Fetal/maternal PbB ratio	--	0.9	0.9	0.9
BKSF	Biokinetic Slope Factor	ug/dL per ug/day	0.4	0.4	0.4
GSD_i	Geometric standard deviation PbB	--	2.3	2.3	2.3
PbB_0	Baseline PbB	ug/dL	1.8	1.8	1.8
IR_S	Soil ingestion rate (including soil-derived indoor dust)	g/day	0.1	0.1	0.1
$AF_{S,D}$	Absorption fraction (same for soil and dust)	--	0.12	0.12	0.12
$EF_{S,D}$	Exposure frequency (same for soil and dust)	days/yr	40	40	40
$AT_{S,D}$	Averaging time (same for soil and dust)	days/yr	365	365	365
PbB_{adult} (a)	**PbB of adult worker, geometric mean**	**ug/dL**	**2.8**	**2.2**	**2.2**
*** $PbB_{fetal,0.95}$ (a)**	**95th percentile PbB among fetuses of adult workers**	**ug/dL**	**10.0**	**7.9**	**7.9**
PbB_t	**Target PbB level of concern (e.g., 10 ug/dL)**	**ug/dL**	**10.0**	**10.0**	**10.0**
$P(PbB_{fetal} > PbB_t)$	**Probability that fetal PbB > PbB_t, assuming lognormal distribution**	**%**	**5.0%**	**2.7%**	**2.7%**

Notes.
(a) - Equation 1, based on Eq. 1, 2 in USEPA (1996).

$$PbB_{adult} = (PbS^{*}BKSF^{*}IR_{S+D}{}^{*}AF_{S,D}{}^{*}EF_S/AT_{S,D}) + PbB_0$$

$$PbB_{fetal,0.95} = PbB_{adult} * (GSD_i^{1.645} * R)$$

Source. USEPA, 1996. Recommendations of the Technical Review Workgroup for Lead for an Interim Approach to Assessing Risks Associated with Adult Exposures to Lead in Soil. Version date 8/14/01.

TABLE O-2
EVALUATION OF CONSTRUCTION WORKER EXPOSURE - REASONABLE MAXIMUM EXPOSURE TO LEAD IN SHALLOW GROUNDWATER (LOCATION AA-O-1)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINIOS

Parameter	Reasonable Maximum Exposure Construction Worker
Baseline Blood Lead Concentration (ug/dL)	2.2
Biokinetic Slope Factor (ug/dL per ug/day)	0 4
Inhalation - Excavation Air (based on Site O average soil concentration)	
Air Absorption Factor (unitless)	0 32
Air Inhalation Rate (m^3/day)	20
Air Concentration (ug/m^3)	0 000936
Uptake air (ug/day)	0 0007
Ingestion - Groundwater (AA-O-16)	
Water Absorption Factor (unitless)	0 2
Water Ingestion Rate (L/day)	0 005
Water Concentration (ug/L)	19
Uptake water (ug/day)	0 002
Ingestion Soil (average Site O Concentration)	
Soil Absorption Factor (unitless)	0 12
Soil Ingestion Rate (g/day)	0 1
Soil Concentration (ug/g)	15 6
Uptake soil (ug/day)	0 021
Calculated Blood Lead Concentration (ug/dl)	**2.21**

Notes
Target Blood Lead Level as Defined by OSHA for Adult Workers
a) Blood lead level of workers (male and female) intending to have children should remain below 30 ug/dL
b) OSHA allows 40 ug/dL as a "permissible" blood lead level in lead-exposed workers, below which no further medical monitoring or workplace intervention is required
The Centers for Disease Control has selected 10 ug/dl as the "level of concern" for young children Bowers et al (1994) suggest that while the CDC criteria for children were not developed for adults they may be useful as a screening technique for adults
USEPA (1996d) also recommends10 ug/dl as the target blood lead level

TABLE O-3
EVALUATION OF RECREATIONAL FISHER EXPOSURE
TO LEAD IN SURFACE WATER (SITE Q POND)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINIOS

Parameter	Reasonable Maximum Exposure Recreational Fisher
Baseline Blood Lead Concentration (ug/dL)	2 2
Biokinetic Slope Factor (ug/dL per ug/day)	0 4
Inhalation (Not Applicable)	
Ingestion - Pond Surface Water	
Water Absorption Factor (unitless)	0 2
Water Ingestion Rate (L/day)	0 01
Water Concentration (ug/L)	14
Uptake water (ug/day)	0 003
Ingestion Soil (Average sediment concentration)	
Soil Absorption Factor (unitless)	0 12
Soil Ingestion Rate (g/day)	0 1
Soil Concentration (ug/g)	48
Uptake soil (ug/day)	0 063
Calculated Blood Lead Concentration (ug/dl)	**2.23**

Notes
Target Blood Lead Level as Defined by OSHA for Adult Workers
a) Blood lead level of workers (male and female) intending to have children should remain below 30 ug/dL
b) OSHA allows 40 ug/dL as a "permissible" blood lead level in lead-exposed workers, below which no further medical monitoring or workplace intervention is required
The Centers for Disease Control has selected 10 ug/dl as the "level of concern" for young children Bowers et al (1994) suggest that while the CDC criteria for children were not developed for adults they may be useful as a screening technique for adults
USEPA (1996d) also recommends10 ug/dl as the target blood lead level

TABLE O-4
EVALUATION OF TRESPASSING TEENAGER EXPOSURE
TO LEAD IN SURFACE WATER (SITE Q POND)
HUMAN HEALTH RISK ASSESSMENT
SAUGET AREA 2 RI/FS
SAUGET, ILLINIOS

Parameter	Reasonable Maximum Exposure Trespassing Teenager
Baseline Blood Lead Concentration (ug/dL)	2.2
Biokinetic Slope Factor (ug/dL per ug/day)	0.4
Inhalation (Not Applicable)	
Ingestion - Pond Surface Water	
Water Absorption Factor (unitless)	0 2
Water Ingestion Rate (L/day)	0 005
Water Concentration (ug/L)	14
Uptake water (ug/day)	0.002
Ingestion Soil (Average sediment concentration)	
Soil Absorption Factor (unitless)	0 12
Soil Ingestion Rate (g/day)	0.1
Soil Concentration (ug/g)	48
Uptake soil (ug/day)	0.063
Calculated Blood Lead Concentration (ug/dl)	**2.23**

Notes:
Target Blood Lead Level as Defined by OSHA for Adult Workers:
a) Blood lead level of workers (male and female) intending to have children should remain below 30 ug/dL.
b) OSHA allows 40 ug/dL as a "permissible" blood lead level in lead-exposed workers, below which no further medical monitoring or workplace intervention is required.
The Centers for Disease Control has selected 10 ug/dl as the "level of concern" for young children Bowers et al. (1994) suggest that while the CDC criteria for children were not developed for adults they may be useful as a screening technique for adults.
USEPA (1996d) also recommends10 ug/dl as the target blood lead level.

P

APPENDIX P

GROUNDWATER ORDINANCES

ORDINANCE NO. 99-5

AN ORDINANCE PROHIBITING THE USE OF GROUNDWATER AS A POTABLE WATER SUPPLY BY THE INSTALLATION OR USE OF POTABLE WATER SUPPLY WELLS OR BY ANY OTHER METHOD

WHEREAS, certain properties in the Village of Sauget, Illinois, have been used over a period of time for commercial/industrial purposes; and

WHEREAS, because of said use, concentrations of certain chemical constituents in the groundwater beneath the Village may exceed Class I groundwater quality standards for potable resource groundwater, as set forth in 35 Illinois Administrative Code Part 620, or Tier 1 residential remediation objectives, as set forth in 35 Ill. Adm. Code Part 742; and

WHEREAS, the Village of Sauget desires to limit potential threats to human health from groundwater contamination while facilitating the redevelopment and productive use of properties that are the source of said chemical constituents;

NOW, THEREFORE, BE IT ORDAINED BY THE VILLAGE COUNCIL IN THE VILLAGE OF SAUGET, ILLINOIS:

Section One: Use of groundwater as a potable water supply prohibited.

The use or attempted use of groundwater from within the corporate limits of the Village as a potable water supply by the installation or drilling of wells or by any other method is hereby prohibited.

Section Two: Penalties

Any person violating the provisions of this ordinance shall be subject to a fine of up to $100.00 for each violation.

Section Three: Definitions.

"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, or any other legal entity, or their representatives, agents or assigns.

"Potable water" is any water used for human or domestic consumption, including, but not limited to, water used for drinking, bathing, swimming, washing dishes, or preparing foods.

Section Four: Repealer.

All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed insofar as they are in conflict with this ordinance.

Section Five: Severablity.

If any provision of this ordinance or its application to any person or under any circumstances is adjudged invalid, such adjudication shall not affect the validity of the ordinance as a whole or of any portion not adjudged invalid.

Section Six: Effective Date.

This ordinance shall be in full force and effect from and after its passage, approval and publication, as required by law.

INTRODUCED AND READ FOR THE FIRST TIME: October 12, 1999

READ FOR THE SECOND TIME:
(under suspension of rules): October 12, 1999

READ FOR THE THIRD TIME:
(under suspension of rules): October 12, 1999

ADOPTED AND ENACTED: October 12, 1999

ROLL CALL VOTE:
Ayes: Adels, McDaniel, Rich, Cates, Thornton, Sengel
Nays: NONE
Absent: NONE
Unfilled Vacancy:

APPROVED: October 12, 1999

APPROVED:

President (mayor) Pro Temore

ATTEST:

Village Clerk

ORDINACE No. 981

AN ORDINANCE PROHIBITING THE USE OF GROUNDWATER AS A POTABLE WATER SUPPLY BY THE INSTALLATION OR USE OF POTABLE WATER SUPPLY WELLS OR BY ANY OTHER METHOD

WHEREAS, certain properties in the Village of Cahokia, Illinois, have been used over a period of time for commercial/industrial uses; and

WHEREAS, because of said use, concentrations of certain chemical constituents in the groundwater beneath the Village may exceed Class I groundwater quality standards for potable resource groundwater, as set forth in 35 Administrative Code Part 620, or Tier 1 residential remediation objectives, as set forth in 35 Ill. Admin. Code Part 742; and

WHEREAS, the Village of Cahokia desires to limit potential threats to human health from groundwater contamination while facilitating the redevelopment and productive use of properties that are the source of said chemical constituents;

NOW, THEREFORE, BE IT ORDAINED BY THE VILLAGE BOARD IN THE VILLAGE OF CAHOKIA, ILLINOIS:

Section One: Use of groundwater as a potable water supply prohibited.

The use or attempted use of groundwater from within the corporate limits of the Village as a potable water supply by the installation or drilling of wells or by any other method is hereby prohibited.

Section Two: Penalties.

Any person violating the provisions of this ordinance shall be subject to a fine of up to $1,000.00 for each violation.

Section Three: Definitions.

"Person" is any individual, partnership, co-partnership, firm, company, limited liability company, corporation, association, joint stock company, trust, estate, political subdivision, or any other legal entity, or their representatives, agents or assigns.

"Potable water" is any water used for human or domestic consumption, including, but not limited to, water used for drinking, bathing, swimming, washing dishes, garden or lawn watering, or preparing foods..

Section Four: Repealer.

All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed insofar as they are in conflict with this ordinance.

Section Five: Severability.

If any provision of this ordinance or its application to any person or under any circumstances is adjudged invalid, such adjudication shall not affect the validity of the ordinance as a whole or of any portion not adjudged invalid.

Section six: Effective Date.

This ordinance shall be in full force and effect from and after its passage, approval and publication, as required by law.

ADOPTED: 6-06-2000
(Date)

Jessie Brown
(Village Clerk)

ADOPTED: 6-06-2000
(Date)

Michael King
(Mayor)

Officially published this 21st day of June, 2000.

STATE OF ILLINOIS)
)
COUNTY OF ST. CLAIR) SS
)
VILLAGE OF CAHOKIA)

CERTIFICATE OF VILLAGE CLERK

I, Jessie Brown, Clerk of the Village of Cahokia, St. Clair County, Illinois, do hereby certify that as such Village Clerk of the Village of Cahokia, Illinois, I am legal custodian and keeper of the journal of the proceedings of the Village of Cahokia Board of Trustees of said Village, and I do certify that the attached documents are true and faithful copies of said documents. I do further certify that the original of said documents are now remaining on file and of record in my said office.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of the Village of Cahokia, Illinois, the 6 day of June, A.D. ~~19~~ 200

Jessie Brown
Jessie Brown, Village Clerk
Village of Cahokia, Illinois

(SEAL)